Organic Farms in a Changing Policy Environment: Impacts of Support Payments, EU-Enlargement and Luxembourg Reform

Organic Farming in Europe: Economics and Policy
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Over the coming years, organic farms will be confronted by considerable changes in the economic and regulatory framework as well as in market conditions. This book provides a comprehensive quantitative analysis of the potential impact of the 2003 CAP reform, the adoption of the Common Agricultural Policy (CAP) in new member states, and possible market changes for organic products following EU Eastern enlargement. The authors combine the results of an extensive farm survey with detailed farm financial data and complex farm models, to assess the socio-economic impacts taking into account farmers' attitudes and adjustment strategies. Specific attention is paid to the policy dependency of organic farms under different policy and market scenarios.

The book is aimed at policy makers, the private sector, advisors, researchers and students in the field of economics and politics of organic farming.

The individual contributions in this publication remain the responsibility of the authors.

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Executive Summary

Organic farming is influenced in numerous ways by the economic and regulatory framework for agriculture in the European Union. Over the coming years, organic farms will be confronted by considerable changes in this framework as well as in market conditions. The adoption of the Common Agricultural Policy (CAP) in new member states, the 2003 CAP reform and possible market changes for organic products following enlargement in the context of the EU-25 will influence the level and composition of policy support and prices. Depending on the direction of these changes and the structure and situation of individual farms, this will present an opportunity or a threat and farmers will need to develop adjustment strategies to meet the new circumstances successfully.

The impact of these complex future changes, driven by accession, policy reforms and market developments, is difficult to anticipate. In this context and within the framework of the EU-funded research project 'Further Development of Organic Farming Policy in Europe with Particular Emphasis on EU Enlargement', the aim of this investigation is to gain deeper insight into the potential, partial and combined, effects on organic farms in eleven European countries (Austria, Denmark, Germany, Italy, the UK, Switzerland, the Czech Republic, Estonia, Hungary, Poland and Slovenia).

To this end, farm models are used to analyse the impacts on, and reactions of, farms in selected Western and Eastern European countries for different scenarios, building on farm accountancy and typical farm data and drawing on additional questions from a farm survey concerning farmers' behaviour and strategies.

Methodology

Assessment of the impact of the 2003 CAP reform and other policy scenarios on organic farms in the EU-15 and Switzerland was undertaken using the EU-FARMIS model. EU-FARMIS is a comparative-static, process-analytical programming model based on Farm Accountancy Data Networks (FADNs) with individual farm data being aggregated into farm groups. For this study, typical organic farm groups were generated on the basis of data from the EU FADN for the year 2002 for more than 400 organic farms. The policy impact analysis was supplemented by the modelling of comparable conventional farm groups, thus providing information on the development of the economic incentive for (re-) conversion.

As FADN data remains scarce in all the new member countries studied, especially in relation to organic farms, 'typical farms' were established and modelled for the year 2003 on the basis of the concept developed by the International Farm Comparison Network. For each new member state, two to six typical farm models were set up, depending on the structure and size of the organic farming sector in the countries selected. For the identification of farm adjustment strategies under changing policy and market environments, 'large/full panel' meetings were held in

all of the new member study countries. The following individuals participated in the workshops: at least one advisor/expert, the partner (acting as moderator), a translator, one scientist of the Federal Agricultural Research Centre team and four to eight interested farmers. The workshops began with a discussion of how the impacts of EU accession were perceived at farm level. This was followed by presentation of the preliminary modelling results of farm level economic impacts relating to adoption of the CAP and different market scenarios. Based on this information, likely adjustment reactions to the different scenarios at farm level were discussed in detail, until agreement was reached among the participants.

As a supplement and extension to the modelling analyses, a detailed survey of 50 organic farms was carried out in each of the eleven, in-depth study countries in order to investigate the organic farmers' assessment of organic farming policies, general agricultural policy reforms and different EU enlargement scenarios. Additionally, farm survey results provide the analysis with a deeper insight into production structures and conditions on organic farms and the policy-induced production adjustments in the eleven countries selected.

Scenarios

The baseline scenario relates to agricultural policy developments as they can be foreseen at the moment, i.e. the 2003 CAP reform for the EU-15 countries and adoption of the CAP in new member states. Changes in organic markets are explicitly excluded in the baseline scenario. The time horizon for this study is the year 2013, when the policy changes will be fully implemented. For the old EU member states, analysis of the impact of the 2003 CAP reform on organic farms is undertaken by comparing the situation after full implementation of the respective policies, with a reference scenario based on a continuation of current policy regimes (i.e. Agenda 2000) in 2013. For new member states, an analysis of the adoption of the CAP can be made by comparing the likely situation in 2013 with that under national pre-accession policies in the year 2003.

To incorporate the possible range of future circumstances, two very different scenarios were formulated for the development of organic markets over the next ten years. The first scenario assumes positive economic development in all sections of society in the new member states. Domestic demand for organic products will increase and only surpluses will be exported to the Western European countries, where prices for organic products will fall slightly. In the second scenario, the economies of new member states show a restrained development. Organic farming in the new member states becomes the supplier of raw products for Western European processors and consumers. The expansion of organic production – driven mainly by subsidies – in combination with low wages and production costs leads to a decline in prices for organic products in the old EU member states.

Pre-enlargement situation

As a basis for the subsequent assessment of the impact of future policy changes, the pre-enlargement situation of organic farms was investigated with respect to profitability and policy dependency.

Results of the farm survey, as well as from the analysis of FADN data and of typical farms, indicate that the economic situation of organic farms was generally satisfactory before EU enlargement. However, farmers in Eastern European countries gave a positive assessment of the economic situation less often than their Western European colleagues. In comparison with the West over the past five years, consistently fewer farmers in the East reported positive profits, on average. These results coincide with the analysis of FADN and typical farm data. A large proportion of Eastern European farmers showed lower but, in the majority of cases, positive profitability.

For the **Western European countries**, the income of organic farms was compared with that of comparable conventional farms:

- In all of the Western countries analysed, Farm Net Value Added per Agricultural Work Unit (FNVA/AWU) in 2001 was, on average, higher in organic farm samples than in the conventional reference samples. Variation within the samples was substantial, indicating the significant influence of farm and farm manager characteristics.
- There were differences in financial performance between farm types; however, these differences depend on the country and no specific farm type was notable overall.
- As in conventional farming, there is a clear correlation between FNVA/AWU and farm size. In general, when looking at the relative performance of farms of different sizes, there appeared to be no difference in comparison with conventional farming, and average FNVA/AWU was higher on organic farms in all size classes.
- On average, the profitability of organic and comparable conventional farming has developed along similar lines over the past few years, with the exception of Denmark, where profits from conventional farming seem to have been catching up in the most recent years for which time series data are available.

In analysing the profitability of typical organic farms in the **Eastern European countries**, no overall conclusions can be drawn regarding factors determining economic success. There are small farms performing well; the same holds true for medium-sized and large farms. Intensive arable farms (vegetables) are successful, as are the large-scale cereal producers. Organic dairy farmers appear to be most successful in Hungary and in Poland, whereas grazing livestock farms in the Czech Republic seem to perform rather well. Obviously, every farm pursues its own strategy aimed at enhancing profitability (e.g., intensification of vegetable production, increasing farm size in order to reduce production costs per unit, on-farm processing to keep added value on the farm). If the economic situation of the farm itself cannot be improved, sources of off-farm income are sought.

With regard to the importance of support payments in the financial situation of organic farms, the survey results show:

- Almost all of the farms surveyed received area payments for organic farming. However, approximately one-fifth of agricultural land on these farms was not receiving payments. The reasons for this include the non-eligibility of set-aside or permanent pasture, minimum criteria with respect to plot or farm size and lack of funding due to budgetary constraints.
- The majority of farmers indicated that support payments are ‘important’ or ‘very important’ to the economic situation on their farm. Organic farming payments are considered to be important for farm viability more frequently by farmers in new member states, than by those in the West.
- There are considerable differences in approval ratings between countries as regards the level of organic payments and, in general, Western farmers are more satisfied than those of the new member states.

Generally, the indicators for policy dependency show a great deal of variation between farms, depending not only on the payments received but also on the respective levels of gross output and profits which, in turn, vary with farm type and size. Consequently, a generalised comparison could only be made between **Western European countries**, where the large farm samples from FADNs allow aggregation across farms. The results show that:

- Both organic and conventional farms received substantial direct payments. In all countries, the share of total direct payments in gross output was higher for organic than for comparable conventional farms due to the greater importance of payments from agri-environmental programmes. The share of payments from the first pillar of the CAP in gross output was higher on conventional than on organic farms in nearly all countries.
- The share of extra support payments for organic farming in gross output was remarkably similar across countries, ranging from 4-6%. This indicates that, even though the absolute level of specific support to organic farms is high in some countries, the relative preference for organic agriculture is low. There are other agri-environmental programmes with high payment levels for which organic farms would be eligible, if the specific organic support measures did not exist.
- If measured as a percentage of Family Farm Income (FFI), the importance of specific support for organic farming is high in Germany and very high in the UK and Denmark, highlighting the vulnerability of the organic farms in these samples to changes in specific support policies.

- Even without the specific support payments for organic farming, FNVA/AWU would have been at least as high as in comparable conventional farms in all countries, except Germany. However, using FFI as an indicator of the actual farm income available for the remuneration of family factors, the income situation on organic farms in Denmark and the UK would deteriorate dramatically without specific organic support.

Comparing the importance of organic farming support before enlargement by farm type in **Western and Eastern European countries** shows that, for arable farms, specific support payments account for less than 5% of gross output in Italy and on the typical small organic farms in Poland and Hungary. Similarly, they make up more than 10% of gross output on organic arable farms in Denmark, on typical large organic arable farms in the Czech Republic and Hungary and on the typical small organic arable farm in Slovenia. By contrast, in most countries, the average share of payments in gross output is around 5% or less on dairy farms. For grazing livestock farms, the highest shares of payments in gross output are evident on upland farms in the UK, on one of the large typical farms in the Czech Republic and on the small Slovenian farm. The role of organic farming payments appears to be least important on Italian grazing livestock farms.

Farmers' expectations of EU enlargement

The potential impact of Eastern expansion is, as expected, assessed extremely differently by Western and Eastern organic farmers. While the Western European farmers have a relatively negative perception of expansion, Eastern European farmers react more positively to enlargement. Almost two-thirds of the Western European organic farmers and 40% of those surveyed in Eastern Europe felt that EU expansion would have a negative impact on agriculture overall. When asked about the effects of EU expansion on their own farm, a much more optimistic picture was drawn by the Western organic farmers. Although most were still of the opinion that Eastern expansion would have a negative impact, the proportion is significantly lower at 43%. Positive effects, e.g., in the form of new sales opportunities for their products, were identified by only 7% of all the Western European organic farmers surveyed. However, Eastern European organic farmers assess the impacts of expansion on their own farm about as positively as for organic agriculture overall in their countries. More than 60% of the Eastern European organic farmers expect positive effects for their farms, with three-quarters convinced that the enlarged market will send positive impulses to convert to organic farming in their countries.

Impacts of the 2003 CAP reform in EU-15 countries

The impacts of CAP reform on the production and organisation of farms were analysed on the basis of survey responses and the modelling exercise.

- At the time of the survey, most organic farmers saw no special need to adjust the organisation of their farm to the decoupling of payments.
- Of those farmers who planned adjustments on their farm following decoupling, the reduction or cessation of beef activities was mentioned most often. This outcome is confirmed by the modelling results which point to a decrease in bull and suckler cow numbers on organic farms in Austria, Denmark and the UK.
- With respect to the reforms in the dairy sector, assessments differ between countries and many farmers were still unsure of the consequences for their farm. Of the farms producing milk, 28% in Austria and 18% in Germany were considering giving up production. In contrast, many farmers, especially in Denmark, contemplated an increase in milk output.
- Both the farmers' responses and the modelling results show that the exemption of fully organic farms from obligatory set-aside will, in general, only result in a change of classification rather than an actual change in land use.

The income effects of CAP reform were evaluated through a comparison with income under Agenda 2000 policies.

- In Austria, in relative terms, CAP reform has either a more negative or less beneficial effect on organic rather than on comparable conventional farms, in all the farm groups analysed here. This can be attributed to the implementation of the Single Farm Payment on the basis of historical payments which retains the higher share of first pillar payments going to conventional farms.
- In Denmark, organic arable farms profit strongly from the redistribution of direct payments and income is projected to rise to levels which could possibly sustain these farms. Organic dairy farms also benefit more than comparable conventional farms from the increase in direct payments and, compared to the Agenda 2000 scenario, their income increases by 16-19%, while that of comparable conventional farms stagnates or even decreases.
- In Germany, the mostly extensive arable farms in the north profit from the reform, since leys, which were formerly unsupported, become eligible for the regional premium. However, as conventional farms benefit additionally from the fact that sugar beet area is eligible for the regional premium under CAP reform, the increase in the return for labour is higher on conventional than on organic arable farms. The reform has an entirely opposite impact on the incomes of organic and comparable conventional dairy farms. While the organic dairy farms benefit from the redistribution of direct payments due to their low ratio of dairy cows to fodder area, the

conventional dairy farms lose out as a consequence of the decreased producer prices for milk which, on these farms, is not fully compensated for by the regional premium.

- In the UK, CAP reform reduces the income of dairy and other grazing livestock farms under both farming systems. However, this reduction is relatively lower on organic farms which either lose less or benefit from the redistribution of direct payments in those parts of the country where the regional model has been implemented.

The importance of extra support payments for organic farming remains constant over the policy scenarios for most farm groups. Exceptions are arable and other grazing livestock farms in Austria and arable farms in Denmark, where dependency on this support decreases, and organic arable farms in Germany where the share of the extra support payments in income increases.

Impacts of the adoption of the CAP in new member states

EU accession has a marked effect on organic farmers in the new member states since all direct payments as well as production standards increase. Results from the farm survey indicate the following trends.

- Adjustments of the farm production system to new regulations in different areas (environment, hygiene, animal welfare standards) were generally cited as the most important issue, followed by increased bureaucracy.
- The proportion of farmers who said they do not know whether any adaptations will be required on their farms is relatively high (25% on average in all countries). Clearly, many farmers in most of the study countries have insufficient knowledge of the consequences of EU accession for their farm.
- A large share of the farmers interviewed stated that adjustments at the farm level would be made when payments increased. Most frequently, this would involve investments in machinery and equipment, increases in farm size and the introduction of new production activities.

In summary, the results of workshops with farmers from typical organic farms show that pronounced changes in the policy framework may actually have only a minor impact on farm production structures. It was suggested that additional finance arising from increased payments will be used for the investments needed to comply with increased production standards after EU accession, or for replacement of machines or renovation of buildings. Spending for private purposes, such as on children's education, was also reported. Far-reaching adjustments at farm level were relatively uncommon, perhaps as the result of lack of confidence in the receipt of payments.

- The income of typical organic farms already showed wide diversity in 2003, so that no general conclusions regarding the economic superiority of one particular farm type can be drawn in the comparison between countries. However, the Hungarian dairy farms and most of the Czech cow-calf farms appear to perform best.

- On all typical organic farms in the Eastern European study countries, 'Family Farm Income plus Wages per Agricultural Work Unit' (FFI+W/AWU) increases markedly between 2003 and 2005. Income also increases further up to 2013. Compared with their colleagues in other new member states, typical organic farmers in the Czech Republic and Estonia and dairy farmers in Hungary gain the most from accession in economic terms.
- Agricultural payments, as well as the share of total payments in gross output, increase in all of the typical farms after EU accession. Although, in 2003, organic farming payments are the most important payments for typical organic farms in Poland and Slovenia, and for typical arable farms in the Czech Republic and Hungary, payments other than for organic farming will show a higher contribution to gross output in 2013 for all the farms analysed.
- The share of total payments in gross output is highest for Czech farms, particularly for the cow-calf farms (about 50% in 2003, 60-70% in 2005 and about 70% in 2013), while it is lowest for typical Polish organic farmers (less than 10% in 2003, about 20% in 2005 and about 25% in 2013).
- The importance of organic farming payments in farm returns increases between 2003 and 2013 for typical Estonian, Polish and Slovenian farmers. In the Czech Republic and in Hungary, the development of the share of organic farming payments in gross output depends on the farm type.

Impacts of different market scenarios

Two different scenarios were defined to cover the possible future developments of the organic market in the enlarged European Union. Their impact on the production and income of organic farms was analysed using results from the farm survey and the modelling exercises.

For farmers in the **EU-15 countries and Switzerland**, the two market scenarios translate into a moderate (Scenario 1) and strong (Scenario 2) decrease in the organic prices for selected product groups. For each product group and scenario, farmers were asked in the farm survey whether they would adjust the organisation of their farm in response and, if so, what kind of changes they would implement.

- Generally, most farmers indicated that they would not react to a moderate price decrease or they would try to compensate by reducing production costs, increasing marketing activities for the particular product or looking for alternative production activities. There are exceptions in the case of fruit and vegetable growing, where farmers would react rapidly to even a moderate fall in prices, and beef production, where the impact of the price decrease is amplified by the decoupling of direct payments already in place.

- In contrast, if faced with a strong price decrease, many farmers would cease the particular production activity or even re-convert to conventional farming, or close their farm. The scope for compensatory measures, such as rationalisation or an intensification of marketing, is reduced under these extreme price conditions. Consequently, farmers start looking for alternatives such as agri-tourism and off-farm income.
- While falling grain prices would lead to a reduction in the on-farm production of feed cereals, farmers' responses also indicate that the currently high price level for organic feed grains is a major obstacle to organic livestock production. Many farmers would increase pork and poultry output in response to lower feed prices and, in addition, beef (mainly in the UK) and milk (Denmark) production would expand.
- An increase in the availability of seasonal labour would increase or initiate activities on arable and mixed farms, mainly with regard to vegetable production. Additionally, direct marketing activities would be intensified in some countries.

The EU-FARMIS model was used to look at the impacts of the market scenarios on production and especially on income for typical organic farm groups in the EU-15 countries.

- The results indicate that the reduction in cereal output will be much stronger on those farms which are not specialised in growing cereals, while arable farms often have fewer alternatives to cereal-growing at least in the short run. The total decline in beef production appears to be quite limited since a considerable share of beef output arises from dairy cull cows, the number of which is not affected in either scenario. The greater sensitivity of beef production to further price decreases in those countries which implemented a full decoupling in the beef sector, i.e., Germany and most of the UK, is clearly visible.
- The impact of the market scenarios on farm income is dependent on the farm type. Despite the decrease in beef prices, dairy farms are barely affected due to the relatively low importance of beef revenues in total farm results and the high share of beef sold at conventional prices which effectively reduces the relevance of changes in organic beef prices for the average farm. In contrast, the return for labour on arable farms is significantly reduced in all countries. In Scenario 2, the organic arable farms, in Denmark and Germany in particular, face severe financial consequences which could endanger the viability of many farms.
- For most of the typical farm groups analysed, the degree of (in-) dependency, in terms of the extra support payments for organic farming, is not greatly influenced by the market scenarios. Exceptions are the arable farms in Denmark and Germany, and more especially, the group of arable farms in Southern Germany.

For farmers in the **new member states** the two scenarios defined imply almost opposite organic market developments compared with the farmers in the EU-15. Scenario 1 assumes a strong increase in organic prices for the most important product groups, whereas under Scenario 2 the prices for crop products would decrease and beef prices would increase moderately. As typical organic farms in the new member states are affected differently by the two organic market scenarios, they would react in various ways, depending on country, farm type and other factors.

- Most reactions to Scenario 1 can be found among typical arable farms in the Czech Republic, Estonia and Hungary. These farms would respond by expanding crop production. The typical dairy farms in the Czech Republic and Estonia and two of the typical dairy farms in Poland would react by increasing their size of dairy herd. Changes in farm production structure are limited, particularly among typical cow-calf farms.
- Adjustments of production structure under Scenario 2 are less frequent than under the optimistic market Scenario 1. Arable farms, which would be heavily affected, react mostly by reducing production while in the dairy sector, production changes are few. This is also the case for cow-calf farms.
- In response to market changes under both scenarios, many farmers would invest in different ways on their farms, thus improving farm viability and competitiveness in the long run.

With respect to income effects the results for typical organic farms in the new member states can be summarised as follows:

- In most cases, as was to be expected, typical organic farms achieve the highest income under Scenario 1, which implies increasing prices for most organic products in the new member states.
- The development of the economic situation for typical organic farms under Scenario 2 is much less clear. Generally, the increase of FFI/AWU is less in Scenario 2 than in Scenario 1, in comparison with the baseline. Arable farms produce worse results under Scenario 2 compared with the baseline, as crop prices will fall. Dairy farms (stable organic milk prices) and cow-calf farms (prices for organic beef increase slightly) that purchase feed concentrates or employ paid labour benefit under Scenario 2, compared with the baseline.
- Comparing the share of total payments in gross output between the Eastern European study countries, it can be concluded that the level is highest for all farm types in the Czech Republic, independent of the development of organic markets, while it is lowest for typical Polish farms.
- With shares of organic farming payments in Family Farm Income plus Wages (FFI+W) higher than 20%, the majority of typical organic farms in the new member study countries is highly vulnerable to changes in organic farming policy, almost independent of the future development of organic markets.

Concluding remarks

Differences between countries in the development of farm income are likely to affect the international competitiveness of organic farms.

Organic market shares might therefore be distributed quite differently in the future in comparison with today.

However, the extent of this will depend strongly on differences in the payment schemes between countries, as support payments will continue to play an important role in the profitability of organic farms in EU-15 after implementation of the 2003 CAP reform. For organic farmers in Eastern European countries, the importance of support payments increases strongly, as first pillar payments are introduced and environmental payments are expanded significantly.

Marked differences in the absolute levels of support – referring not only to organic farming payments – remain for organic farms in different countries and these may significantly influence the competitiveness of organic farms on international markets. As (organic farming) payments cover a part of production costs, ceteris paribus, farmers receiving relatively high payments can offer their products at lower prices. In addition, the payments may foster investments in production technology thus improving productivity and, possibly, also quality. Organic farms benefiting from more generous support will therefore be able to gain market shares at the international level.

Another important issue concerns changes in competitiveness relative to the conventional farming systems within countries.

- In the EU-15, decoupling will increase the incentive to convert to organic farming. However, it is far from obvious whether this increase will be higher under the regional or the historical implementation scheme. A comprehensive analysis is required, taking into account the development of the relative profitability of options other than conversion, land prices and the value of payment entitlements. In this respect, a further important outcome of the study is confirmation that high organic payment levels do not, automatically, imply a strong preference for this farming system, since there are often attractive, competitive, non-organic schemes within agri-environmental programmes which reduce the incentive for conversion.
- In the new member states, increasing organic payments have created additional incentives for farms to convert. As first pillar payments were introduced at the same time, however, the relative importance of organic farming payments has declined.

Policy and market changes over the next ten years will be considerable and will develop dynamically, making the prescription of strategies for farmers and policy makers difficult, if not impossible. In addition, the survey indicates that farmers themselves, in many cases, have not yet fully assimilated even the most immediate changes resulting from policy reform and accession and that, therefore, adjustments will lag behind and will be decided upon during the coming years.

- For policy makers, it is therefore important to monitor the developments and profitability of organic farming continuously, in order to be able to adjust policy conditions (e.g. second pillar measures) if unwanted effects occur.

- For research, this presents the challenge of improving the ex-ante forecast of policy and market impacts on organic farming, a task rendered even more difficult by the fact that little is known about the behavioural and cyclical performance of small, but complex, sectors like that of organic production.

This report has analysed different scenarios for the year 2013, always assuming that second pillar measures would continue to be offered in a manner which is largely unchanged from today. However, three years after a CAP reform that aimed at strengthening the second pillar, it emerges that budget constraints will severely constrain the possibilities of maintaining current support levels in many countries. In addition, in view of the changes to first pillar support under CAP reform, there is already intensive discussion as to whether the level of second pillar measures needs to be lowered in order to account for the changes in relative profitability, especially in countries which have implemented payments on a regional basis. The respective consequences for the profitability of organic farming in different countries could be substantial and should be monitored closely.

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Abbreviations

AT	Austria
AWU	Agricultural Work Unit
BSE	Bovine Spongiform Encephalopathy
CAP	Common Agricultural Policy
CEE	Central and Eastern Europe
CH	Switzerland
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EU	European Union
EUR	Euro
FADN	Farm Accountancy Data Network
FFI	Farm Family Income (see also Box 5, page 38)
FFI+W	Farm Family Income plus Wages (see also Box 5, page 38)
FNVA	Farm Net Value Added (see also Box 5, page 38)
FWU	Family Work Unit
GO	Gross Output (see also Box 6, page 39)
ha	Hectare
HU	Hungary
IT	Italy
LFA	Less Favoured Area
LU	Livestock Unit
NMS	New Member States
NUTS	Nomenclature Unites Territioriales Statistiques
PL	Poland
RDP	Rural Development Plan
SAPS	Simplified Area Payment Scheme
SFP	Single Farm Payment
SI	Slovenia
UAA	Utilisable Agricultural Area
UK	United Kingdom

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1 Introduction

Organic farming is influenced in numerous ways by the economic and regulatory framework for agriculture in the European Union. Over the coming years, organic farms will be confronted by considerable changes in this framework as well as in market conditions. The adoption of the Common Agricultural Policy (CAP) in new member states, the 2003 CAP reform and possible market changes for organic products following EU Eastern enlargement will influence the level and composition of policy support and prices. Depending on the direction of these changes and the structure and situation of individual farms, this will present an opportunity or a threat and farmers will need to develop adjustment strategies to meet the new circumstances successfully.

The impact of these complex future changes, driven by accession, policy reforms and market developments, is difficult to anticipate. In this context, the aim of this investigation is to gain deeper insight into the potential, partial and combined, effects of actual and future changes in agricultural policy and markets on organic farms in selected European countries. Specifically, this study seeks to assess the socio-economic impacts of the 2003 CAP reform on organic farms in old EU member states and the impacts of EU accession on organic farms in new member states, aiming to compare the developments on organic farms in Western and in Eastern European countries and to contrast these with the developments on conventional farms. Specific attention is paid to the policy dependency of organic farms under different policy and market scenarios. The investigation aspires to explicitly reflect farmers' attitudes and expectations of the post-enlargement future in the analyses and interpretation.

To this end, farm models are used to analyse the impacts on, and reactions of, farms in selected Western and Eastern European countries for different scenarios, building on farm accountancy and typical farm data and drawing on additional questions from a farm survey concerning farmers' behaviour and strategies. The study covers the old EU member states: Austria, Denmark, Germany, Italy and the UK, and the new member states: the Czech Republic, Estonia, Hungary, Poland and Slovenia; and also Switzerland, as a non-EU-country.

The book is structured as follows. Firstly, a detailed description is given of the different data sources and methodologies which were used and combined for this analysis, since a comprehensive understanding of their characteristics is vital for interpretation of the results. This is followed by an overview of the pre-enlargement financial situation and policy dependency of organic farms in all the countries included in the study which, together with a look at farmers' fears and expectations concerning EU enlargement, provides the background for subsequent analyses (Chapter 3). Chapter 4 examines the impact of the 2003 CAP reform on the production and incomes of organic and comparable conventional farms in selected EU-15 countries, as well as the impact of EU enlargement and adoption of the CAP on typical organic farms in selected new member states, drawing on farmers' assessments and planned adjustments as well as on modelling results. The next chapter then examines the implications of different scenarios for the future development of the market for organic products in an enlarged EU, detailing farmers' reactions and the resulting impacts on production and incomes. The investigation closes with some concluding remarks.

2 Material and methods

In view of the multiple objectives of this study, it is clear that no single data source exists which is able to provide all the necessary information. For instance, farm accountancy data are very useful in determining the importance of support payments for profits but do not provide information on farmers' plans and attitudes, which can be investigated through detailed interviews. Furthermore, neither one of these approaches is sufficient, by itself, to comprehensively assess the future development of organic farms under changing policy environments.

Against this background, this chapter describes the different data sources and methodologies which were used and combined for the purposes of this analysis.

First, the scope of Farm Accountancy Data Networks (FADNs) for the analysis and modelling of the performance of organic farms is explored. This is followed by presentation of an alternative approach for countries where organic accountancy data are scarce. Subsequently, the design and implementation of an extensive survey of organic farmers in the countries studied is described, the results of which serve to substantiate the modelling approaches used as well as provide information on farmers' perceptions and future strategies. The last section of this chapter will introduce and discuss different indicators for the measurement and evaluation of profitability and policy dependency of organic farms.

2.1 Farm accountancy data

Many studies analysing the impact of policies on farms rely on FADNs as the primary database (see, e.g., Arfini 2006). The aim of these networks is to gather accountancy data from farms for the determination of incomes and business analysis of agricultural holdings. General strengths of a FADN include

- coverage, e.g., the EU FADN covers approximately 60 000 holdings, representing more than 90% of total agricultural production in the Union. Farms are sampled according to a selection plan that guarantees representativeness.
- continuity, as the FADNs usually contain a similar data structure over many years.
- content, e.g., the EU FADN provides information on more than 2 000 variables with respect to financial data as well as with respect to physical input and output data.

The use of FADNs also enables stratification of results by farm type as well as the selection of comparable conventional farms.

2.1.1 Representation of organic farms in Farm Accountancy Data Networks

The EU FADN is, in principle, the first choice for comparative international analysis based on farm accounts, as it covers all EU member states using harmonised definition and database structures. For this study, however, the value of the EU FADN was somewhat reduced for a number of reasons. Firstly, at the time of the analysis, the latest EU FADN data available referred to the 2002 accounting year[1] which meant that no farms from the new member states were included. Secondly, a code that allows the identification of organic farms in the sample was not added until the year 2000, thus reducing the scope for analysing trends. Thirdly, for confidentiality reasons, results may be published only for samples containing at least 15 farms. This often limits the possibilities for detailed analyses by farm characteristics such as type, region or size, due to the comparatively small number of organic farms in the EU FADN (Table 2-1).

Table 2-1: Number of organic farms in the EU FADN 2002

	All	Field crops	Wine	Permanent crops	Milk	Grazing livestock	Mixed
Austria	288	28			176	52	22
Belgium	21						
Germany	254	75			74	18	67
Denmark	74	19			42		
Spain	155	122		26			
Finland	57				19	15	
France	67						
Italy	666	116	17	76	90	291	73
Netherlands	49	19			22		
Portugal	30						
Sweden	60				25		
UK	34					16	

Only samples with at least 15 farms are shown.

Source: FADN-EU-DG-AGRI/G3.

The representation of organic farms in national FADNs or similar databases is often significantly better and covers more years. An overview of such representation in the national FADNs available for this study is provided in Table 2-2. With the exception of the UK, where data were available only for the year 2001, the availability of data for organic farms was good in the Western European countries analysed in this report. Generally, the analysis is based on significantly more than 100 farms for five to eight consecutive years, thus allowing further

[1] The actual time period covered differs by member state, as accounting years are defined according to national standards. See European Commission (2006) for details.

stratification and analysis of developments over time. The FADN data available for the UK covered only England and Wales and was supplemented by survey data for 36 farms located in these regions for the years 1996-1998, based on work by Fowler et al. (2000).

Table 2-2: Representation of organic farms in national FADNs and similar databases available for this study

	AT	CH	DE	DK	IT	UK
1996		119	206	65		36
1997		180	230	97	203	36
1998	435	291	227	131	249	36
1999	460	320	204	149	611	
2000	458	339	233	203	913	
2001	418	322	263	263	1142	127
2002	420		316	286		
2003			340			

Source: National FADNs.

Obviously, time series for the development of the performance of organic farms are more valuable than single-year snapshots. For FADN-based analyses, however, changing samples over the years, with some farms being dropped from the survey and others being added, must be taken into account. This issue is exacerbated in the case of organic farming, as the number of organic farms has increased and is often still increasing quite significantly. The development of average results, therefore, provides an insight into the average income situation of the current sample – changes in the situation, however, cannot easily be attributed to changes in the political or market environment as they might also be due to changes in the samples. For such causal analyses, time series for identical farms are a much more promising approach. Therefore, for this project, in addition to the full set of organic farms, a reduced set of farms, identical over time, was extracted from the databases.

From the complete set of farms in the FADN, only those farms were selected which were represented in the database in all years (time period depending on country, see Table 2-3). All in-conversion farms and all farms which had changed from conventional to organic (or vice versa) during the respective time period were eliminated. Time series for identical farms were available for Austria, Germany, Italy and Switzerland (Table 2-3).

Table 2-3: Availability of time series data for identical farms

	Years	Number of farms
AT	1998-2002	214
CH	1996-2001	22
DE	1996-2002	84
IT	1997-2001	52

Source: National FADNs.

2.1.2 The concept of comparable conventional farms

In order to provide insight into the relative performance of organic farms and to allow an evaluation of policy impacts on the relative competitiveness of organic farming, a comparison with similar conventional farms was made. The underlying purpose was to determine what profit the organic farms would make if they were managed conventionally. In this project, an approximation to this hypothetical situation was undertaken by using comparable conventional farms from a FADN database as a reference. Since many farm characteristics are influenced by the farming system, the choice of indicators for the selection of comparable conventional farms had to be restricted to 'non-system determined' factors (Offermann & Nieberg 2000). This often severely limits the number of indicators that can be used, especially as information on natural production conditions is generally sparse in farm accounts.

In several countries (Austria, Denmark, Germany and Switzerland), comparisons of organic and similar conventional farms are published regularly as part of national statistical series or agricultural yearbooks. However, the selection variables used in national FADN income comparisons often differ (Offermann 2004), sometimes because of differences in data availability (e.g., soil index is available only in some national FADNs) and sometimes due to the different assessment of indicators as non-system determined. In addition, the matching procedures used are quite diverse, e.g., some studies match groups, ensuring only that group averages are similar; most studies, however, look for matches for individual organic farms. Some approaches use single 'partner' farms (paired matching) whereas others select a group of comparable farms for each organic farm. There are also differences in the definition of 'similarity': some studies use an aggregated measure which allows the ranking of conventional farms according to similarity, while other studies use minimum similarity criteria, meaning that all conventional farms which fulfil the criteria are used. These differences make comparisons across countries difficult. As the methodological approach may even vary within a single country for different years, the correct interpretation of changes in relative profitability over time can also be a problem. Therefore, for this project, a harmonised methodology for the selection of comparable conventional farms was developed and tested.

2.1.2.1 Methodology

The selection of comparable conventional farms requires individual farm level data. Since access to this data is restricted by data protection regulation, selection was carried out by project partners and subcontractors with privileged access rights to national databases. As a consequence, a guideline for the harmonisation of income comparisons between organic and conventional farms has been developed for this project (see Box 1).

The purpose of the guideline is to ensure a common approach to the selection of comparable conventional farms in all countries while, at the same time, providing enough flexibility to allow for adaptation in specifying indicators according to national circumstances and data availability. The guideline for the definition of selection criteria is supplemented by a description of the technical procedure for the creation of the samples (see Box 2).

Box 1: Guidelines for the selection of comparable conventional farms

How to select comparable conventional farms?

The guideline identifies four areas which need to be covered by the selection variables:

1. Comparable conventional farms should have similar natural production conditions.

   Indicators could, for example, include:

   - indicators on soil and climate (e.g., an index for the yield potential of agricultural land)
   - altitude
   - Less Favoured Area status

2. Comparable conventional farms should be located in the same 'region'.

   Farms located in the same region help to ensure similarity of production conditions (i.e., natural conditions, market distance, institutional and policy framework, etc.). Definition of 'region' needs to be appropriate[a] and depends on availability of indicators of farms' natural production conditions (if there are few indicators in the database, then 'region' should refer to smaller geographical entities, i.e., a higher number of 'regions' needs to be defined).

   [a] In Switzerland and Austria, for example, 'region' often refers to production zones related to locations in the mountains (e.g., flatland/hills/alpine). In Germany, 'Bundesland' may be an appropriate regional differentiation, as agri-environmental programmes differ significantly between the 'Bundesländer'.

(continued on next page)

Box 1: (continued)

3. Comparable conventional farms should have a similar endowment with production factors.

   Selection of production factors covered is guided by ex-post observations.[b]

   Indicators could, for example, include:

   - land (ha UAA; may need to be further refined to distinguish permanent grassland; orchards)
   - quotas (milk)

   [b] In Germany, for example, organic farms often sell/lease their sugar quotas, so sugar quota does not need to be similar; however, in Germany, milk quotas available to the farm are usually completely used for own production and represent an important relatively 'fixed' production factor. Analyses of organic and comparable conventional farms in Germany indicate that the development of quotas is similar in both farming systems.

   Similarity can generally be defined:

   - as an aggregate indicator of similarity, e.g., Euclidean distance
   - by maximum limits of deviation (ranges) for each indicator.

   For this project, using pre-defined ranges is the preferred option. Ranges are defined by an allowable percentage deviation from the value for the respective organic farm (e.g., +/- 20%); optionally combined by a logical 'or' with absolute ranges to prevent small absolute values from excluding too many farms from the sample (e.g., a farm's area is similar if it **either** does not differ more than 20% **or** if it does not differ more than 5 ha from the area of the respective organic farm).

4. Farm type should be identical.

   Farm type is problematic as it may change due to conversion; also farm type is determined on the basis of conventional SGM (standard gross margin) which may distort results.

   Nevertheless, farm type is seen as an important aggregate indicator of resources and production conditions and therefore, in general, the principal farm type should be identical. The farm survey also showed that only 13% of the farms have changed their main focus of production following conversion. A general exception to this rule may be necessary for organic mixed farms, for which comparable conventional farms can be mixed, arable, dairy or grazing livestock farms (as conversion of any of these may lead to a mixed organic farm due to the greater diversification on organic farms).

The guideline for the definition of selection criteria is supplemented by a description of the technical procedure for the creation of the samples (see Box 2).

Box 2: Technical procedure for the selection of comparable conventional farms

How to set up samples of organic and comparable conventional farms?

1. Creation of two samples from FADN data: Sample O (organic farms); Sample C (conventional farms)

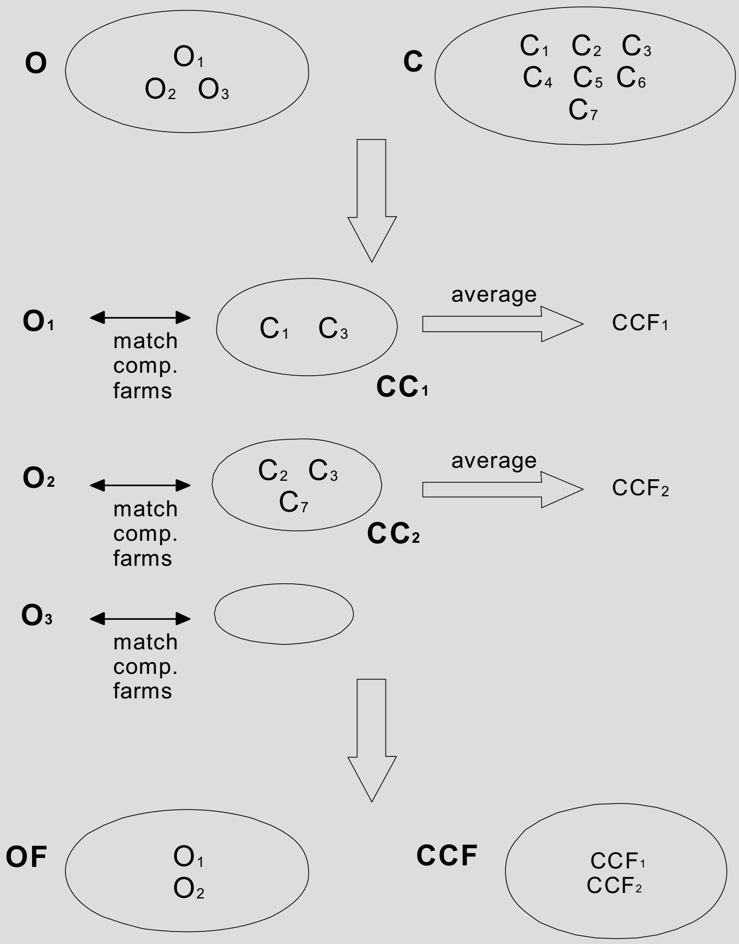
2. For each farm of Sample O, a sample of comparable conventional farms CCi is selected from Set C. To avoid distortions, Set CC must be weighted for further analysis. This is done by calculating the average of the sample CCi to get a single ('artificial') comparable conventional farm CCFi for each organic farm (alternatively, weights $1/N_{CCi}$ can be assigned to each of the conventional farms in set $CC_{i.}$ Set CCF is the weighted set CC.).

   This procedure implies that a conventional farm from Set C can be a member of more than one Set CCi.

3. To arrive at Set OF, all farms for which no comparable conventional farm could be selected are eliminated from Set O.

Sets CCF and OF constitute the basis for further comparative analysis.

The technical approach to extracting organic and comparable conventional farms for further analysis is illustrated below.



2.1.2.2 Results of the selection

Despite a harmonised approach to their identification, the selection criteria finally used in individual countries were quite diverse and reflect large differences in national circumstances and data availability (Table 2-4). With the exception of Italy, the indicator for site conditions was relatively detailed in all countries, showing that this was assigned a large weight within the compound definition of 'comparability'. In Italy, the very high number of regions used for the selection compensates for the less detailed definition of the site indicator. With respect to production factors, similar endowment with land was used as a selection criterion in all countries, as was milk quota, with the exception of Italy where organic dairy farming is not as important as in the other countries. The treatment of farm type was also diverse. A rather broad approach differentiating three to five main farm types was used in Germany and Denmark, reflecting observations in these countries that specific production orientation may shift with conversion. A relatively differentiated specification of farm types for identifying comparable conventional farms was used in Switzerland and Italy on the grounds that a) the farm types used were often correlated with quasi-fixed resources, such as orchards, which would not (immediately) change with conversion, or b) farm organisation was not likely to change significantly, as converting farms were already managed extensively before (e.g., suckler cow farms). Other criteria used to account for possible differences in economic behaviour include the differentiation between full- and part-time farms (Germany and Denmark) and owner and tenant farms (Switzerland), and the age of the farmer (Denmark).

For some organic farms in the samples, no comparable conventional farms could be identified and the number of organic farms available for analysis was thus reduced. However, this reduction was generally less than 25% and was seen as acceptable. An exception was Italy where the overall sample size remained very large despite a 34% decrease in farm numbers following the selection procedure. In the UK, the standard selection routine described above was modified, as it was judged that, in view of already restricted data availability, the resulting trade-off between sample size, on the one hand, and degree of harmonisation and quality of matching on the other, was acceptable. Details of the procedure applied for the UK sample are described in Jackson & Lampkin (2005).

Table 2-4: Overview of the selection variables used for identifying comparable conventional farms in the different countries

Indicator category	Similar natural production conditions		Same 'region'	Farm type should be identical
	Indicator	Range (+/-)	Indicator	Indicator
AT	site index based on yield potential of agricultural land in €/ha Erschwerniszone (indicator for adverse conditions for agriculture)	25% or 218 € 5 classes	3 regions (alpine, valleys and hills)	grazing livestock, arable, mixed, permanent crops, pig + poultry, combi-farms (= incl. forestry)
CH	production zone	8 zones (3 arable zones, 1 hill zone, 4 mountain zones)	not used	11 farm types (arable, dairy, suckler cows, other cattle, other grazing, special crops, pig + poultry, 4 mixed categories)
DE	site index based on yield potential of agricultural land in €/ha	30%	NUTS 1 (= 16 Regions)	arable, grazing livestock, mixed, pig + poultry, permanent crops
DK	clay soil fine sandy soil coarse sandy soil	25% or 10 ha 50% or 10 ha 50% or 10 ha	3 regions (NVJ, FØJ, ØØ)	cattle, arable, pig farms
IT	altitude	three altitude classes, classified as plain, hill and mountain areas	NUTS 2 (= 22 regions)	15 farm types categories
UK	altitude Less Favoured Area status	3 classes 3 codes	4 regions (Northern, Central and East and South-West England and Wales)	general cropping lowland cattle and sheep upland cattle and sheep dairy mixed
Indicator category	**Similar endowment with production factors**		**Other country specific selection variables**	
	Indicator	**Range (+/-)**	**Indicator**	**Range**
AT	RLN (agricultural area corrected for mountain pastures) milk quota	20% or 10 ha (farm types mixed, arable), 5 ha (other farm types) 20% or 10 000 kg		
CH	milk sold UAA	dairy farms: 20% other farms: 25% 20%	 owner or tenant	
DE	UAA milk quota used	20% or 10 ha 20% or 25 000 kg	full-time or part-time	
DK	UAA milk quota ha sugar beets ha potatoes no of sows pigs produced	25% or 10 ha 25% or 35 000 kg 5 ha or 25% 5 ha or 25% 10 sows or 25% 500 pigs or 25%	full-time or part-time age of farmer	 max. 15 years older than organic farmer
IT	UAA (for crop farms) LU (for livestock farms)	19 size classes 16 size classes		
UK	UAA rough grazing permanent pasture milk quota economic size	20-30% 25-30% 25-30% 20% <100 ESU: 30 ESU >100 ESU: 30%		

Source: Own illustration

The average number of comparable conventional farms selected per organic farm in the samples ranges from 6 to 30, reflecting differences in selection criteria as well as the varying number of conventional farms available in national FADNs. There were considerable differences in the selection results depending on farm type, especially with respect to the average number of comparable conventional farms selected per organic farm. For example, in Germany very few conventional farms exist which are classified as 'mixed farms', resulting in an average number of only 3 comparable conventional farms per mixed organic farm, compared to at least 17 reference farms for all the other farm types. Detailed documentation of the performance of the selection algorithm can be found in Nieberg et al. (2005).

For comparison of the development of the performance of organic and conventional farms based on time series data for identical farms, the first year of the time series was used to select the set of comparable conventional farms (i.e., conventional farms were selected to be similar to the organic farms in the first year of the time period analysed). For subsequent analyses, financial results for the same organic farms and the same set of conventional farms were then compared for each year.

2.1.3 The EU-FARMIS model

Assessment of the impact of the 2003 CAP reform and other policy scenarios on organic farms in the EU-15 and Switzerland was undertaken using the model EU-FARMIS. EU-FARMIS is a well-established model for assessing policy impacts at the farm level and is documented in detail in Osterburg et al. (2001), Offermann et al. (2005), Hüttel et al. (2006) and (in German) Bertelsmeier et al. (2003) and Bertelsmeier (2005). The objective of this chapter is firstly, to provide a short overview of the model and, secondly, to describe the adjustments and extensions made for modelling organic farming and to provide an overview of the data available for modelling typical organic farm groups in selected Western European countries.

2.1.3.1 Model structure

EU-FARMIS is a comparative-static, process-analytical programming model based on FADN data, with individual farm data being aggregated into farm groups. A positive mathematical programming procedure (see e.g., Howitt 1995 and Heckelei 2002) is used to calibrate the model to the observed base year values. All input and output coefficients of all activities are consistent with information from farm accounts.

The core of EU-FARMIS is a standard optimisation matrix which contains, in the current version, 27 main crop activities and 22 activities concerning livestock production. The matrix restrictions cover areas of feeding (energy and nutrient requirements, calibrated feed rations), intermediate use of young animals, fertiliser use (organic and mineral), labour (differentiated seasonally), crop rotations and political instruments (e.g., set-aside, quotas). For the objective function, farm income[2] minus (opportunity) costs for land and labour, as well as the interest on borrowed capital, is maximised. For the modelling of organic farming, some specifications were refined (e.g. with respect to nitrogen fixation and set-aside use) and specific restrictions (e.g. with respect to the use of mineral fertilisers) were added.

2.1.3.2 Database

The main database of EU-FARMIS is drawn from FADN systems and, in addition to the EU FADN, German national FADN data have been used in past applications. While some data from the national FADN systems of Austria, Denmark, Italy, the UK and Switzerland were accessible for this research project (Chapter 2.1.1), not all variables needed for model specification were available and access to the national FADN database was cumbersome in some countries. It was therefore decided to base the model analyses in this report on EU FADN data for the EU-15 countries. However, the model-based analysis could not be performed for Italy due to missing data (in 'Table N') in the EU FADN.

Stratification

EU-FARMIS uses farm groups rather than single farms to ensure the confidentiality of individual farm data and also to increase the manageability and robustness of the model system in the face of data errors, which may exist in individual cases. Homogenous farm groups are generated by an aggregation of single farm data. Standard stratification criteria for the establishment of farm groups are region (NUTS II), farm type (field crops, milk, grazing livestock, permanent crops, pigs and poultry, horticulture) and farm size (criteria for size depend on farm type, e.g., the size of field crop farms refers to UAA). Generally, stratification of farm groups is flexible and can be adjusted depending on the specific policy to be analysed.

Usually, FADN data for at least two consecutive years are used in order to enhance the stability and significance of results. As FADN samples are not constant over the years however, this reduces the number of available farm accounts. Since the number of organic farms in the EU FADN is already quite small (Chapter 2.1.1), only data from one year (2002) were used for the analyses of EU member states. As the sample of organic farms in the EU FADN is not representative (Offermann & Lampkin 2005), simple rather than weighted averages were used for the generation of farm groups.

Table 2-5 provides an overview of the farm groups generated for this study. The confidentiality requirement of a minimum of 15 farms per farm group clearly limits the scope of the analysis in some countries; however in general, the most important typical organic farm groups are represented in each country. A farm group of comparable conventional farms was selected from the database for each of the organic farm groups.

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[2] Farm income here refers to net value added. Costs of fixed factors have to be covered irrespective of whether they are owned by the farmer or not.

Table 2-5: Farm groups selected for the model-based policy impact analysis in EU countries

	Farm group name	Number of EU FADN farms	
		Organic	Comparable conventional
DE	Arable farms, North	23	324
	Arable farms, South	16	228
	Dairy farms, South	45	434
DK	Arable farms	19	530
	Dairy farms, <100 cows	22	212
	Dairy farm, >100 cows	20	140
AT	Arable farms, valley + hills	27	315
	Dairy farms, hills	52	180
	Dairy farms, mountains	124	257
	Grazing livestock, mountains	43	80
UK	Dairy + grazing livestock farms	25	300

Source: Own calculations based on FADN-EU-DG-AGRI/G3.

2.1.3.3 Generation and calibration of input and output coefficients

The majority of the FADN variables are not given for specific activities but for the whole farm. Consequently, activity-specific input/output coefficients have to be calculated. Examples of these coefficients on the input side are costs for energy, depreciation, interest, seeding, veterinary services and plant protection, as well as requirements for different kinds of nutrients for plant and livestock activities. On the output side, yields, prices and premium levels have to be determined. Part of the information is directly available from the FADN farm accounts, e.g., production levels, yields and corresponding output prices. Activity-specific input coefficients, however, generally need to be generated when the respective information is aggregated in the farm accounts.

The calculation proceeds as follows. In the first step, input coefficients like fertiliser, fodder and machinery costs are set, based on a normative approach. The a priori values need to be country-specific. Typical sources of these data are farm management manuals or expert assessments (e.g., by farm advisors). The use of input factors for each process is determined either in relation to yields or in relation to structural characteristics (e.g., use of machinery). For organic farming, project partners supplied information specifically on feed rations and fodder yields, as this is not available from general sources.

In a second step, these normative input coefficients are adjusted according to the corresponding financial accounts of the respective farm group. This adjustment is trivial in the case of single inputs and corresponding farm accounting data, resulting in a simple correction factor. The consistency problem becomes more complex when more coefficients have to be matched with a single account. It is especially complex if coefficients are in physical units, like fodder or fertiliser, and data provided in the farm account are of a monetary nature. Cross-Entropy estimators (Golan et al. 1996) are used in those cases which allow the inclusion of prior information about the unknown parameters.

2.1.3.4 Target year projection and policy analysis

The policy simulation process (ex ante analysis) proceeds in two steps. In the first step, a reference scenario is established for a target year in the future, usually assuming that the present agricultural policy will continue. Furthermore, estimates of changes in general farm structure (i.e., distribution of farm size classes) and technical progress are used as external model inputs. This, in particular, concerns the development of yields in crop and livestock production and monetary coefficients, e.g., input and output prices. For conventional farming, the estimation of the future development of natural yields due to technical progress is based on time series analysis which results in annual growth rates. For organic farming, data generally is insufficient to estimate yield trends (Offermann, 2003), and projections are based on scenario assumptions (see Chapter 4.1.3). The development of producer prices for agricultural products is often defined by the policy framework of the reference scenario and complemented by price forecasts of other models or expert's estimations.

In the second step, alternative policy measures are specified, e.g., through additional activities and restrictions or changes of matrix coefficients. The outcome of the optimisation can be compared to the result of the reference scenario and allows one to derive statements on the impacts of different policy measures. Where appropriate, the definitions of reference and alternative policy scenarios, as well as the assumptions, were harmonised with those used in the analyses of organic farms in the new member states (see Chapters 4.1.3 and 5.1).

2.2 Typical farms

As the FADN data for new member states are still scarce with respect to organic farms, ‘typical farms’ have been established and modelled (Agribenchmark 2007; Häring 2003). Typical farms are not representative in a statistical sense but together they account for a large share of farms in their country. Typical farm models contain a wide range of variables that comprise input and output coefficients of farm production activities in addition to the accountancy data. This facilitates the appraisal of farm adjustment strategies and potential within changing policy environments, according to the objectives of this study.

2.2.1 The methodological approach

Each typical farm represents a significant number of farms in a region. Available statistical data and, even more important, expert judgment are used to define typical farms. The number of typical farms to be defined in each country depends on the aim of the study and on specific country characteristics, according to farm diversity and regional variability.

The selection criteria for the definition of typical farms depend on the purpose of the research. For the description of organic farming under changing political and market environment, the indicators chosen were as follows:

- regional distribution of organic farms,
- farm size,
- main products/farm activities,
- farm production systems,
- farm legal status and
- farm marketing channels.

Once the specific features of typical farms were decided upon, a single real farm was selected for each typical farm, on which data collection took place. These actual farms had to be similar in their characteristics to the respective typical farm. The complete set of physical and economic data was then drawn up through the so-called 'panel process'.

Small panels are meetings between farmer, advisor and scientist. The advisor's role is mainly to level out possible bias, through familiarity with more farms and farmers than those being interviewed. Such a panel was used for setting up the models and description of the economic status quo, including the impact of national pre-accession policy. In a second step, *large ('full') panels* were implemented to analyse farm strategies and/or adjustments to changes in the farms' environment (policy and markets). Participants of large panels included at least one advisor, the partner (acting as moderator), a translator, the scientist of the Federal Agricultural Research Centre (FAL) and four to eight farmers. The farms of participating farmers came close to those that had been selected as typical farms (see Box 3).

The farm models were constructed by the FAL scientist using the 'TIPI-CAL' model (Hemme 2000). Local partners and experts assisted with specific knowledge and repeated communications with the farmers while the model was being set up. The internal plausibility of the model was checked.

Box 3: Large panels in the study countries

The large panels realised as workshops consisted of three main parts:

1. Discussion round on perception of the impacts of EU accession at farm level, with two objectives:
   - to allow for the 'warming up' of participants
   - to supply information on the perception of the situation in organic farming after EU accession.
2. Presentation of modelling results concerning farm level economic impacts of the adoption of the Common Agricultural Policy (CAP) and of different market scenarios (2003 to 2013). The development of the following indicators was visualised:
   - different kinds of payments,
   - share of total subsidies in gross output (GO),
   - total market returns,
   - total costs, and
   - profit (family farm income).

   Additionally, all participants received tables with detailed data on payments, on assumed prices for important products and on likely development of costs and profits, as additional information about the farm level consequences of changes in the political and economic environment.

   The results presented were obtained by modelling static farms, which means that no adjustments of farm organisation, activities and/or production technology were considered.
3. In-depth discussion of likely adjustment reactions to the adoption of the CAP, as well as to the two defined market scenarios for every typical farm. All farmers with farms similar to the typical farm were given the opportunity to think about and comment on their ideas of changes at the farm level, in order to comply with the changed policy and market settings described.

2.2.2 Typical organic farms in the new member states

Depending on the structure of organic farming in the study countries, two to six typical organic farm models were set up in the Czech Republic, Estonia, Hungary, Poland and Slovenia.

Czech Republic

Grassland accounts for 90% of the organic land area in the Czech Republic and is predominantly used by cow-calf systems. The main output is weaned calves for fattening (80% of animals produced). Organically-finished animals are mostly sold at conventional markets.

Data from the Czech control body for organic farms (KEZ) concerning farm type (land use and type of animal husbandry) were used as a basis for the definition of typical farms: 56% of the organically-managed land is used by farms with only grassland and grazing livestock husbandry, predominantly suckler cows. A further 35% of organic area is used by farms with grazing livestock in combination with grassland and arable land for crop production. Organic farms with milk production cover about 10% of the organic area. No statistical information was available concerning most frequent sizes or the regional distribution of organic farms in the Czech Republic, so expert knowledge was needed to finally decide on key characteristics of typical organic farms (Table 2-6). For the regional distribution of the selected typical farms, see Figure A-1, Annex.

Although, currently, there are few purely arable farms in organic farming in the Czech Republic (they account for only 1% of total organic area but for 12% of organic arable land), one large arable farm was included in the analysis. Organic crop production might become much more important with accession to the EU, as there will be improved marketing possibilities to old member states. Typically, this farm type is only partly-converted which means that the farm also undertakes conventional activities, like crop production and/or animal husbandry.

Table 2-6: Key characteristics of typical organic farms in the Czech Republic (2003)

	Arable farm large	Dairy farm small	Cow-calf farm small	Cow-calf farm medium	Cow-calf farm large (1)	Cow-calf farm large (2)
Region	Vyskov	Plzensky	Plzensky	Kraloveh-radecky	Karlovarsky	Jihocesky
Total UAA (ha)	200	64	100	140	551	500
Permanent grassland (ha)	30	10	100	140	551	430
Arable land (ha)	170	54	0	0	0	70
Suckler cows (no.)	0	0	11	70	145	160
Dairy cows (no.)	0	16	0	0	0	0
Labour (AWU/100ha)	1.0	4.2	1.5	1.3	0.5	2.3
Farm family labour (total)	0.0	2.7	1.5	1.8	3.0	0.0
Hired labour (total)	1.9	0.0	0.0	0.0	0.0	11.3
Share of own land (%)	0%	22%	13%	25%	13%	0%
Main products/activities	cereals	milk / beef	breeding	weaned calves	weaned calves	beef
Legal status	joint stock company	family farm	family farm	family farm	family farm	limited company
Marketing	organic	conven-tional	conven-tional	conven-tional	conven-tional	organic/ conven-tional
Off-farm income	no	yes	no	yes	yes	no

Source: Own compilation.

Estonia

Arable land accounted for about 80% of the total agricultural area of organic farms in Estonia in 2003. Since most was used for short- and long-term grass cropping, the total share of grassland (including natural grassland) in organic agricultural area was 76%. Thus, organic land use in Estonia is mainly connected to livestock husbandry with a high share of grassland-based farm types. Nevertheless, only 40% of organic farms kept animals organically in 2003; the remainder carried out conventional husbandry activities or had no animal husbandry at all (Ader 2004).

There are no official statistics on organic farm types in Estonia and so the register of organic farms from the Estonian Plant Production Inspectorate was analysed in order to identify typical organic farms in the country. The majority of organic producers in Estonia are small (41% of them used less than 20 ha in 2003). Since a large number are semi-subsistence farms with limited impact on markets, typical organic farms were selected from the group of larger farms (over 100 ha) which have at least one person working full time on the farm.

Farms over 100 ha account for 13% of the total number of farms. The most frequent farm type in Estonia is the mixed farm (38% of all organic farms) which is also considered to be the most natural type of farming and thus the most suitable for organic management. Mixed farms usually grow cereals and potatoes combined with various kinds of livestock. As farm income is predominantly generated by cropping, this farm type will be referred to as an 'arable' farm. The second largest group are dairy farms (14% of organic farms). Based on this information, two typical farm types have been selected: 1) an arable type of farm, with some livestock, and 2) a dairy farm (Table 2-7).

Table 2-7: Key characteristics of typical organic farms in Estonia (2003)

	Arable farm large	Dairy farm large
Region	South Estonia	Central / South Estonia
Total UAA (ha)	89	230
Permanent grassland (ha)	4	171
Arable land (ha)	85	59
Suckler cows (no.)	0	0
Dairy Cows (no.)	0	56
Labour (AWU/100ha)	3.0	2.3
Farm family labour (total)	2.0	2.8
Hired labour (total)	0.7	2.5
Share of own land (%)	30%	27%
Main products/activities	cereals / sheep	milk / beef / calves
Legal status	family farm	family farm
Marketing	organic / conventional	conventional
Off-farm income	yes	yes

Source: Own compilation.

Hungary

In Hungary, 60-70% of the organic land area is arable. The most important activity in organic farming is cereal and vegetable production. A large share of organic grassland is used for conventional animal husbandry. The number of animals kept organically is low and the structure of livestock is very different from that of conventional farms. While the number of organic sheep amounts to 2% of those kept conventionally, for cattle the rate is 0.1%. The rate is extremely low for poultry (0.07%) and for pigs (0.002%).

The structure of organic farming in Hungary is represented by the typical farms selected: all five have cereals and, in addition, three of them undertake vegetable production. Out of the five typical farms, two combine cereal production with grassland and dairy cattle (Table 2-8).[3]

In the western part of Hungary, farms are medium-sized with a share of arable land and also of cereals being relatively high, and low numbers of livestock. The typical farm in this region is a small family farm with mixed crop production (small arable farm). The selected farm specialising in vegetable production is located in the North Great Plain (Észak-Alföld/east Hungary). This region also produces cereals and livestock but concentrates on vegetables and fruit. The enterprises in this region are medium-sized (medium-sized arable farm). The Észak-Magyarország region (in the north of Hungary) has the largest average area per farm and this is also true for organic farms. The share of grassland is higher; however the number of animals is lower than the average. The typical farm in this region is a large, export-oriented, cereal, oilseed and industrial crop-producing farm (large arable farm). The typical organic farm in the Budapest region (Közép-Magyarország/ central Hungary) concentrates on the domestic market. Thus, the typical farm selected offers a very wide range of products, including those arising from animal breeding, crop production and food processing. The latter is an important factor, given their efforts to find markets within Hungary (medium-sized dairy farm). Even though livestock farming is of minor importance, additionally one large dairy farm was included in the analysis. Since about 95% of organic products are exported, this farm represents well a farm type with high future potential and strong export orientation with regard to the improved marketing opportunities in old member states. This large dairy farm is located in the South Great Plains (south-east Hungary), a region typified by cereal production and livestock breeding, where farm size is relatively large (large dairy farm).

3 For regional distribution see Figure A-1 in the Annex.

Table 2-8: Key characteristics of typical organic farms in Hungary (2003)

	Arable farm small	Arable farm medium	Arable farm large	Dairy farm medium	Dairy farm large
Region	Central-Transdanubia	Észak Alföld	Észak-Magyarország	Közép-Magyarország	Dél Alföld
Total UAA (ha)	9	374	1 245	290	1 850
Permanent grassland (ha)	0	0	0	45	400
Arable land (ha)	9	374	1 245	245	1 450
Suckler cows (no.)	0	0	0	0	80
Dairy cows (no.)	0	0	0	60	500
Labour (AWU/100ha)	12.5	4.0	5.6	3.3	2.9
Farm family labour (total)	1.5	0	5	0	0
Hired labour (total)	1	15	8	9.5	54
Share of own land (%)	100%	11%	12%	3%	5%
Main products/activities	vegetables / green forage	vegetables / cereals	cereals / industrial crops	milk / cereals / processing	milk / cereals
Legal status	family farm	limited company	family farm	cooperative	limited company
Marketing	organic	organic	organic / conventional	organic / conventional	organic / conventional
Off-farm income	yes	no	yes	no	no

Source: Own compilation.

Poland

Organic farming in Poland is very diversified: 64% of organic land area is arable and only 28% is permanent grassland (Metera, 2005). Grassland-based systems are of some significance in the mountainous regions in the south/south-east of the country (Pokarpackie and Malopolski). A high share of arable land in total organic area can be found in Kujawsko-Pomorski, Lubuskie, Wielkopolski and Zachodnio-Pomorski. There are some regions where vegetable production is relatively significant for industrial purposes (Lubelski, Lodzki and Swietokrzyskie).

Milk production is the most important activity in animal husbandry. However, it is not only based on permanent grassland, as feedstuff production including hay on arable land is common. A main incentive for dairy husbandry arises from the continuous market receipts for milk sales.

Statistical data are available for land use by provinces but no data exists for farm type and livestock numbers, and the definition and selection of typical farms in Poland turned out to be quite difficult. As in other countries, Polish organic farms are rather diversified, not only in number of production activities but also with regard to applied production technology. Nearly every organic farm is different and each selected typical farm represents only a relatively small share of organic farming. As a result, conclusions about organic farming in Poland as a whole will be more difficult to develop. This is, however, not a methodological concern but a structural one of diversity in organic farming.

The final selection of typical farms is to be found in Table 2-9. Again, statistical data were amended by expert knowledge. With regard to farm size, a wide range was covered by the typical farms and this also holds true for farm types. The large arable farm represents rather prosperous organic farms. Intensive vegetable production for the food industry is the main activity of the small arable farm. Three farms are based on dairy husbandry, the largest being involved in milk processing combined with direct marketing, and the smallest dairy farm being a semi-subsistence farm selling milk at conventional prices, with direct marketing and agro-tourism on a small scale.

Table 2-9: Key characteristics of typical organic farms in Poland (2003)

	Arable farm small	Arable farm large	Dairy farm small	Dairy farm medium (1)	Dairy farm medium (2)
Region	Lublin Region	Warmia & Masury	Podlaskie	Kujawsko-Pomorskie	Masowia
Total UAA(ha)	17	100	17	18	48
Permanent grassland (ha)	2.5	12	4	5	35
Arable land (ha)	14.5	88	13	13	13
Suckler cows (no.)	0	0	0	0	0
Dairy cows (no.)	2	10	7	18	30
Labour (AWU/100ha)	17.6	5.0	11.8	11.1	6.3
Farm family labour (FWU total)	3	2	2	2	2
Hired labour (total AWU)	0	3	0	0	1
Share of own land (%)	84%	82%	59%	100%	63%
Main products/activities	vegetables	cereals	milk / vegetables / agrotourism	milk	milk / processing
Legal status	family farm	family farm	family farm	family farm	family farm
Marketing	organic	organic	partly organic	conventional	partly organic
Off-farm income	no	no	no	no	no

Source: Own compilation.

Slovenia

Due to lack of statistical data on organic farming, the definition and selection of typical farms in Slovenia was based exclusively on expert knowledge. In Slovenian organic agriculture, grazing livestock on grassland prevails although the majority of farms also carry out some (if only minor) crop production (approximately 65% of all organic farms). Of these, about 70% are suckler cow farms and the remaining 30% are dairy farms. These farms are situated predominantly in the mountainous regions to the north of the country. This is the region where sheep husbandry is also to be found, mostly for meat production, although less frequently (7% of all organic farms). Mixed farms with different types of crop production and animal husbandry account for approximately 25% of all organic farms. They are mostly situated in the central lower regions of Slovenia.[4] The last, and smallest, group of farms are those with predominantly organic plant production (orchards, vineyards, olives) and also, in the coastal region, some livestock. This group accounts for 2% of all organic farms in Slovenia. Direct marketing is of importance, especially on mixed farms, as the domestic demand for organic products is relatively high. Nearly all farms are organised as family farms. Compared to farm sizes in the Czech Republic and also in most of the other European countries, organic farms in Slovenia are very small. Three typical farms were selected to represent a large part of organic farming in Slovenia according to the most important groups of organic farms there: a suckler cow farm, a dairy farm and a vegetable farm, producing intensively (Table 2-10).

Table 2-10: Key characteristics of typical organic farms in Slovenia (2003)

	Arable farm small	Dairy farm small	Cow-calf farm small
Region	Central Slovenia	Gorenjska	Koroska
Total UAA (ha)	13	13	9
Permanent grassland (ha)	3	13	9
Arable land (ha)	10	0	0
Suckler cows (no.)	2	0	6
Dairy cows (no.)	0	7	0
Labour (AWU/100ha)	19.2	10.8	13.3
Farm family labour (total)	2.5	1.4	1.2
Hired labour (total)	0	0	0
Share of own land (%)	46%	76%	100%
Main products/activities	vegetables	milk	beef
Legal status	family farm	family farm	family farm
Marketing	organic	conventional	organic
Off-farm Income	no	yes	yes

Source: Own compilation.

2.3 Farm survey

To supplement and extend the analysis of FADN data and the typical farms, a survey of 50 organic farms in each of the eleven in-depth study countries was carried out. The aim of the survey was to gain a deeper insight into production structures and conditions on organic farms and also to identify the organic farmer's assessment of selected aspects of policy implementation and policy-induced production adjustments.

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4 As farm income is generated predominantly by plant production, the typical farm representing this farm type will be referred to as an arable farm.

2.3.1 Methodology and design of the survey

Since both quantitative and explorative information were targeted, a survey was chosen as the means of obtaining the necessary data. Due to the multiplicity of issues and the complexity of the topic, it was decided to carry out a survey with face-to-face interviews. The advantage of these is that both difficult questions and control questions can be asked, spontaneous answers can be registered and ambiguous answers can be clarified with explanations. The questionnaire can be longer than in the case of a written survey since the interviewer can motivate the respondent to cooperate.[5, 6]

The development of the questionnaire took place in several steps incorporating project partners' country-specific experiences:

- First, it was necessary to identify the information required from the respondent in order to meet survey objectives. This decision was made in a multi-stage, discursive process within the FAL team and with project partners (during and between project meetings).
- In the next step, the individual questions were formulated. Depending on the type of information being asked and the knowledge available from previous surveys and literature, closed, open-ended and open response-option questions were formulated. Here, partners in the different countries were involved at several levels in order to include country-specific and other aspects. A particular challenge in the preparation of questions was to find words and formulations that could be understood equally in all eleven countries. Subsequently, the questions were put into a meaningful order and format.
- The draft questionnaire was again discussed with all partners and revised several times. The final draft questionnaire was then pre-tested. Due to the limited time available, a small pre-test could only be carried out in Germany.
- To complete the process, the final questionnaire was compiled. Additional guidelines for the translation and conduct of interviews was prepared and made available to those responsible for carrying out the interviews.

The final questionnaire addresses farm structure and production activities, the farm's socio-economic and economic situation, constraints on production, farm-level support and farmer opinion about this

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5 It must, however, be noted that the actions of both interviewer and respondent can lead to distorted results through verbal or cognitive communication barriers and through personal opinion, expectations and motives. In general, there is uncertainty as to the extent that words and actions accord with each other in the surveys. This aspect had to be taken into account both in the development and design of the questionnaire and in the training of interviewers.

6 In the development of the questionnaire, it was possible to draw upon previous work and similar surveys carried out by the Institute of Farm Economics of the German Federal Agricultural Research Centre (see Schulze Pals 1994, Nieberg 1997 and Rahmann et al. 2004).

support, as well as the farmers' perception of agricultural policy and future policy scenarios.

A one-day Interviewer Training Session was held at FAL in December 2003 for those from all participating countries responsible for conducting interviews. Following the training, the questionnaire was translated by all of the partners and subcontractors into their native language. Then, under the direction of those responsible for the interviews, all interviewers received training in each country.

The interviews were finally conducted by partners and sub-contractors in the selected countries between January and May 2004. They generally took between one and a half to three hours per visit and thus were at the limit of what was possible. It must be emphasised here that, in many regions, the farmers interviewed showed substantial interest. Some farmers found the questionnaire too long and too complex, and politically relevant questions regularly required explanation. Strong emotions accompanied discussions on the topic of payments or Eastern enlargement, during which the concern of participants was evident. Some farmers would have liked to discuss these topics for a longer period of time in more depth.

2.3.2 Selection of farms surveyed

One problem of empirical research in organic farming arises from the fact that, in almost all countries, there is no official list of organic farms comprising both the structural and address data of farms certified according to Council Regulation (EEC) 2092/91, or that such a list is not available due to data protection rights. For this reason, the selection of farms to be surveyed presented a special challenge and had to be oriented to the individual situation in each country.

To ensure a harmonised procedure for the farm survey, a guideline for the selection of survey farms was developed (see Box 4). The chosen approach ensures random farm samples spread broadly over the respective countries. Due to various time, financial and personnel constraints, as well as the difficulties of gaining access to the necessary address details in some countries (Italy, Austria), regional emphases had to be set. The type of farm selection and the spatial distribution of those surveyed are described for each country in the Annex (p. 178-189).

Box 4: Guidelines for the selection of farms for the survey

How to select the survey farms?

1. Divide the country into regions. The number of regions (two to five regions) depends on the diversity of structural and location characteristics. The separation by regions is necessary to comply with regional differences of farms.

2. The total number of organic farms in the country must be identified and some farms have to be eliminated (this can be done also after Step 5, see below). This applies to:

- farms that first started with conversion in 2001 or later: meaning that farmers who started organic farming on at least a part of their acreage before 2001 should not be eliminated!
- farms smaller than 1 ha UAA.
- farms with an exceptional main focus of production, e.g., horse or game husbandry.
- farms with a social aim, e. g., farms that employ mainly the disabled or the disadvantaged (e.g. drug addicts) and receive public subsidies for this purpose.

3. Distribution of remaining farms by addresses to regions.

4. Calculation of the number of farms to be interviewed by region. As organic farms are usually not distributed equally across the whole country (often there are some regional concentrations), the method of proportional division by square root should be used to determine the number of farms to be interviewed.

In proportional division by square root, the following mathematical rule should be applied:

$$n_h = n \frac{\sqrt{N_h}}{\sum_{k=1}^{k} \sqrt{N_h}}$$

n total sample size, here: total number of farms to be interviewed (50)

k number of groups, here: number of regions

n_h sample size by group, here: number of farms to be interviewed in specific region

h group index (h = 1, 2...., k), here: region

N_h total number in group, here: number of all organic farms in the specific region

5. Take a random sample of farms according to the calculated number of farms in every region.

6. Take additional farms in every region according to the described methodology as substitutes, in case selected farms do not cooperate or if the farms do not meet the above-mentioned criteria.

Depending on the country considered, between 0.1 and 6.5% of all organic farms were surveyed for each country (AT: 0.3%, DE: 0.3%, DK: 1.4%, IT: 0.1%, UK: 1.2%, CH: 0.9%, CZ: 6.2%; EE: 6.5%, HU: 4%, PL: 2.2%, SI: 3.5%), and between 0.2 and 22.4% of the organically-farmed land in each country was included (AT: 0.5%, DE: 1.2%, DK: 2.4%, IT: 0.2%, UK: 0.8%, CH: 1%, CZ: 8.3%; EE: 14.1%, HU: 22.4% , PL: 2.9%, SI: 4.5%).

The farms surveyed represent the diverse structure of organic farming. Even if survey samples diverge from national averages in some variables (for example, in most countries, the size of surveyed farms is larger than the country average; see next chapter), the survey still provides a good basis for deeper insight into the production structures and conditions on organic farms, and also helps to identify the organic farmer's assessment of selected aspects of policy implementation and policy-induced production adjustments.

2.3.3 Socio-economic and selected regional characteristics of farms surveyed

In this chapter, the farms surveyed are introduced with regard to important structural and socio-economic indicators and selected regional characteristics. This serves, on the one hand, to provide better understanding of further analyses and, on the other, to make a comparison with sectoral data in order to classify the sample.

In terms of all countries studied, the average size of survey farms is about 148 ha UAA (Table 2-11). However, large differences are evident between and within different countries: the smallest holding is about one hectare of land while, in Hungary, the largest farm amounts to almost 15,000 ha UAA. The average size in Hungary is 584 ha and, in the Czech Republic, is 425 ha UAA. An average area of between 100 and 200 ha UAA can be found in Germany, Estonia and the UK, compared with an average of less than 30 ha in Slovenia, Switzerland, Austria and Poland. In Poland and Slovenia, more than 40% of the farms have an area of less than 11 ha UAA, and in Austria and Switzerland, 20% farm similarly small areas (Table A-1, Annex). Areas of more than 500 ha UAA are apparent, above all, in the Czech Republic (28% of the farms), Hungary (20%) and Germany (8%).

Table 2-11: Surveyed farms' size in ha UAA and area rented

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	49	50	50	50	50	50	50	299	250	549
ha UAA	Mean	**29**	**170**	**83**	**47**	**115**	**20**	**425**	**120**	**584**	**29**	**18**	**77**	**234**	**148**
	Min	2	18	3	3	8	1	11	3	2	2	1	1	1	1
	Max	108	1342	476	569	762	81	1980	829	14880	430	74	1342	14880	14880
UAA rented (farm average)	% of ha UAA	14	61	23	16	33	42	67	37	35	22	25	32	37	34

Source: Own calculations based on farm survey winter/spring 2004.

Farm sizes measured in this survey for Austria, Switzerland and Slovenia differ only slightly from national averages. In the other countries – with the exception of the UK – the average size of survey farms is sometimes much larger than the national average. This is due partly to the fact that very small farms were excluded from the study. In Germany, another factor is the large regional difference in farm structures. Through the process of sample selection (proportional division by square root) the comparably, significantly larger east and north German farms are overrepresented in the group studied while the south German, smaller than average farms are underrepresented. In Italy, the difference can certainly also be traced back to the regionally limited, selection of study farms.

Contrary to what was expected, only 16% of the farm managers categorise their farms as mixed farms[7] (Table A-2, Annex). Due to the usually, relatively less-specialised nature of organic farms, a higher proportion was anticipated. This survey shows that, also for the majority of organic farms, the main income generated is from a single farm activity. The farms are not one-dimensional, however, and they often show more than average diversity despite a main farm focus. Mixed farms are most often found in Poland (42% of the farms), Estonia (30%) and Italy (28%); arable farms are evident mostly in Hungary (50%) and Denmark (40%); and grazing livestock farms predominate, above all, in the Czech Republic (80%), Switzerland (80%) and Slovenia (72%)[8]. As expected, the highest proportion of permanent crop farms is apparent in Italy (34%), with above average frequency in Hungary (14%). Horticultural farms are relatively few but most frequently observed in Poland (8%) and in Estonia (6%)[9]. Intensive livestock farms (pigs and

7 The focus is defined by the main source of income. If there is no main source of income, the farm is classified as a mixed farm.

8 In Austria, the low share of grazing livestock farms – especially dairy farms – in the sample can be traced back to the regional concentration of the survey, including a region dominated by arable farming.

9 In Estonia, horticultural farms are overrepresented in the group studied due to the selection process chosen (see Annex). Due to an increase in the horticultural farms converting to organic in 2003/2004, relatively more (three) horticultural farms were selected for the survey.

poultry) are least represented in the survey. These are mostly found in the UK (10%) and Austria (8%).

As shown in Table 2-12, 19% of survey participants classify their farm as part-time.[10] These farmers manage only 6% of the surveyed area. The share of part-time farmers in Denmark is particularly high, at 52%, and these work 28% of the area identified in Denmark. Danish part-time organic farms differ significantly from organic full-time farms: the main focus of two-thirds of part-time farms is crop production (mainly arable farms with less labour-intensive crops such as cereals, pulses and oilseeds) whereas the large majority of the full-time organic farms are specialised dairy farms. The part-time farms – as in almost all countries studied – are significantly smaller. A total of 50% of the Danish part-time farmers have had no agricultural education (of these farmers, 40% have a non-agricultural university degree). In the case of full-time organic farm managers, the corresponding proportion is only 21%. Following Denmark, Austria also has an above average percentage of part-time farms, with 34%. The lowest number of part-time farms is observed in the Czech Republic (8%). These comparably, very small farms manage less than 0.5% of the area surveyed in the Czech Republic. In Poland, all the farmers interviewed classified themselves as full-time farmers.

Table 2-12: Percentage of surveyed farms managed full time and part time [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Full-time farm	**%**	66	84	48	88	90	82	92	84	76	100	84	76	87	81
Part-time farm	**%**	34	16	52	12	10	18	8	16	24	0	16	24	13	19

1) Question asked: Farm type? (Given definition for a full-time farm: at least one person is occupied full-time by the farm and not working additionally off-farm.)

Source: Own calculations based on farm survey winter/spring 2004.

As anticipated, the survey farms are mostly managed by men (Table 2-13) but the proportion managed by women amounts to 17%, nonetheless. Large differences are found between countries: in Estonia and Slovenia almost one-third of the farms – predominantly smaller farms – are managed by women whereas in Switzerland, the proportion is just 4% and in Denmark, 6%.

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10 Here it must be noted that the following definition of a 'full-time farm' was given: At least one person is occupied full time by the farm and does not work additionally off-farm.

Table 2-13: Gender of the farmers/farm managers interviewed

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farmers	N	50	50	50	50	49	50	50	49	50	50	50	299	249	548
		Percentage of farmers													
Male	%	82	86	94	76	84	96	74	67	90	90	70	86	78	83
Female	%	18	14	6	24	16	4	26	33	10	10	30	14	22	17

Source: Own calculations based on farm survey winter/spring 2004.

For the most part, the farmers interviewed had completed formal agricultural training: 19% took part in vocational training and 45% attended an agricultural college or university. About 36% of the farm managers interviewed had no formal agricultural training (Table 2-14), with two-thirds of these having completed professional or university training in other fields of study. Differences between countries are shown to be considerable. The proportion of farm managers without formal agricultural training, at slightly more than 60%, is greatest in Italy and Slovenia and, with less than 30%, is least in Austria, Switzerland and Germany. More than 50% of the farmers with an agricultural college or university degree in agriculture are to be found in Hungary, Germany, the UK, the Czech Republic and Denmark. The leader is Hungary, where 50% of the farm managers hold a university degree in agriculture.

Table 2-14: Education of the farmers/farm managers interviewed

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farmers	N	50	50	50	49	50	50	50	50	50	50	50	299	250	549
		Percentage of farmers													
No formal agricultural training	%	18	28	38	61	26	24	40	34	32	36	64	32	41	36
Vocational training (agriculture)	%	36	12	10	16	18	44	6	26	8	16	14	23	14	19
Agricultural college (middle school, high school etc.)	%	44	40	44	16	34	26	30	8	10	34	8	34	18	27
University degree in agriculture 1)	%	2	20	8	6	22	6	24	32	50	14	14	11	27	18

1) different levels as: diploma, master etc.; usually 3 to 5 years

Source: Own calculations based on farm survey winter/spring 2004.

The structure of farm employment varies significantly between countries as a consequence of the prevalence of different organisational structures (family farms; limited or joint stock companies)[11] and different farm sizes

11 See Table A-5 (Annex).

(Table 2-15; Table A-3 and A-4 in the Annex). On average in the sample, 4.2 persons (measured in agricultural work units, AWU) are occupied on farms, of which only 40% are family members. In the Western European countries, the corresponding figures are 2.1 AWU and 70% family members, compared with 6.8 AWU and 26% family members in the Eastern European countries. The use of seasonal/casual workers is high, especially in Poland (76% of the farms), Italy (70%), Austria (66%, mostly on arable farms with vegetable production) and in Hungary (66%). In relation to the total sample, the corresponding value is 45% (Table A-4, Annex).

On average, for all countries studied, labour force per area amounts to 2.9 AWU per 100 ha UAA (Table 2-15) and generally corresponds with the average farm size in individual countries. The countries with comparatively small farms also show the highest number of labour units per area. The lowest labour input of less than 2 AWU per 100 ha UAA is observed in Denmark, Germany, the Czech Republic and the UK. The very low Danish value is due to the fact that a higher percentage of farms are part-time. Conversely, although Hungary shows the largest farms in terms of average farm size, labour force per area is above average, with 3.1 and 3.4 (including seasonal) AWU per 100 ha UAA. This is due, on the one hand, to the fact that some large farms employ workers who also carry out non-agricultural tasks and thus should not be included in the agricultural work force. On the other hand, this also reflects the relatively high share of labour intensive crops in UAA. In Italy, high labour input per area can also be traced back to a correspondingly high proportion of farms with an emphasis on permanent crops.

The average values only show part of the true picture. As shown in Table 2-15, the labour force within individual countries varies to a larger extent than between countries. These large variations can be traced back to the different farm structures and production focus of each country.

Table 2-15: Labour force of surveyed farms (AWU/100 ha UAA)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	50	49	50	50	50	50	50	299	250	549
		AWU / 100 ha UAA													
AWU total	Mean	6.5	1.7	1.4	5.9	1.9	8.8	1.8	2.7	3.1	9.8	12	2.7	2.9	2.9
AWU total incl.	Mean	9.7	2	1.4	7.6	2	9.1	1.8	2.8	3.4	14	12	3.3	3.2	3.2
seasonal labour	Min	1.7	0.5	0.1	0.4	0.4	3.1	0.3	0.6	0.6	2.2	2.4	0.1	0.3	0.1
	Max	55	23	22	92	37	25	43	73	102	131	308	92	308	308

AWU= Annual Working Unit; 1 AWU = 2200 hours per year. One person working more than 2200 hours/year is counted as 1 AWU. Family members count as from the age of 15/16 years.

Source: Own calculations based on farm survey winter/spring 2004.

As can be seen in Table 2-16, more than half of the surveyed farms converted to organic farming after 1997. Large differences exist between countries. This reflects the changed conditions for organic farming in each country and their influence on the development of organic farming.

A higher than average number of farms which converted more than ten years ago (meaning before 1994) is found in Germany, Poland and Austria. In addition to the long tradition that organic farming enjoys in both Germany and Austria, the high level in these countries can be explained by the early start given to financial support for organic conversion in 1989. An especially high level of farms converting after 1997 can be found in Slovenia, the Czech Republic and the UK. In England and Wales, large numbers of farmers converted in 1999 and 2000 as a result of a) strong market demand, b) poor conventional prices following BSE and changes in exchange rates, c) improved organic farming support payments and d) the closure of the Organic Farming Scheme (OFS) in 1998 while the scheme was changed – as a result, a backlog of potential converters built up who would not have been eligible for payments had they started converting before the new scheme commenced (Lampkin 2005, personal communication). In the Czech Republic, the high level of 'late converters' can be explained by policy changes: in 1998 organic area payments were reintroduced after a pause between 1993 and 1997. In Slovenia, organic certification has only been available since 1998. Several farms had already been farming organically before then but they equated 'conversion' with 'entering organic certification system' (Slabe 2005, personal communication).

Table 2-16: Year of conversion to organic farming of surveyed farms[1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	48	50	48	50	50	50	50	50	296	250	546
Period [2)]		Percentage of farms													
before 1989	**%**	12	18	4	0	6	13	0	2	2	10	0	9	3	6
1989 - 1993	**%**	28	46	6	4	2	15	16	20	10	48	0	17	19	18
1994 - 1997	**%**	48	28	44	31	16	38	6	18	22	12	2	34	12	24
1998 - 1999	**%**	6	8	44	46	60	15	50	10	30	22	68	30	36	33
after 1999	**%**	6	0	2	19	16	21	28	50	36	8	30	10	30	20

1) Question asked: In what year organic farming did first start on this farm?

2) Periods reflect major policy changes for organic farming.

Source: Own calculations based on farm survey winter/spring 2004.

A total of 90% of the farms surveyed are fully converted (Table A-6, Annex). In Western European countries, this proportion is somewhat higher at around 94% and it is somewhat lower in the Eastern European countries at about 85%. However, 50% of the farm managers plan to transform their partially-converted farms into fully-converted farms within the next five years; a further 20% remained undecided.

As is the case with other structural indicators, land use varies significantly between countries and is reflected to a great extent in the varying frequency of different farm types (Table 2-17; Table A-7 in the Annex). On average, across all farms in the sample, arable land and permanent pasture each account for 46% of UAA. However, Denmark, Poland, Hungary and Estonia feature above average arable shares of more than two-thirds of UAA. The highest average farm shares of permanent pasture are found in Slovenia, the Czech Republic, Switzerland and Austria. Higher than average shares of permanent crops can be found, as expected, in Italy, and also in Hungary and Poland.

Table 2-17: Land use of surveyed farms by main categories

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
		% of ha UAA - average percentage of the farms													
Arable land	%	37	44	85	50	42	18	18	66	66	69	12	46	46	46
Permanent pasture	%	59	56	15	11	56	79	79	32	19	23	81	46	47	46
Permanent crops	%	4	0	0	37	2	1	3	1	12	8	6	7	6	7
		% of total sample UAA													
Arable land	%	64	57	84	65	43	17	15	59	45	63	6	58	35	42
Permanent pasture	%	34	42	16	15	57	83	84	40	54	31	91	40	64	57
Permanent crops	%	2	0	0	19	0	0	1	1	1	6	3	2	1	1

Source: Own calculations based on farm survey winter/spring 2004.

If one considers the overall land use in each individual country sample (and not the average for all farms), a significantly different picture emerges in some countries. In most Eastern European countries, and particularly in Hungary, the larger farms surveyed have a significantly larger amount of permanent pasture, increasing the Eastern European share from 47% (farm average) to 64% (share of total UAA surveyed). In contrast, larger farms in Austria, Italy and Germany manage an above average share of arable land, so that the arable share of UAA surveyed in these countries is much larger than the corresponding averages for farms. It is notable that, in Austria, an unusually high share of arable land (64%) emerges in the sample. This can be traced back to the fact that, as a consequence of the regional concentration of the survey, the study group includes a comparatively high proportion of arable farms, and that these farms are relatively large.

As shown in Tables 2-18 and A-8 (Annex), arable land use is, as expected, comparatively diverse, especially in the Eastern countries. A total of 82% of the farms with arable land grow cereals (excluding maize). The share of cereals on arable area is, on average, 41% and is thus the predominant arable crop. The second most important arable land use is forage production such as field grass, grass clover mixtures, green maize, etc. (71% of farms, 28% of the area). Further arable crops include potatoes (42% of farms, but only 1% of the area), vegetables (38% of farms, 3% of the area), fallow land/set aside (34% of farms – predominantly in the West, 8% of the area), dried pulses (24% of farms, 4% of the area), industrial crops like rape, sunflower, etc. (16% of farms, 9% of the area) and grain maize (11% of farms, 4% of the area).

The distribution of arable crops does, however, show country-specific differences. In Slovenia, significantly fewer farmers grow cereals in comparison with other countries. Dried pulses show above average frequency in Austria and Germany; likewise grain maize in Austria and Slovenia. In Poland and Estonia, more than 80% of the farms grow potatoes, meaning twice as many as in the total study group. However, the share of potatoes in UAA in these countries is only 1% and 4% respectively. While 53% of farms in the Eastern European countries grow vegetables, on average the share of vegetables in UAA is only half as much as in the Western farms. It can be assumed that on many Eastern European farms, potatoes and vegetables are of great significance for private use. Industrial crops (sunflower, soy beans, etc.) are grown with particular frequency in Hungary (48% of farms, 21% of the area).

Table 2-18: Utilisation of arable land - percentage of surveyed farms growing the respective crops [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms with arable land	**N**	24	35	49	37	37	20	21	50	42	49	38	202	200	402
		Percentage of farms													
Cereals (without maize)	**%**	92	97	94	76	76	75	76	86	81	96	42	86	78	82
Grain maize	**%**	38	9	0	5	0	10	0	0	38	8	26	8	15	11
Dried pulses	**%**	50	46	31	5	24	10	10	22	19	27	13	28	20	24
Potatoes	**%**	46	51	4	0	30	40	43	82	12	80	61	25	59	42
Industrial crops (Rape, sunflower, soya etc.)	**%**	17	9	6	5	5	5	29	12	48	16	24	7	25	16
Outdoor fresh vegetables, melons, strawberries	**%**	33	34	8	11	32	35	14	56	31	80	61	23	53	38
Forage plants	**%**	50	91	80	73	65	80	52	94	57	78	42	74	68	71
Fallow land / set aside (total)	**%**	67	69	78	8	51	30	14	38	14	0	3	52	15	34
... *Fallow land used for fodder prod.*	**%**	13	57	63	5	38	0	5	0	0	0	0	35	1	18

1) Question asked: How many hectares are devoted to the different crops grown organically on your farm (last harvest)?

Source: Own calculations based on farm survey winter/spring 2004.

The share of permanent crops also shows clear regional differences (Table A-9 and A-10, Annex). Although this is certainly due to varying climatic conditions, labour costs could also play a role here. In most Eastern European countries, significantly more farmers grow permanent crops than in the Western countries (with the exception of Italy). On average, labour-intensive berry plantations occupy 6% of Eastern European permanent crop areas, while this share in the West is just about 1%. Organic vineyards are found especially in Italy, Austria, Switzerland, Hungary, Slovenia and the Czech Republic. In this survey, olive plantations occur only in Italy and account for 54% of the permanent crop area there.

A total of 24% of the farms surveyed operate without organic livestock (Table 2-19). This proportion is especially high in Italy, Hungary and

Estonia. In Estonia, it should be noted that a large share of these farms do not farm completely without livestock, since dairy farming on more than 20% of Estonian organic farms is managed conventionally. Organic cattle husbandry is of most significance on 63% of the farms. About 30% of farms have dairy cows, 35% have suckler cows and 36% are beef producers. Organic dairy cows are most prevalent in Switzerland and in Poland[12]. Here, it should be noted that many Polish farms keep only one to three dairy cows. Suckler cows are kept with above average frequency in the Czech Republic, in the UK and in Slovenia. Sheep production is of special significance in the UK, where 53% of the farms keep sheep compared with a corresponding figure of 23% for the total sample. Pigs and poultry are kept more frequently in the Eastern European countries than in the West, although it could be that many Western farmers did not mention their very small stock of these animals for private use, whereas a large proportion of the Eastern European farmers included them.

Table 2-19: Organic animal production - percentage of surveyed farms raising the respective animals 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	49	50	50	50	50	50	50	300	250	550
		Percentage of farms													
No organic livestock	%	26	12	20	66	6	8	10	42	58	6	10	23	25	24
Bovine animals	%	62	76	64	22	92	84	84	46	24	76	68	66	60	63
… Dairy cows	%	36	34	38	6	18	60	14	34	6	74	6	32	27	30
… Suckler cows	%	40	46	20	4	69	24	74	22	16	4	62	34	36	35
… Bovine animals for meat production	%	16	48	32	18	71	36	64	42	12	30	30	37	36	36
Sheep	%	8	14	24	12	53	26	32	24	22	6	38	23	24	23
Goats	%	8	4	2	0	0	8	12	10	14	10	16	4	12	8
Pigs	%	16	26	2	2	6	22	6	14	14	46	34	12	23	17
… Breeding sows	%	6	8	0	2	4	4	6	6	8	26	10	4	11	7
… Fattening pigs	%	12	26	2	0	6	20	4	14	10	38	24	11	18	14
Poultry	%	16	26	12	0	18	46	10	32	16	74	64	20	39	29
… Laying hens	%	16	26	10	0	14	42	10	30	8	68	64	18	36	26
… Broilers, poulets, turkeys, ducks etc.	%	8	0	6	0	6	6	2	4	12	42	14	4	15	9

1) Question asked: Do you keep any organic livestock? What is the extent of organic animal husbandry on your farm? Please indicate the current stock and the numbers kept/produced in the last year.

Source: Own calculations based on farm survey winter/spring 2004.

As can be seen in Table A-11 (Annex), there are large differences between the herd sizes and annual output per farm, both between and within countries. On average, across all countries, 39 dairy cows are kept on farms with dairy cows. The smallest average herd size is found in Slovenia (4 cows) and Poland (9 cows); the largest herd size is found in

12 In the Austrian sample, dairy farms are underrepresented. This can be traced back to the regional concentration of the survey which includes an arable area.

Hungary (194 cows), the UK (117 cows) and Denmark (83 cows). In the Hungarian average, it should be noted that only three farms have dairy cows and that average herd size is determined by a single, very large farm. Suckler cow husbandry is of more significance in the Eastern European countries where Hungary (407 suckler cows per farm on average) and the Czech Republic (92 suckler cows) predominate. With regard to the Western European countries, Germany, with an average of 72 suckler cows per farm, must also be mentioned. Herd sizes are larger than average particularly in eastern Germany. Organic beef production, with an average production of 24 animals per year, is relatively low and is of more significance in the Western, rather than the Eastern European countries. Sheep husbandry is an important farm activity especially in the UK where average flock size amounts to 254 ewes. Pig husbandry remains of little significance in organic farming. Low performance, high feed costs and difficult market conditions hamper the development of profitable pig production. In this context, average herd size in the Western European countries is only 18 sows per farm, and just 6 per farm in Eastern Europe. Fattening pig production in Western European countries, with an average of 105 pigs produced per year, is also more prominent than in the East. In Eastern European countries, however, poultry is more significant, although flock sizes are much smaller on average. The average number of laying hens is particularly high in Denmark, Germany and the UK. Fattening of poultry is most important in Hungary and the UK.

As shown in Tables 2-20 and 2-21, there are large regional differences in the affiliation of farms to special regional categories[13]. As expected, about 97% of the Eastern European farms are located in Objective 1 Regions. Within the Western European countries, farms located in Objective 1 Regions are particularly notable in Italy, the UK and Germany; farms with Objective 2 status occur above all in Austria. Just under 50% of all farms are located in Less Favoured Areas, although this proportion is higher than average in the Czech Republic, Slovenia, Switzerland, Austria, Germany and Denmark. These data show that the majority of the organic farms surveyed have to cope with difficult natural and/or economic conditions.

In the Czech Republic, Denmark and Germany, the number of farms located in an area, or on the edge of an area, with special environmental regulations is particularly high (Table 2-21). About 44% of the Czech farms are located in or on the edge of a Natural Protection Area. In Denmark, 34% fall into this category, in Germany 20% and in the UK 14%. Farms located in or on the edge of a Water Protection Area are predominantly in Denmark, Germany and the Czech Republic. A higher than average number of farms in or on the edge of Biosphere Reserve areas or National/Regional Parks is found in Hungary, the Czech Republic Slovenia and the UK. These figures show that organic farms are of above average significance in environmentally sensitive areas.

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13 See also Table A-12 in the Annex (Location of the surveyed farms according to distances to the next urban areas).

Table 2-20: Location of the farms surveyed - regional categories 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Objective 1	**%**	0	26	0	64	32	-	98	100	88	100	98	20	97	55
Objective 2	**%**	66	0	6	0	6	-	0	0	2	0	0	13	0	7
Less Favoured Area	**%**	64	62	60	6	24	76*	88	44	12	16	84	49	49	49
None of the categories	**%**	34	14	40	28	50	24	0	0	0	0	0	32	0	17

* Regions defined in the law on investment aid for mountaineous regions (IHG-Regions).

1) Question asked: Does the region belong to one of the following categories: Objective 1, Objective 2, Less favoured area ?

Source: Own calculations based on farm survey winter/spring 2004.

Table 2-21: Percentage of surveyed farms with land located in or on the edge of an area with special environmental regulations 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
National/ Regional Park	**%**	0	0	4	6	14	0	8	0	24	6	6	4	9	6
Biosphere Reserve	**%**	0	6	0	2	0	2	12	0	0	0	10	2	4	3
Landscape Park	**%**	2	2	4	0	2	6	4	8	10	6	2	3	6	4
Natural Protection Area	**%**	4	20	34	4	14	6	44	10	6	4	4	14	14	14
Water Protection Area	**%**	12	30	46	0	4	10	22	6	2	0	10	17	8	13
Other	**%**	2	10	12	0	6	0	2	12	8	4	0	5	5	5

1) Question asked: Is some (or all) of your land located in or on the edge of an area with special environmental regulations (natural protection area, water protection area, etc.)? If yes, please specify.

Source: Own calculations based on farm survey winter/spring 2004.

2.4 Indicators for profitability and policy dependency

Various measures of the economic performance of farms exist. Which measure is the most appropriate depends on the purpose of the analysis. Choice and definition of the most commonly used profitability measures also vary between countries. To ensure comparability of the economic data, a common definition of indicators based on the EU FADN is used in this study (see Box 5). The farm income data from FADNs and from typical farms are supplemented with information from the farm survey concerning the self-assessment of organic farmers with respect to their financial situation.

Farm income results often display very high variation within each sub-sample. For the Western countries, information on the proportion of organic farms with a higher (lower) income indicator value than the respective farm-individual group of comparable conventional farms complements average results, the significance of which may otherwise be overrated. The standard comparison of sample averages is thus supplemented by an evaluation of pair-wise comparisons.

Box 5: Indicators for profitability

How to measure profitability?

Depending on the purpose, different measures of profitability are used in this study:

- Farm Net Value Added (FNVA) measures the return to labour, land and capital resources irrespective of their ownership (e.g., tenanted or owner-occupied, family or paid labour, own or borrowed capital), so that the profitability of similarly structured farms can be compared. As labour intensity may differ between farms, the FNVA is shown per unit of farm labour, measured in agricultural work units (AWU).
- Family Farm Income (FFI) provides information on the return to land, labour and capital resources owned by the farm family, as well as the entrepreneur's risks. To account for differences in family labour use on organic and conventional farms, the FFI is shown per family work unit (FWU).
- Family Farm Income plus Wages per AWU (FFI+W/AWU) serves as an indicator for return to labour. This indicator is used to compare incomes of farms with different legal status (e.g., family farms and limited or joint stock companies which do not employ family labour) which is of relevance especially for the analyses of organic farms in the new member states.

Organic farming is influenced in numerous ways by the economic and regulatory framework for agriculture in Europe (Häring et al. 2004 and Lampkin et al. 1999). To measure the significance of direct payments for the profitability of organic farms, payments are related to output and income indicators (see Box 6). The importance of specific support to organic farming is, in addition, evaluated with respect to its significance as a financial incentive to (re-) convert.

An important issue for the determination of the importance of maintenance payments for organic farming is that of an appropriate reference. Abolition of maintenance payments for organic farming does not automatically mean that the income of organic farms would be reduced by the respective amount. Rather, the organic farms are likely to be eligible – and apply – for other agri-environmental payments, e.g., for the extensive use of grasslands or the elimination of fertilisers and/or pesticides on arable land, without having to change their farm organisation. The extent of the resulting payments is difficult to assess, as programme availability, eligibility criteria and payment levels show a very high regional variation (Tuson & Lampkin 2006 and Hrabalova et al. 2005). As an approximation, in this study it is assumed that the organic farms would be eligible to receive at least the same amount of agri-environmental payments as comparable conventional farms if no specific support for organic farming existed. Thus, the benefit to farms of the specific support for organic farming, dubbed 'extra payments for organic farming' in the subsequent analysis, is given by the difference between the agri-environmental payments to organic and to comparable conventional farms. This approach actually provides an upper estimate of the importance of the extra payments for organic farming, as it seems likely that organic farms may often be eligible for more agri-environmental funds than the comparable conventional farms, without needing to change their production system.

Box 6: Indicators for policy dependency

How to measure policy dependency?

With regard to the importance of support payments for the farms' financial results, three main indicators were employed.

- The relationship between the payments and gross output. Gross output is here defined as the value of agricultural production (revenues from the sales, value of farm house consumption, value of the change in farm inventories) plus revenues from services and forestry plus agricultural subsidies received. This relationship thus provides an impression of the contribution of payments compared to other revenues, e.g., from sales. This measure can be seen as an indication of the level of the 'organic-farming policy' dependency as compared to 'market' and 'other policy' dependency.
- The relationship between payments and Farm Net Value Added or Family Farm Income which measures the dependency of profits on payments for organic farming and can be seen as an indicator of farm vulnerability to changes in specific support policies.
- The profitability of organic farms without specific support measures compared with the profitability of conventional farming which provides an indication of the importance of organic farming policies as a financial incentive to (re-) convert.

How to determine the level of specific support for organic farming?

In this study, the benefit to farms of the specific support for organic farming, dubbed 'extra payments for organic farming', is given by the difference between the agri-environmental payments to organic and to comparable conventional farms.

3 Pre-enlargement situation

Since 1996, organic farmers in all Western European countries have received financial support in the framework of country-specific agri-environment programmes (Lampkin et al. 1999). During the past ten years, both the conditions and levels of support have been adjusted several times in most countries. Nevertheless, there are still large differences in support levels between EU member states[1] (Tuson & Lampkin 2006). Shortly before Eastern expansion of the EU, Western European organic farmers were confronted, on the one hand, with the Agenda 2000 CAP reform and, on the other, with the impact of the BSE crisis. While Agenda 2000[2] policy changes in the cereal and beef sectors had only minimal impacts on most organic farms (see Nieberg et al. 2005), the BSE crisis led to increasing demands for organic products, with many countries expanding the promotion of the organic food sector as a political reaction (through the preparation of Organic Action Plans, increases in organic payments, introduction of new measures, etc.).

Due to the long integration process, a multiplicity of EU regulations and diverse agricultural policy measures had already been implemented in the Eastern European countries in 2003, shortly before accession. Of particular relevance to organic production were both the harmonisation of organic standards and government support for organic farming. As in Western European countries, organic payments were made to organic farms in all the accession countries in 2003. Depending on the country, further payments and subsidies were also available (see Table 3-1). Additional payments relevant for the typical organic farms analysed included: payments for other agri-environmental measures and for Less Favoured Areas; other direct payments (other production-oriented area payments and headage payments); other (indirect) payments, such as interest rate subsidies; compensation for losses; and tax reductions during loan repayments. Differences in the availability of these support measures and variation in the absolute amount of payments have substantial implications for the economic performance of organic farms.

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1 Although differences in the levels of payment reflect, in part, the different levels of average conversion costs in each country, the variance is, in some cases, so great that the possibility of competitive distortions cannot be excluded. Ultimately, it must be borne in mind that the level of payment does not, alone, determine the attractiveness of conversion. In the framework of the Programme for Rural Development, other agri-environmental measures are also supported financially. Consequently, the relative preference for organic farming must also be valued as the payment differential with regard to other agri-environmental measures.

2 The Agenda 2000 package covered many different areas, reforming Common Market organisations in important sectors (continuing the trend of decoupling support from production) and fundamentally restructuring policies for rural development.

Table 3-1: Financial support for organic farms in new member states (2003)

	CZ	EE	HU	PL	SI
Organic farming payments	x	x	x	x	x
Other agri-environmental payments	x	--	x	--	x
Payments for Less Favoured Areas	x	--	--	--	x
Other direct payments	x	x	x	--	x
Other subsidies	--	x	x	x	--

Source: Hrabalova et al. 2005

Against this background, the objective of the following paragraphs is to provide information on the pre-enlargement financial situation of organic farms, differentiated by farm characteristics such as type and location, and to highlight trends where possible. First, 'cross-national' results are presented concerning the economic situation on organic farms, with special focus on contrasting organic farms in the Eastern and Western European countries studied. This part draws on results from the farm survey, as well as on selected results from quantitative data analysis (FADN data analysis and typical farm modelling). An in-depth analysis of the economic performance of organic farms compared with conventional farms follows. Computed financial indicators serve as a basis for the analysis of the importance of organic farming policy, and the impacts of policy reforms and market development in subsequent sections. Finally, as a link to the following chapter, the expectations of the organic farmers interviewed regarding the post-enlargement future are discussed.

3.1 Profitability of organic farms

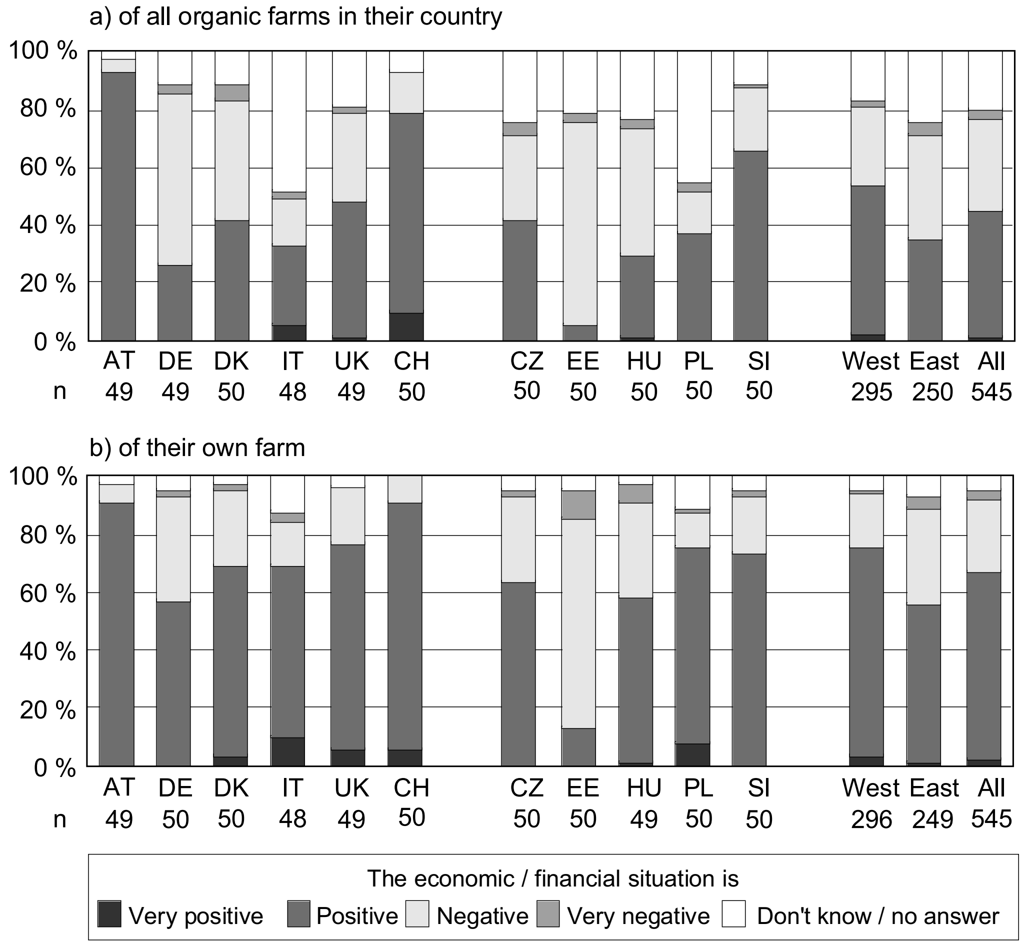
3.1.1 Cross-national results

The aim of this chapter is to compare the economic results of organic farms in the eleven Western and Eastern European countries analysed for this study. In the framework of the farm survey, several questions were asked in order to get an idea of farmers' perceptions of the economic situation in European organic farming. These findings are complemented by a cross-national comparison of quantitative results from FADN data analysis and typical farm modelling.

3.1.1.1 Farmers' assessment

The question to farmers about the present **economic situation** was divided into two sub-questions: the situation of all organic farms in their country and the economic situation of their own farm. Looking at the aggregate results for Western and Eastern European countries (Figure 3-1), it appears that on both levels, fewer farmers in Eastern Europe feel that the current economic situation is 'positive' or 'very positive' in comparison with their Western counterparts: 54% and 36% of Western and Eastern European farmers respectively believe the economic situation of organic farms in their country to be positive. In this respect, the proportion of farmers in the West who judge the economic situation to be positive is lowest in Germany (27%) and highest in Austria (94%). In the East, the corresponding proportions are 6% and 66% in Estonia and Slovenia, respectively. The relatively gloomy perception of the economic situation in Estonia is mainly due to adverse weather conditions for several years and also to the generally poorer natural conditions in this northern country, compared with others.

Figure 3-1: Farmers' perception of the current overall economic situation in organic farming[1)]



n: number of farmers answering

1) Question asked: How do you estimate the overall economic situation of (a) all organic farms in your country, (b) of your own farm, currently and in the future?

Source: Own calculations based on farm survey winter/spring 2004.

Comparing the answers for all organic farms with those for their own farm, it is clear that the economic situation in the latter context is generally seen in a better light (viewed positively by 76% in the West and 57% in the East). There are clear differences between countries but in nearly every country, farmers believe that their own economic circumstances are better than those of all organic farms or organic farms with a similar focus of production. While the information given by farmers about the economic situation overall in their countries reflects the general public mood regarding the organic scene most closely (as disseminated in the specialist press and elsewhere), it can be assumed that a more realistic reflection of the actual situation is provided through the assessment of their own farms. Some of the farms surveyed appear to be less affected by general market trends than others due to long-term trade relationships and/or well-functioning direct marketing. However, in an interview situation, it must also be noted that some farmers may find it easier to portray their own farms as successful enterprises, rather than point to possible deficiencies in farm management.

More detailed analyses were conducted with regard to farmers' perceptions of the economic circumstances on their own farm. The results for farm types on a country-by-country basis show that, in Germany particularly, dairy farmers feel their situation to be negative (55%). This holds true in Denmark for other grazing livestock (excluding dairy) farms (also 55%); in Italy and Poland for grazing livestock farms in general (64 % and 33%, respectively); and in Slovenia for arable farms (40%). For Polish farmers, the extent of positive assessments of their own economic situation is highest for mixed and arable farmers (both 80%).

A large number of organic farmers receive **non-farming income** (income from activities other than farming, or off-farm income), in addition to that from the farm. Although the proportion of farms with non-farm income is equally high in Western and Eastern European countries (66%), there are important differences (Figure A-2, Annex). The highest percentage of additional off-farm income is found in Denmark (88%), followed by Slovenia (84%), Estonia (79%) and Switzerland (78%).

According to farmers' responses, there is great diversity in types of other income on the farm (Table A-13, Annex). The most important source is off-farm income, where a family member works outside the farm but at least one other family member is engaged on the farm enterprise. This is the case in 44% of the Western European and 28% of the Eastern European farms. Other important sources of non-farming income involve contracting labour or machinery, agro-tourism and, additionally in the East, forestry. There are many differences between countries.

As the significance of non-farming income for the farm household varies widely, the farmers were asked to estimate the non-farm share of total family income (Figure A-3, Annex). Their responses indicate that this type of income seems to be more important in Eastern European countries, where there is a higher proportion of farms on which non-farming income contributes more than a 30% share of total income. Looking at the countries themselves, there are significant variations. Farms with an non-farm income of more than 60% of total income are most evident in Denmark and Slovenia.

Although the majority of Western and Eastern European farmers describe the economic situation on their farm as positive, a range of the most urgent financial and/or business management constraints which, in the opinion of farmers, limit farm development (see Table 3-2) are identified. For the Eastern European farmers, the main complaint is lack of access to organic markets (43%). In contrast, this obstacle does not seem to be as significant for Western European farmers (14%) who cite the main problem as being low output prices for most products (39%) — a restriction that is also mentioned comparatively frequently in the East (33%). More often, however, Eastern European farmers identify high investment costs (37%) as a limitation, which is understandable considering the substantial investment needs on farms. Conversely, only 16% of the Western European farmers surveyed see high investment costs as the most urgent financial constraint. Further significant differences in the evaluation of limitations between the West and the East relate to the cost of organic inputs and lack of access to credit. Thus, the high costs of seeds/transplanting and of fodder are much more frequently seen as obstacles by Western, rather than by Eastern, farmers. These, in turn, see lack of credit as a major problem. It is interesting (and unexpected) that, across all countries, high labour costs are identified as a constraint with almost equal frequency, namely by 21% and 24% of farmers in the West and East, respectively.

Table 3-2: Farmers' assessment of the most urgent financial and/or business management constraints on their farms[1)]

		Country											Region		All
		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	
Number of farms		50	50	50	50	49	49	50	50	50	50	49	298	249	547
		Percentage of farms													
High costs of seeds/transplants	%	12	30	26	38	22	12	8	6	28	4	27	23	14	19
High costs of fodder	%	28	28	26	10	12	43	6	2	6	2	18	24	7	16
High costs of other specific organic inputs	%	10	4	4	38	24	4	2	2	6	30	14	14	11	13
High labour costs	%	44	18	4	32	22	27	16	2	24	38	27	24	21	23
High investment costs	%	36	16	6	4	16	18	34	56	24	20	51	16	37	26
Instability of yields	%	12	10	22	24	14	16	12	4	26	14	20	16	15	16
Lack of access to organic markets (incl. export, processors etc.)	%	14	26	10	4	20	10	54	60	42	34	27	14	43	27
Low output prices for most products	%	24	44	52	64	31	16	36	60	14	26	29	39	33	36
Very high price instability on product markets	%	12	6	38	10	6	6	30	0	4	20	10	13	13	13
No possibilities to expand farm size	%	8	8	16	6	14	37	12	4	20	12	10	15	12	13
No possibilities to expand buildings due to space limitations	%	2	4	4	2	0	4	4	0	2	8	0	3	3	3
Lack of acces to credits	%	0	6	6	0	4	6	34	2	16	14	8	4	15	9
Lack of/or insufficient organic payments	%	0	0	4	22	27	6	20	12	38	20	6	10	19	14
Other financial problems	%	6	2	8	4	16	2	10	0	6	12	4	6	6	6
No constraints at all	%	6	6	4	0	2	12	0	6	2	4	0	5	2	4

1) *Question asked: What are the most urgent financial and/or business management constraints for your farm (max. 3 answers)?*

Source: Own calculations based on farm survey winter/spring 2004.

Conversion from conventional to organic production means a change of production system and this usually affects the economic situation of converting farms in both the short and long run. Each farmer was asked about the effects of conversion in their particular case, both during the conversion period and after completion (Figure A-4, Annex). On aggregate, the results for the Western and Eastern European countries are similar, with about one-quarter of farms (26%) in both cases reporting that conversion was accompanied by a small or substantial deterioration during the conversion period. The proportion of farmers assessing their economic situation as having improved during conversion is higher in the West (32%) than in the East (26%). However, there are substantial differences between countries.

Looking at the circumstances after completion of the conversion period the picture changes completely (Figure A-5, Annex), with a total of 60% of farmers in the West and 55% of those in the East reporting that their economic situation had improved (large and small improvement). Only 7% (West) and 6% (East) of farmers describe the situation as being worse than before conversion. Again, however, the differences between countries must be emphasised. The highest proportion of farmers who felt that their economic situation was better than before is in Austria (74%), whereas the lowest is in the UK (48%). Interestingly, Polish farmers who, quite frequently, reported a deterioration of economic performance during the conversion period realised the best results after completion (75% of the farms improved).

Comparing the economic situation during and after conversion, it can be said that, in more than one-quarter of all cases, improvement during the conversion period was also followed by improvement afterwards (Table A-14, Annex). There are only differences between Western and Eastern European countries on farms that report no changes at all during the conversion period. In the West, this situation is followed most frequently (19%) by an improvement; conversely, in the East, there continues to be no change. For the most part, in both the West and the East, a deterioration of the economic situation at the beginning of organic farming transforms into improvement after conversion. All the cases that do not lead to a permanent deterioration of economic circumstances add up to 86% in the West and 88% in the East, so that it can be concluded that conversion to organic farming was a good decision for the vast majority of the organic farms surveyed.

3.1.1.2 Farm level quantitative results

The farm survey results give a good idea of the farmers' own perception of their economic situation. In the following paragraphs, this picture is complemented by information on income derived from the analysis of farm accountancy data and typical farm modelling. To this end, selected results from Western and Eastern European countries are presented jointly in order to provide an overview of the profitability of organic farms in Europe and to allow a comparison of results.

For the comparison of the economic performance of organic farms, the indicators FFI+W/AWU (Family Farm Income + Wages per Agricultural Working Unit) and FNVA/AWU (Farm Net Value Added per Agricultural

Working Unit) were chosen (see Chapter 2.4, Box 5). The first, FFI+W/AWU, serves as an indicator of the return for labour on the farm, whereas FNVA/AWU represents the remuneration of land, labour and capital.

No clear distinction is possible between the income situation of organic farmers in Western and Eastern European countries according to FFI+W/AWU (Figure 3-2), although the majority of Western European farmers realise higher FFI+W/AWU than their Eastern counterparts. However, the typical large arable farm in the Czech Republic and the medium-sized typical arable farm in Hungary perform better than the Danish and Italian farms. The picture is much clearer when comparing dairy farms in the West and in the East. The FFI+W/AWU of the small Danish farm, which ranks lowest in terms of the Western dairy farms, is only slightly less than that of the best performing typical Hungarian dairy farms in the East. The only organic farm type where there are no differences in profitability between the West and the East are grazing livestock farms, excluding dairy: two out of five typical Eastern European farms realise higher FFI+W/AWU than farms in Germany and in the UK.

The comparison of profitability across countries reveals no correlation between profitability and farm size, i.e., country-specific influences such as price levels seem to be more important than size effects. Interestingly, comparing farms of different sizes within a country, a clear positive correlation between farm size and profitability exists in Western, but not always in Eastern, countries. This lack of correlation between farm size and income in Eastern Europe is a consequence of the very wide range of economic success covered by the typical organic farms selected for this study.[3] At any rate, for the two Polish arable farms, the size effect is misleading, as the smaller arable farm is an intensively-managed fruit and vegetable farm which is rather successful in economic terms. This farm employs seasonal workers to a large extent, so that the chosen indicator, FFI+W/AWU, underestimates the farm's profit. The relatively low profitability of the Estonian farms is, to a large degree, the result of unfavourable natural conditions in 2003, as well as in the two preceding years.

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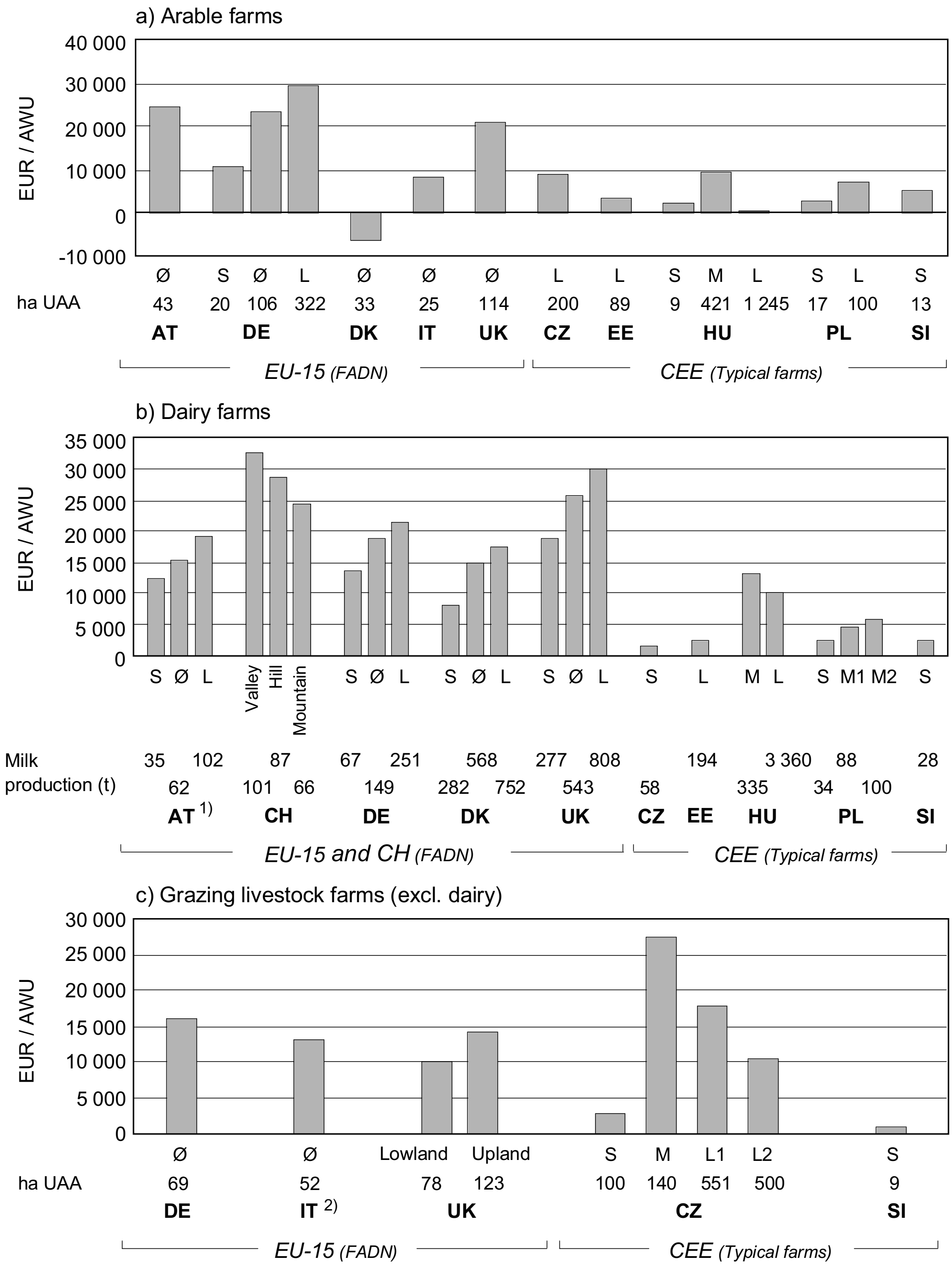
3 The very low FFI+W/AWU in the case of the typical large arable farm in Hungary is caused partly by unfavourable ecological conditions and partly by a large number of small fields, thus implying high costs. Another point is that the farm does not receive organic price premiums for its products.

Figure 3-2: Profitability of organic farms in Western and in Eastern European countries (FFI+W/AWU)



Data is referring to 2001 for Western and 2003 for Eastern European countries.
S = small farms; M = medium-sized farms; L = large farms; Ø = average of all sample farms
Size definitions:
Eastern European countries: Farm size compared to national average.
DE, arable farms: small farms = less than 30 ha, large farms = 100 ha or more.
AT, dairy farms: small farms= less than 15 cows, large farms= 15 or more cows.
DE, dairy farms: small farms = less than 100 t milk, large farms 150 t milk or more.
DK, UK, dairy farms: small farms = less than 80 cows, large farms= 80 or more cows.
1) Dairy farms and other grazing livestock farms.
2) Grazing livestock farms including dairy farms.

Source: Own calculations based on national FADNs and on typical farm modelling.

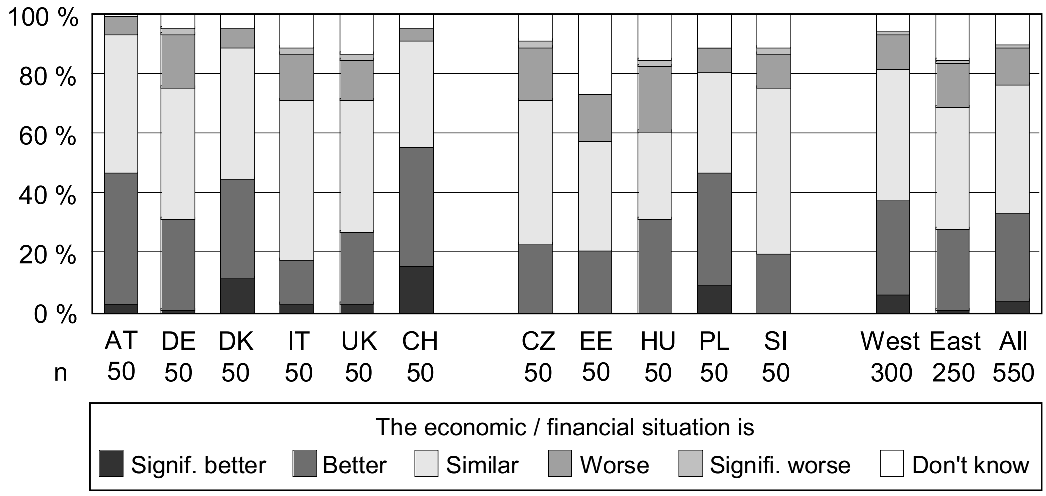
On average, FNVA/AWU of organic arable farms in all of the Western European countries is higher than in the Eastern European countries (Tables A-15 and A-16, Annex). Differences between the two indicators are less pronounced in Eastern Europe while in the West (particularly Germany, Denmark, Italy and the UK where capital and land costs, as well as rental shares, are high), FFI+W/AWU is much lower than FNVA/AWU. The situation is quite similar for organic dairy farms where the FNVA/AWU is again higher in the West than the East. The highest value for FNVA/AWU in the East is evident on the larger Hungarian farms, where it nearly matches that of the smaller of the dairy farms in Austria.

3.1.2 Comparing profitability with that of conventional farms

3.1.2.1 Farmers' assessment of their economic performance in comparison with conventional farming

When asked for an assessment of the economic performance of their own farm relative to comparable conventional farms in the same region, responses were predominantly positive again (Figure 3-3).

Figure 3-3: Farmers' assessment of the economic situation on their farms in comparison with comparable[1)] conventional farms in the same region[2)]



1) Comparable = very similar according to system of production, location and farm size.

2) Question asked: How do you estimate your own economic / financial situation in comparison with comparable conventional farms in this region?

Source: Own calculations based on farm survey winter/spring 2004.

Looking at the aggregate results for Western and Eastern European countries, it appears that the number of farmers who believe that they perform 'significantly better' or 'better' than their comparable conventional neighbours is higher in the West (38%) than in the East (29%). On the whole, in comparison with comparable conventional farms, positive perceptions of own economic results outweigh the negative. However, the variation of responses between individual countries is greater than that observed between the Western and Eastern groups of farmers. For example, among the West European countries, it is in Italy that the proportion of farmers who think they perform better (at 18%) is only as high as the corresponding numbers who judge their results to be worse than those of comparable conventional farms. The perception of the 'own farm' situation is fairly evenly split in the Czech Republic, where 24% of the farmers believe they perform better, compared with 20% who think they perform worse, or significantly worse, than comparable conventional colleagues. The highest proportion of farmers who perceive their own situation to be better than that of their comparable conventional neighbours is found in Switzerland (56%). Conversely, Hungarian farmers show the highest share of negative perceptions of their own situation in relation to comparable conventional farms. On the other hand, 48% of the Polish farmers judge their own economic performance to be better than that of their comparable conventional counterparts.

In comparing country responses according to different organic farm types, one interesting result is that, in Germany, about one-third of mixed farmers and 36% of dairy farmers believe that they perform worse relative to comparable conventional farms.[1] Looking at Switzerland, the proportion of farmers who think they deliver better results is highest for the group of dairy farmers (70%). The same holds true for dairy farmers in the UK (43%) and in Denmark (36%). Compared with other organic farms in Italy, a relatively high percentage of permanent crop and horticultural farmers (39%) estimate that they achieve better or even significantly better results, while grazing livestock farms are perceived to perform worst in comparison with comparable conventional farms. A total of 58% of the farmers believe that they produce worse results. In Estonia, it is the grazing livestock farmers (excluding dairy) who, most frequently (56%), consider their economic performance to be better; in Poland, it is farmers on permanent crop and horticultural farms who judge similarly (71%); but, in Hungary, the corresponding percentage of farmers with positive perceptions of their performance is highest on mixed farms (56%).

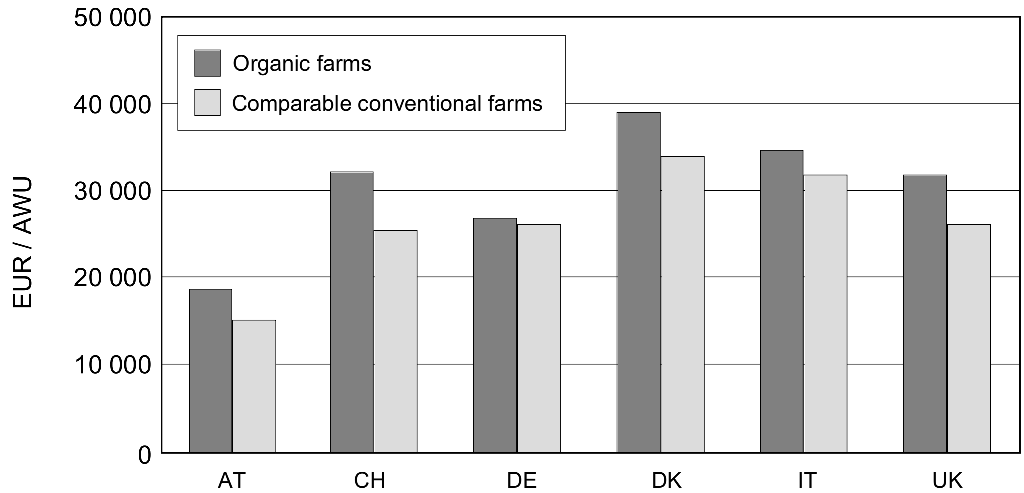
The analysis was also conducted for the effects of size, but there were no indications that larger or smaller farms judge their own situation to be better than comparable conventional enterprises, and no overall trends were detected. This is somewhat different within the countries themselves: in Austria, smaller, rather than larger, farmers more frequently rate their economic performance as worse than that of conventional farms; in Germany, 55% of farmers with the largest holdings (> 200 ha) think that their economic situation is better than that of their conventional counterparts (whereas the average for all farmers is only 32%); in the UK, the percentage of farmers convinced that they perform worse is higher for larger farms; and in Switzerland, only very small farms think they perform is worse by comparison. In Hungary, it is both the very small and very large farms that feel they achieve better results, whereas in Poland, the smallest farm size goes along with this assessment. Finally, in Slovenia, a clear trend exists for larger, rather than smaller, farms to rate their economic performance as being better than that of conventional producers.

3.1.2.2 Income on organic in relation to comparable conventional farms

In the following paragraphs, the income levels of organic farms are compared with those of comparable conventional farms[4], based on the analysis of farm accounts data and typical farm modelling.

In all of the **Western countries** analysed, the FNVA/AWU achieved a higher value in the sample of organic farms, on average, compared with the conventional sample in 2001 (Figure 3-4). The difference in FNVA/AWU ranges from +2% in Germany to +25% in Switzerland, and there is substantial variation within the samples. In the Austrian samples, for example, despite the organic average being 23% higher than the conventional, about one-third of the organic farms in the sample actually fared worse than the respective comparable conventional farms, indicating the significant influence of farm and farm manager characteristics. This also implies that some of the organic farms in the sample perform extremely well in comparison to the reference group.

Figure 3-4: ***FNVA/AWU on organic and comparable conventional farms in selected Western European countries, 2001***



	AT	CH	DE	DK	IT	UK
Number of farms	317	244	224	199	751	115
% OF > CCF 1)	63%	72%	53%	63%	n.a.	61%

1) Share of organic farms in the sample with a higher FNVA/AWU than the respective comparable conventional farm group.

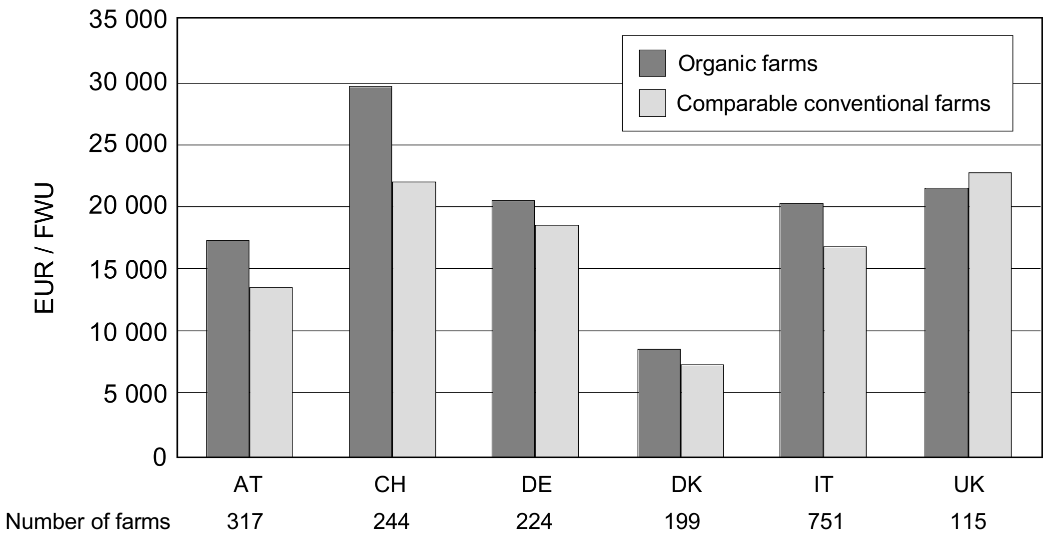
Source: Own calculations based on national FADNs.

The results look similar in most countries for the income indicator 'Family Farm Income per Family Work Unit' or FFI/FWU (Figure 3-5). Notable differences can be observed for

[4] See Chapter 2.1.2 for the concept of comparable conventional farms.

- Denmark, where the return to family-owned factors is very low on both organic and conventional farms due to high interest payments. These are mainly a consequence of the particular principles of inheritance and succession, plus high interest rates (van Bommel et al. 2004), and
- the UK, where organic farms in the sample have a higher share of rented land, face higher rental prices and pay higher wages to non-family workers than the comparable conventional farms. FFI/FWU is thus lower (-6%) for the organic farms.

Figure 3-5: FFI/FWU on organic and comparable conventional farms in selected Western European countries, 2001



Source: Own calculations based on national FADNs.

In the **new member states**, no data were available for the economic performance of comparable conventional farms. Thus, relating results of typical organic farms to those for comparable conventional farms is not possible. Nevertheless, helpful insights may be gained from comparing the results from the typical organic farms with national FADN data (Table 3-3). The comparison clearly shows that there are very successful typical organic farms in most of the countries studied, as well as farms with rather poor economic performance. In particular, the large arable and larger cow-calf farms in the Czech Republic and the dairy farms in Hungary perform very well compared with national averages. On the other hand, typical organic farms in Poland show results which are, for the most part, worse that the national averages. However, the results should be treated with caution. For example, conclusions for Poland which suggest that organic farming is generally an inferior choice in economic terms, relative to conventional farming, must be seen as premature. The selection of 'typical farms' proved to be very difficult in the Polish case, as organic farming is extremely diversified and every farm appears to adopt its own individual system.

Table 3-3 FNVA/AWU on typical organic farms in selected Eastern European countries compared with FNVA/AWU from FADN data, 2003, €/AWU

Typical organic farms (farm size)		**National Averages** (average farm size)	
Czech Republic			
Arable (large, 200 ha)	10 334	Field crops farms (576 ha)	4 600
Dairy (small, 64 ha, 58 t milk,)	1 596	Dairy farms (433 ha)	4 440
Cow-calf (small, 100 ha)	2 959	Grazing livestock farms[1] (247 ha)	5 860
Cow-calf (medium, 140 ha)	28 291	Grazing livestock farms[1] (247 ha)	5 860
Cow-calf (large, 551 ha, 145 cows)	23 220	Grazing livestock farms[1] (247 ha)	5 860
Cow-calf (large, 500 ha, 160 cows)	10 756	Grazing livestock farms[1] (247 ha)	5 860
Estonia			
Arable (large, 89 ha)	2 980	Field crops farms (64 ha)	4 190
Dairy (large, 230 ha, 194 t milk)	2 615	Dairy farms (148 ha)	3 390
Hungary			
Arable (small, 9 ha)	2 136	Field crops farms (58 ha)	4 860
Arable (medium, 374 ha)	12 435	Field crops farms (58 ha)	4 860
Arable (large, 1 245 ha)	2 975	Field crops farms (58 ha)	4 860
Dairy (medium, 290 ha, 335 t milk)	14 634	Dairy farms (44 ha)	4 250
Dairy (large, 1 850 ha, 3 360 t milk)	12 432	Dairy farms (44 ha)	4 250
Poland			
Arable (small, 17 ha)	2 642	Field crops farms (56 ha)	8 907
Arable (large, 100 ha)	6 733	Field crops farms (56 ha)	8 907
Dairy (small, 17 ha, 34 t milk)	2 565	Mixed crops-livestock (31 ha)	4 790
Dairy (medium, 18 ha, 88 t milk)	4 618	Dairy farms (26 ha)	7 236
Dairy (medium, 48 ha, 100 t milk)	5 945	Dairy farms (26 ha)	7 236
Slovenia			
Arable (small, 13 ha)	5 373	All farms (6 ha)	2 684 [2]
Dairy (small,13 ha, 28 t milk)	2 466	All farms (6 ha)	2 684 [2]
Cow-calf (small, 9 ha, 9 cows)	956	All farms (6 ha)	2 684 [2]

[1] Excl. milk.

[2] Factor income agriculture.

Sources: Own calculations based on typical farm modelling, European commission (2005), Agricultural Accountancy Department (2004), SORS (2006)

In the **Western European countries**, income comparisons were further stratified to analyse the possible influences of structural and regional farm characteristics on the relative profitability of organic farming.

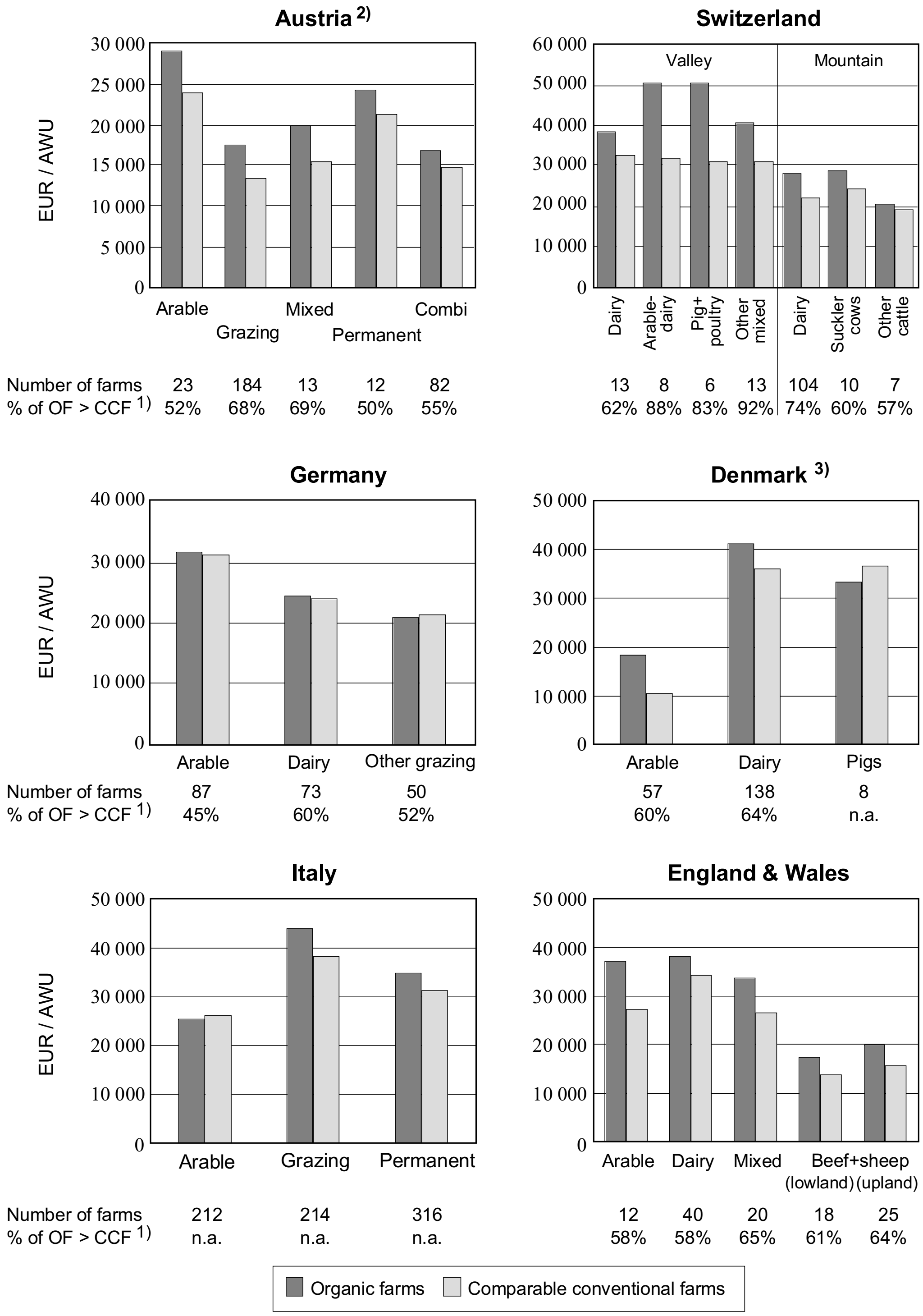
The results for different farm types are grouped by country rather than by farm type (Figure 3-6), as the representation of different farm types in the FADN database is very much dependent on the country. With the exception of Switzerland (where sample size was very small for some farm types), the ranking order of absolute values for FNVA/AWU by farm type is the same for both organic and conventional farms. However, there is no overall trend across countries for any single farm type with respect to relative performance. For example, organic arable farms (mixed arable in Switzerland) appear to perform considerably better –

also in comparison with other farm types – than the respective conventional reference farms in Austria, Denmark, Switzerland and the UK, but are on par with, or slightly less successful than, comparable conventional farms in Germany and Italy.

Looking at the results by country, the following aspects can be highlighted:

- In Austria, FNVA/AWU is consistently higher, on average, for the samples of all types of organic farms, though small sample sizes do not allow final conclusions to be drawn for some farm types. For example, although the average value of FNVA/AWU is higher than that of the comparable conventional farms for the sub-sample of twelve organic permanent crop farms, only half of these fared better than the respective conventional reference farms when examined on an individual farm basis. This may also reflect the diversity of farms classified as permanent crop farms which include, e.g., fruit and berry farms, as well as wine producers. In addition, these farms are characterised by high yearly fluctuations of yields and revenues, as well as by an individual and very different involvement in on-farm processing and direct marketing.
- The Swiss data were stratified further by production zone, as conditions within each zone differ to such an extent that any differences between farm types would be distorted if location were not taken into account. Organic farms of all types fare better than the conventional reference farms and, in some cases, significantly so. As the samples are small (with the exception of dairy farms in the mountains), the results need to be interpreted with caution.
- In Germany, the profitability of organic farms is, on average, very similar to that of comparable conventional farms, for all farm types.
- In Denmark, comparison with the conventional reference group is most favourable in the case of organic arable farms. The absolute value of FNVA/AWU on these farms is, however, relatively low, as many of the farms in this group are small, part-time farms. Any interpretation must also take into account that family farm income is negative on both organic and comparable conventional arable farms. Organic dairy farms also have higher profits than the conventional reference farms. The organic pig farms have a slightly lower FNVA/AWU than the conventional farms but the sample is too small to draw any definite conclusions.

Figure 3-6: FNVA/AWU by farm type on organic and comparable conventional farms in selected Western European countries, 2001



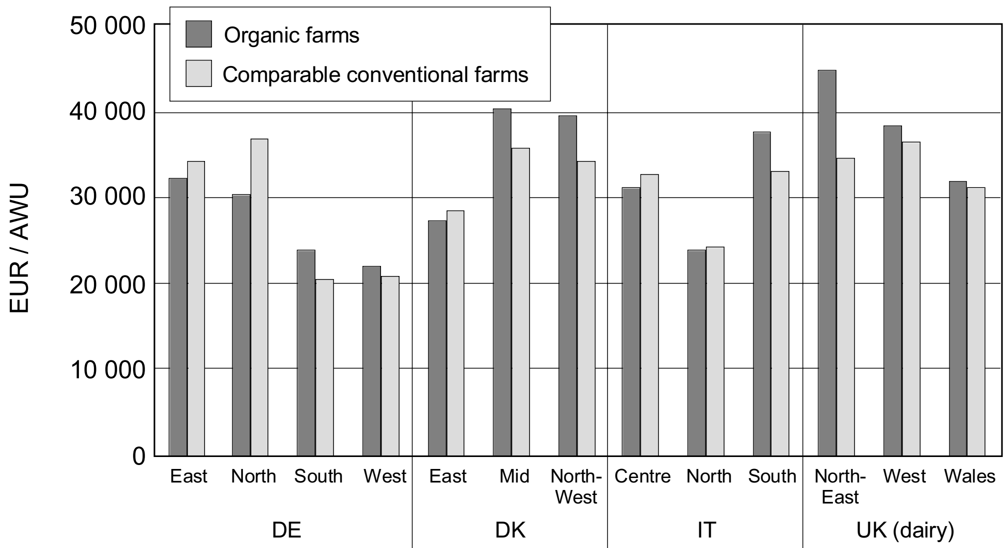
1) Share of organic farms in the sample with a higher FNVA/AWU than the respective comparable conventional farm group.
2) Combi = farms with more than 25 % of total Standardised Gross Margin from forestry.
3) Values for farm type "Pig" extrapolated from 2000 + 2002.

Source: Own calculations based on national FADNs.

- In Italy, even when differentiating by farm type, the samples remain large and provide a basis for reliable results. Values for FNVA/AWU on organic grazing livestock farms are, on average, 15% higher than those of comparable conventional farms. This can be attributed to favourable prices for organic livestock products in Italy which, in combination with support payments, more than outweigh the, often marginally higher, production costs. Income on organic permanent crop farms is 11% higher than on the reference farms, due partly to the comparatively high support payments for permanent cultures under organic management. On the other hand, the income of organic arable farms is slightly less than that relating to conventional management, as a consequence of low premium prices for organic cereals since 2001.
- In the UK, organic farms of all types have a higher FNVA/AWU than comparable conventional farms. Again, the most favourable differential is observed for arable farms; the sample is, however, quite small.

An analysis of income stratified by region reveals some significant differences in the relative profitability of organic farming (Figure 3-7).

Figure 3-7: FNVA/AWU on organic and comparable conventional farms in selected Western European countries, 2001



	DE East	DE North	DE South	DE West	DK East	DK Mid	DK North-West	IT Centre	IT North	IT South	UK North-East	UK West	UK Wales
Number of farms	25	38	129	32	10	31	158	98	76	577	13	13	14
% OF > CCF [1]	44%	34%	61%	47%	40%	55%	66%	n.a.	n.a.	n.a.	69%	38%	64%

1) Share of organic farms in the sample with a higher FNVA/AWU than the respective comparable conventional farm group.

Source: Own calculations based on national FADNs.

The underlying explanations differ according to country. In the south of Italy, the FNVA/AWU of organic farms is higher than that of conventional holdings, while it is of equal value or is somewhat lower in the other regions. This picture corresponds to regional differences in the uptake of organic farming in Italy. A similar observation can be made in

Denmark, where the comparatively favourable organic performance in the north-west and central parts of the country matches the regional distribution of organic farms. The situation is more complex in Germany. In the south, organic farms perform best compared with their conventional counterparts, possibly reflecting the relatively long-standing existence of organic farms in this part of the country, which is often associated with good access to organic marketing channels. Also in the south, demand for organic products is relatively high and direct marketing is an attractive option for many farms due to population density. In the east, however, the below average relative performance of organic farms stands in contrast to the high overall shares of organic farming observed in this region. This result, however, may be influenced by the unfavourable weather conditions in the eastern parts of Germany during 2001. In the UK, the regional differentiation was undertaken only for dairy farms, to avoid distortion caused by the existing regional concentration of organic farms of specific types. This resulted in rather small sample sizes, with outliers possibly influencing sample averages. Thus, the relatively high income on organic dairy farms in the north-east must be interpreted with some caution, even though the good performance may be explained, in part, by the fact that, on average, the farms in this region achieve the highest milk output per hectare, and received higher agri-environmental payments for this year.

Financial results were also stratified by farm size, altitude and the share of income from farming in total income, in order to examine the influence of the respective variables on economic performance under organic management (see Table A-17 in the Annex).

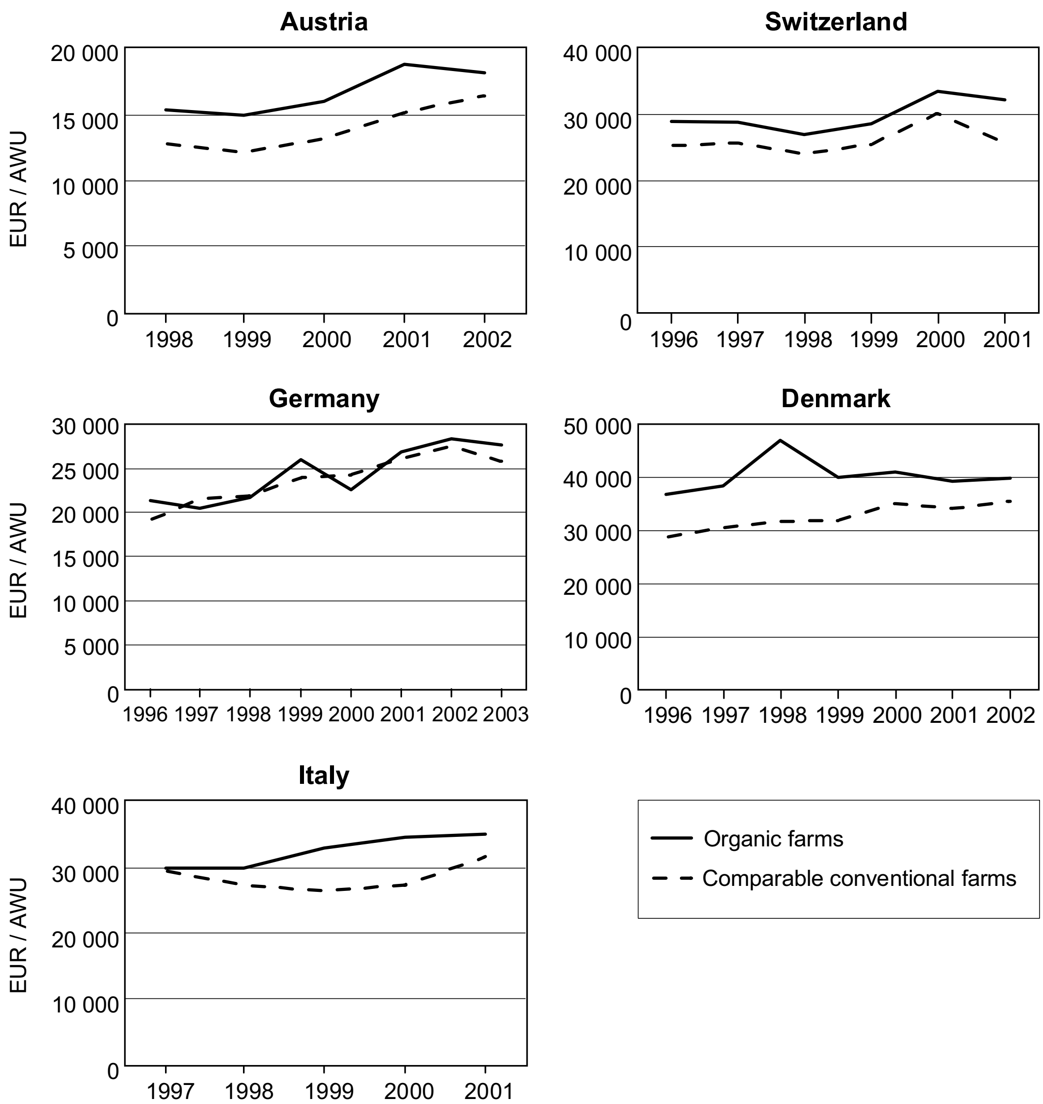
- As in conventional farming, there is a clear correlation between FNVA/AWU and farm size on organic farms. Interestingly, with the exception of Germany, there is no difference in performance relative to conventional farming between farms of different sizes, and average FNVA/AWU is higher on organic farms than conventional farms in all size classes. Departure from this tendency in German data may be explained by large regional differences in farm structure which, in this case, seem to dominate size effects.
- A distinction was made between profitability on full-time and part-time farms in Germany and Denmark. In both cases, in relative terms, the comparison with conventional farming is positive, particularly for the part-time farms, which may indicate that organic farming is an option for increasing the viability of part-time farming. However, in absolute terms, the returns per AWU on part-time farms are also low for organic farms, especially in Denmark.
- A stratification of farms by altitude showed no differences in relative performance.

3.1.2.3 Time series

This section provides an overview of the development of income on organic and comparable conventional farms in **Western European countries**[5] in the years preceding EU enlargement.

On average, the profitability of organic and comparable conventional farming, measured by FNVA/AWU, has developed along similar lines (Figure 3-8), with the exception of Denmark. Here, profits from conventional farming appear to have been catching up over the past few years, according to the time series data available.

Figure 3-8: Development of FNVA/AWU on organic and comparable conventional farms in selected Western European countries, all farms



Source: Own calculations based on national FADNs.

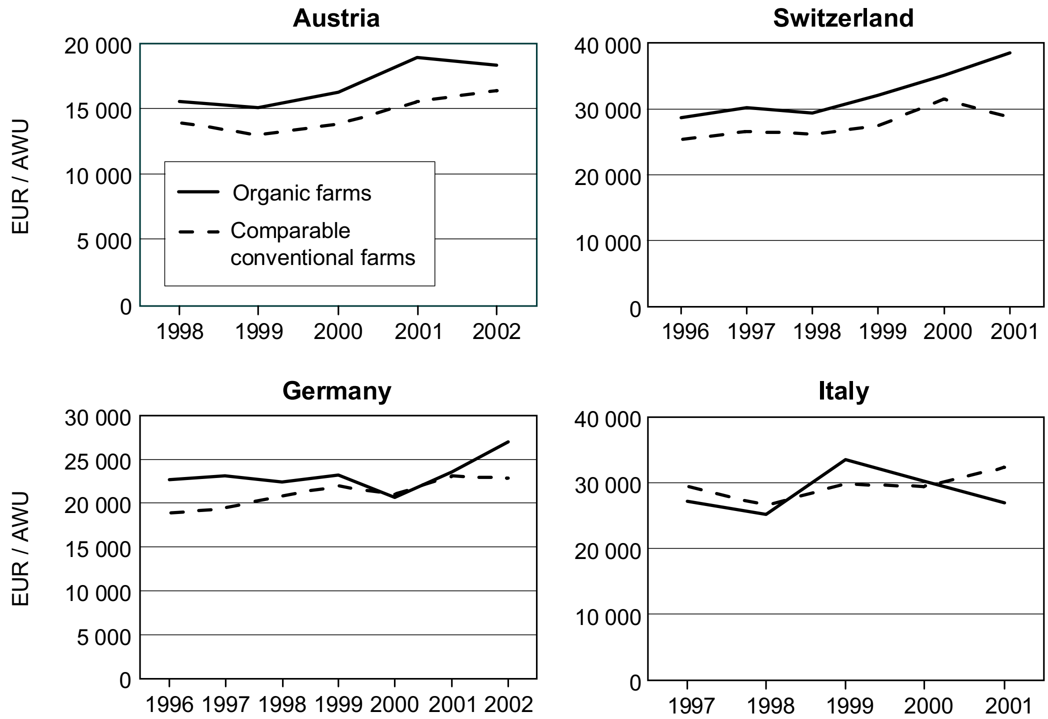
[5] No such data was available for organic farms in the Eastern European countries.

The significant increase in the absolute values for FNVA/AWU in Austria and Germany is due to an increase in the average size of the organic farms in the FADN sample. This is only partly the result of an expansion in the size of organic farms over time, the increase being also due to a change in sample composition, with a higher share of large farms included in more recent data.

To eliminate the possible influence of sample changes (see Table 2-2) on the development of profitability indicators, the time series data were also analysed for constant farm samples where available (Figure 3-9).

- For Austria, results for the constant samples (n=214) are similar to the results for the total samples, reflecting a continuity of total sample composition.
- This is also the case for the Swiss samples, aside from the positive development of FNVA/AWU on organic farms in 2001 which is even more pronounced in the constant sample (n=22) in comparison with the total sample. The reasons for the widening gap between organic and conventional farm incomes include reduced revenues and rising feeding costs in conventional livestock production in 2001.
- In Germany, due to large changes in the composition of the total FADN sample over time, results for constant farm samples (n=84) differ significantly from the picture for the total sample. In the mid-1990s, organic farms in the constant sample compared quite favourably with conventional reference farms. This can be attributed to the fact that most of the organic farms in the constant sample are located in the south, where organic marketing conditions are often good (see the regional results discussed above, Figure 3-7). However, relative profitability declined continuously until 2000/2001. This may reflect the pressure on organic market prices following the increased numbers of farms converting to organic farming in the second half of the 1990s, which eroded pioneer profits. From 2001 onwards, FNVA/AWU increased again as the result of rising payment levels for organic farming in Germany and an increase in demand (see Chapter 3.2.1.3).
- In Italy, the picture for the constant farm sample (n=52) also differs from total sample results. While average FNVA/AWU is higher for organic farms than for comparable conventional farms in the total sample, it is lower in three out of five years in the constant sample. This relates to the fact that many farms in the constant sample experienced problems with respect to transition from the first five-year contracts, according to Council Regulation (EEC) 2078/92, to new contracts (see Chapter 3.2.1.3).

Figure 3-9: ***Development of FNVA/AWU on organic and comparable conventional farms in selected Western European countries, constant farm samples***



Source: Own calculations based on national FADNs.

3.2 Importance of organic farming policies for financial performance

The objective of this section is to determine the importance of policies to support organic farming, in terms of the financial performance of the farms. Many different programmes offer support for organic farming (see Tuson & Lampkin 2006 and Hrabalova et al. 2005). Area payments for organic farming within the agri-environmental programmes account for the major share of total organic support. Thus, the quantitative analysis focuses on measuring the significance of these payments in organic farming. Possibilities for identifying the share of other payments made specifically for organic farming, e.g., within the category of ‘investment aid’, are generally restricted in the FADN database. The farm survey, therefore, included several questions designed to provide a picture of farmers’ assessment in other areas of support. For typical farms in the new member states, data are available for organic farming payments, for other environmental payments, for payments to Less Favoured Areas and for other financial support, such as investment aid.

This section starts with the joint presentation of results for Western and Eastern European countries, based on the farm survey and on the analysis of farm accounts and typical farm modelling. Farm type differences and, as far as data availability permits, developments are highlighted. The second part then provides an analysis of the importance of total direct payments for organic compared to conventional farms for selected countries of the EU-15 and Switzerland.

3.2.1 Cross-national results

3.2.1.1 Availability of organic farming payments

Organic farming support is one of many agri-environmental measures offered within the framework of the Programme for Rural Development. According to Council Regulation (EC) 1257/1999, the payments have to be calculated on the basis of income foregone, additional costs resulting from the commitment given and the need to provide an incentive (maximum 20%). Due to strongly differing conditions across Europe, both the design of measures and the level of premiums vary significantly between European countries (see Table 3-4). For example in 2003, maintenance payments for arable land varied between 44 €/ha in England to more than 300 €/ha, e.g., in Austria and Slovenia.

Table 3-4: Maintenance payments for organic farming in selected European countries in 2003 (€/ha)

	AT	DE 1)	DK	IT 2)	UK 3)	CH	CZ	EE	HU	PL	SI
Arable land	327	102-255	81	111-600	0-51	527	63	45	79	57	345
Grassland	96-251	102-255	81	85-525	0-51	132	31	19/22	40	18	86/171
Permanent crops	799	358-924	81	298-900	0-51	790	110	128	83	114	517
Vegetables	509-654	128-410	81	295-600	0-44	790	63/110	128	79/83	92	443

1) Payments in DE vary according to "Bundesland".
2) Payments in IT vary according to region. In some cases there exist other (additional) classification, so that these number only can serve as an approximation.
3) Payments in UK vary according to region (England, Wales, Scotland, Northern Ireland).

Source: Tuson & Lampkin (2006) and Hrabalova et al. (2005)

During the survey, farmers were asked for details of their participation in organic farming schemes. Almost all of the farms surveyed (97%) receive payments for organic farming (Table 3-5), ranging from 90% of farms in Italy to 100% in Austria, Denmark, Germany, the Czech Republic and Poland. On average, 41% of farms also receive other agri-environmental payments but there are large differences between countries, reflecting the different possibilities for combining or complementing organic and other agri-environmental measures.

Table 3-5: Percentage of farms receiving organic payments, other agri-environmental payments and payments for Less Favoured Areas[1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	49	50	50	50	50	50	50	299	250	549
		Percentage of farms													
Organic payments	%	100	100	100	90	92	98	100	98	96	100	98	97	98	97
Other agri-enviromental payments	%	100	62	16	4	53	96	56	24	20	4	26	55	26	42
Less Favoured Area payments	%	62	60	38	4	16	66	84	0	2	0	86	41	34	38
Organic and other agri-envir. payments	%	100	62	16	4	47	96	56	24	20	4	26	54	26	41
Organic and other agri-envir. and less favoured area payments	%	62	44	6	0	6	66	52	0	0	0	18	31	14	23

1) Questions asked: A) Do you receive support payments for introducing/continuing organic farm methods? B) Do you participate in any other agri-environmental scheme (in 2003) (RDP regulation 1257/1999, SAPARD, Natura 2000, Habitat, national or regional programmes)? C) Do you receive payments for „less favoured areas“?

Source: Own calculations based on farm survey winter/spring 2004.

However, not all agricultural land receives organic payments (Table A-18a, Annex) and about 40% of the farmers said that this applied to at least some of their farm land. On these farms, the average proportion of land without organic support is very high in countries such as Italy, the UK, Estonia and Hungary[5]. A surprisingly high share of the total sample, amounting to 22% of the land area of the organic farms surveyed, does not receive organic payments. This figure is highest for Hungary (46%), Germany (23%) and Denmark (21%) (Table A-18c, Annex).

There are numerous reasons for land not receiving payments for organic farming (Table A-19, Annex). Many farmers named the exclusion of set-aside (especially in Austria, Germany, Denmark, Estonia and Poland) or permanent pasture (mainly Hungary, the Czech Republic[6] and Italy) from support as a reason. Lack of funding due to budgetary constraints was an obstacle, especially in Hungary, the UK and Italy, while the attractiveness of other, non-combinable agri-environmental programmes was important, particularly in Germany. Minimum criteria with respect to plot or farm size were identified as a problem in Switzerland and Slovenia, as were the difficulties of submitting an officially valid application in the UK, Estonia and Slovenia. Other causes, such as administrative impediments were reported as being of paramount importance in many of the countries.

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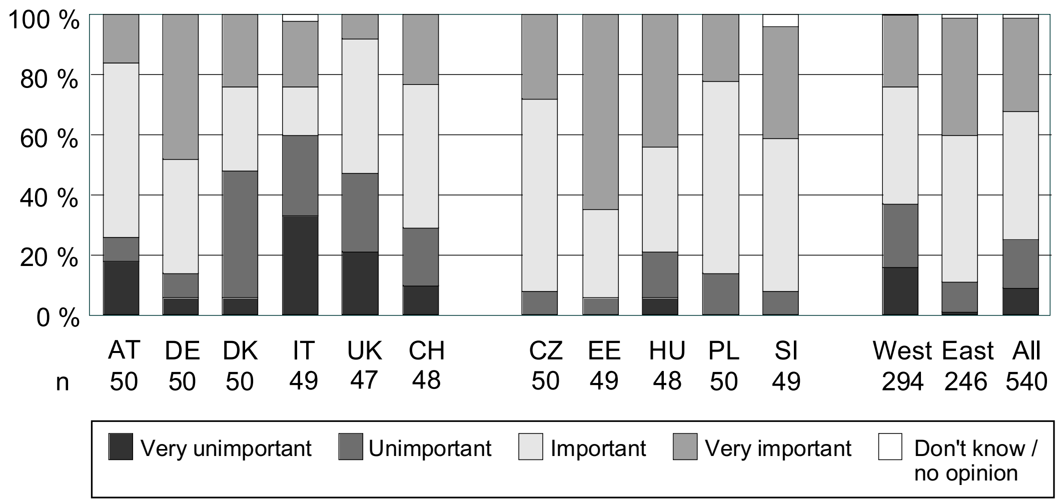
6 In the Czech Republic, responses referred to permanent pasture which was not eligible for payments due to large numbers of bushes and trees on the land in question.

3.2.1.2 Farmers' assessments

Farmers were asked to assess the importance of organic farming payments to the economic viability and financial situation of their farm. The majority of the responses indicate that organic support payments are 'important', with 30% of farmers saying they are 'very important' (Figure 3-10). Organic farming payments were considered to be important for farm viability more frequently in the new member states than in the West. There are significant variations within the group of Western European countries, with German farmers attaching the greatest importance to payments. In line with the relatively low payment levels in the UK and Denmark, approximately half of the farmers in these countries feel that the support is not important to economic viability. Somewhat surprisingly though, 60% of the farmers surveyed in Italy went along with this assessment, the reason being that Italian farmers cultivate a high share of permanent crops (37% of UAA on average) with a high gross output, such as olives, wine and citrus fruits, thus rendering payments less significant.

Figure 3-10: Farmers' perception of the significance of organic farming payments for the economic viability/situation on their farm today[1)]



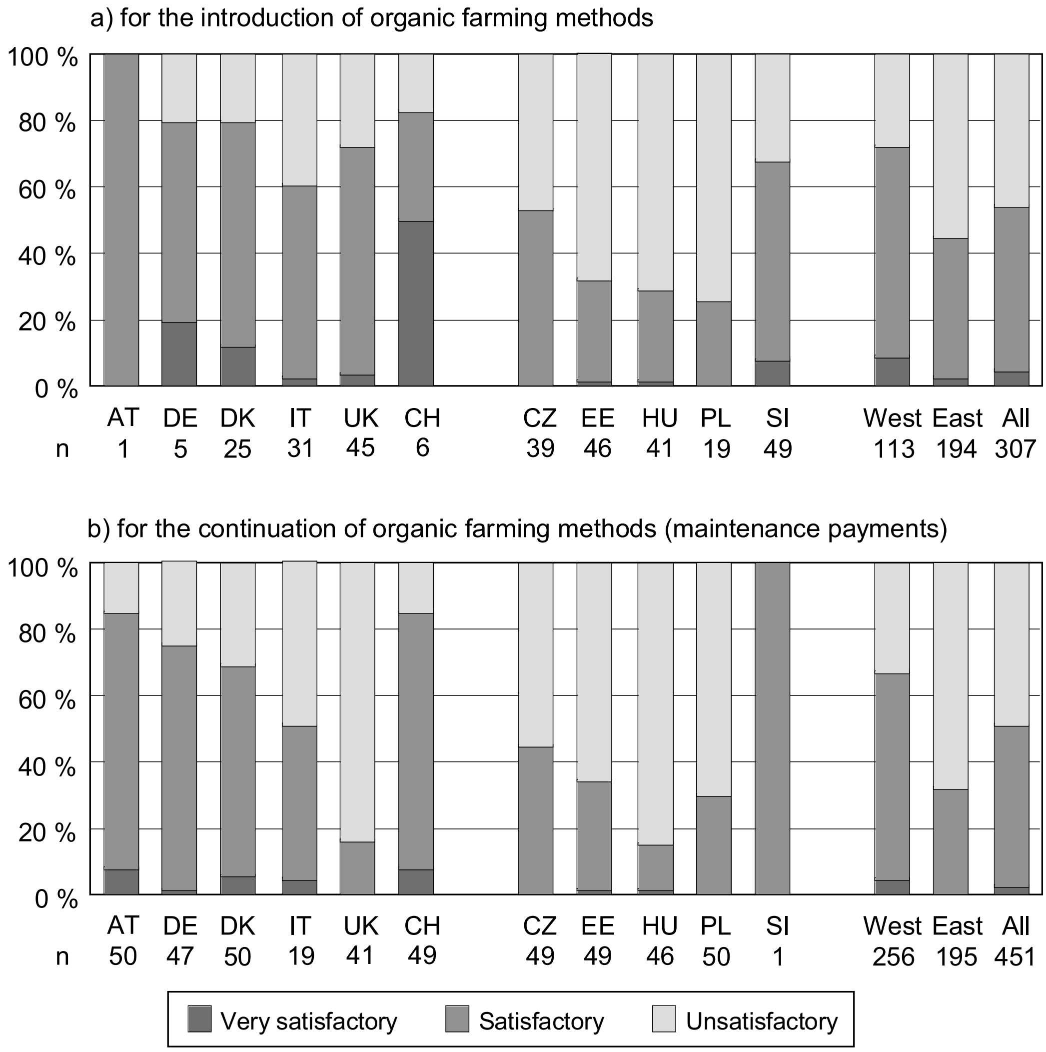
1) Question asked: What is the significance of the organic farming payments for the economic viability of your farm today?

Source: Own calculations based on farm survey winter/spring 2004.

There are different results according to farm types in the Western European countries. It appears that in Denmark, organic farming payments are, most frequently, perceived to be important or very important on arable farms (70% of arable farmers) whereas only 36% of dairy farmers share this assessment. In Italy and the UK, a relatively high proportion of farmers rate organic payments as 'unimportant' or 'very unimportant' on mixed farms (93% in IT, 66% in the UK). Conversely, these payments are rated as important or very important by other grazing livestock farms (76% in IT, 67% in the UK).

Assessments of the current level of support to organic farming are mixed, with approximately half of farmers saying that it is 'satisfactory' or even 'very satisfactory', and the other half registering dissatisfaction (Figure 3-11). Particularly with regard to this question, strategic responses could be expected on the grounds that assessing payment levels as being too low might help foster an increase in current payment levels. Thus, the high overall level of satisfaction with actual payments (56%) is remarkable.

Figure 3-11: Farmers' assessment of the current level of organic payments[1)]



1) Question asked: How would you judge the current level of organic payments for the introduction / continuation of organic farming methods for your farm?

Source: Own calculations based on farm survey winter/spring 2004.

With the exception of the UK where maintenance payments are much lower than those for conversion, there are no large differences between evaluation of payment levels for the introduction and maintenance of organic farming. There are, however, considerable differences between countries. In general, farmers in Western Europe are more satisfied than farmers in the new member states where low approval ratings with respect to payment levels prevail (before EU accession), especially in Estonia, Poland and Hungary.

Asked about the importance of the availability of organic farming payments in their decision to convert, farmers gave different answers in the West and in the East.[7] At least 56% of Western European farmers felt that organic farming payments had been important or very important, compared with 76% of their East European counterparts (Figure A-6, Annex).

In the West, the percentage of farmers describing organic farming payments as being unimportant, or very unimportant, in their move towards conversion is highest in Switzerland (65%) and lowest in Germany (37%). Among the Eastern European farmers, organic farming payments were least important in this decision for Slovenia (57% important or very important) and most important for Poland, where just 7% declared that such support was unimportant when they decided to convert to organic production.

It becomes obvious that these results do not always coincide with farmers' perceptions of the role of organic farming payments in the present economic situation on their farm (see Figure 3-10). Although organic farming payments are perceived to be relatively significant in this respect in Denmark, Italy and the UK, they were not as important in the decision to convert. In some Eastern European countries, the converse is true, as in Hungary and Slovenia where organic farming payments are regarded as relatively important in the decision to convert but not as important for current economic viability. The main reason for this disparity is that different farmers were asked the question. The question about the relevance of payments in decision-making was only answered by those who received payments at that time, whereas that of the importance of organic payments to the present economic situation of the farm was answered by all farmers.

3.2.1.3 Farm level quantitative results

The above results from the farm survey give a good idea of the farmers' own perception of the role of organic farming payments in the economic performance of organic farms. To complete the picture, data available from FADNs (for Western European countries) and typical farm modelling (for Eastern European countries) were used to calculate the share of extra support payments for organic farming in gross output, as an indicator of the importance of these payments compared to other revenues. Additionally, the respective shares in FFI+W were compared, thus indicating the vulnerability of organic farms to possible policy changes (see Chapter 2.4, Box 6).

Generally, the indicators for policy dependency show great variation between farms, depending not only on the payments received but also on the respective levels of gross output and profits which, in turn, vary with farm type and size. Consequently, a generalised comparison can only be

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7 This question was answered only by farmers who received payments when they converted to organic farming.

made between **Western European countries** where the large farm samples from FADNs allow an aggregation across farms. Table 3-6 provides an overview of the importance of the extra payments for organic farming in these countries, measured as the contribution to gross output. In some countries, even though the absolute level of specific support to organic farms is high (see Tuson & Lampkin 2006), the relative preference for organic agriculture is low and remarkably similar across countries (Table 3-6), ranging from 4% in Denmark to 6% in the UK. This is because of the existence of other agri-environmental programmes with high payment levels, for which organic farms would be eligible if the specific organic support measures did not exist. However, if measured as a percentage of FFI, the importance of specific support to organic farming is high in Germany and very high in the UK and Denmark, highlighting the vulnerability of the organic farms in these samples to changes in specific support policies (Table 3-6).

Table 3-6: Share of extra payments for organic farming in gross output and income in selected Western European countries, 2001

	Share of extra payments for organic farming		
	% of gross output	% of FFI	% of FFI+W
Austria	5	13	12
Denmark	4	72	32
Germany	6	28	19
Italy	5	16	n.a.
Switzerland	4	11	10
The UK	6	47	28

Source: Own calculations based on national FADNs.

The following paragraphs focus on the relative importance of organic farming support in **Western and Eastern European countries** before enlargement. As with the presentation of cross-national results on profitability (see Chapter 3.1.1.2), this comparison is also undertaken by farm type.

The share of all payments in the gross output of organic arable farms is generally higher for Western, rather than Eastern European countries (Table 3-7). However, there are some typical arable farms in the East for which the share of all payments in gross output is as high as that of Western European farms, i.e. in the case of large arable farms in Estonia and Hungary, and the small Slovenian farm. The share of (extra) support payments for organic farming in gross output varies significantly between the countries. On average for arable farms, such payments account for less than 5% of the gross output in Italy and on typical small organic farms in Poland and Hungary. However, they make up more than 10% of gross output in Denmark; on typical large organic farms in the Czech Republic and Hungary; and on the typical small organic farm in Slovenia. The share of organic farming payments in return for labour (FFI+W) is, naturally, much higher than in gross output. For arable farms, it is generally between 5% and almost 50% more, with the exception of the large Hungarian farm where the share is markedly higher as a result of the very low FFI+W (see Chapter 3.1.1.2).

Table 3-7: Share of total payments and of extra payments for organic farming in gross output and in FFI+W in Western and Eastern European countries - arable farms

	Total payments	Organic farming payments[1)]	
	% of gross output	% of gross output	% of FFI+W
Austria (all farms, ø 43 ha)	29	8	21
Denmark (all farms, ø 33 ha)	39	14	n.a.
Germany (farms < 30 ha)	21	6	32
Germany (all farms, ø 106 ha)	28	6	21
Germany (farms >50 ha)	34	8	23
Italy (all farms, ø 25 ha)	31	3	21
The UK (all farms, ø 114 ha)	20	8	34
Czech Republic (large, 200 ha)	17	17	63
Estonia (large, 89 ha)	23	9	36
Hungary (small, 9 ha)	5	4	9
Hungary (medium, 374 ha)	10	9	21
Hungary (large, 1 245 ha)	21	14	3 175
Poland (small, 17 ha)	4	4	6
Poland (large, 100 ha)	9	9	17
Slovenia (small, 13 ha)	23	14	27

Data is referring to 2001 for Western and 2003 for Eastern European countries.
1) Extra payments for organic farming in the EU-15 countries

Source: Own calculations based on national FADNs and on typical farm modelling.

For dairy farms, there are clear differences between countries with regard to the share of all support payments in gross output (Table 3-8). The highest shares are found in Austria (more than 25%) and Switzerland (22-41%), whereas the lowest payments are evident in the UK and Poland. Turning to the extra support payments for organic farming, the average share in gross output is around 5% or less in most countries. Exceptions are the Czech Republic and Estonia with shares of more than 10%, due partly to the fact that these typical farms sell their milk at conventional prices. The extremely high value for the small organic farm in Slovenia, where the payments account for more than 25%, can be attributed to high payment levels. There is wide variation in the share of extra payments for organic farming in FFI+W, both between countries and farms. Among the dairy farms in the West, the Danish farms show the highest share, indicating a rather unfavourable relationship between gross output and FFI+W, compared with, e.g., the Austrian and the Swiss farms. In the Eastern European countries, the typical dairy farm in the Czech Republic, Estonia and Slovenia reveal very high shares of organic farming payments in FFI+W. These farms thus appear to be highly vulnerable to changes in organic farming policy.

Table 3-8: Share of total payments and of extra payments for organic farming in gross output and in FFI+W in Western and Eastern European countries - dairy farms

	Total payments % of gross output	Organic farming payments[1)] % of gross output	Organic farming payments[1)] % of FFI+W
Austria* (farms < 15 cows)	27	4	11
Austria* (all farms, ø 62 t milk)	26	5	12
Austria* (farms > 15 cows)	25	5	12
Denmark (farms < 80 cows)	12	4	42
Denmark (all farms, ø 568 t milk)	10	3	24
Denmark (farms > 80 cows)	10	3	21
Germany (farms < 100 t milk)	19	6	18
Germany (all farms, ø 149 t milk)	17	5	18
Germany (farms > 150 t milk)	17	5	20
Switzerland (valley, 101 t milk)	22	4	9
Switzerland (hill, 87 t milk)	28	4	8
Switzerland (mountain, 66 t milk)	41	4	9
The UK (farms < 80 cows)	7	3	14
The UK (all farms, ø 543 t milk)	8	3	13
The UK (farms > 80 cows)	8	3	13
Czech Republic (small, 58 t milk)	13	12	76
Estonia (large, 194 t milk)	20	11	61
Hungary (medium, 335 t milk)	20	6	14
Hungary (large, 3 360 t milk)	13	5	15
Poland (small, 34 t milk)	9	9	20
Poland (medium, 88 t milk)	5	5	11
Poland (medium, 100 t milk)	4	4	9
Slovenia (small, 28 t milk)	27	19	72

AT*:Dairy farms and other grazing livestock farms.
Data is referring to 2001 for Western and 2003 for Eastern European countries.
1) Extra payments for organic farming in the EU-15 countries

Source: Own calculations based on national FADNs and on typical farm modelling.

On grazing livestock farms (excluding dairy farms), the share of all payments in gross output is highest for the typical Czech farms (Table 3-9). The reasons for this are high levels of agri-environmental and Less Favoured Area payments. However, no systematic differences can be identified between Western and Eastern European grazing livestock farms in terms of the share of organic farming payments in gross output, as both the highest and the lowest values are found in Western European countries (in the UK and Italy, respectively). The share of extra payments for organic farming in FFI+W is relatively high on grazing livestock farms in the UK. This is exceeded only by the Slovenian farm, where the share is more than 130%, indicating that such farms would realise losses without organic support.

Table 3-9: Share of total payments and of extra payments for organic farming in gross output and in FFI+W in Western and Eastern European countries - grazing livestock (beef and sheep) farms

	Total payments % of gross output	Organic farming payments[1)] % of gross output	% of FFI+W
Germany (average, 69 ha)	24	5	19
Italy* (average, 52 ha)	24	3	12
The UK (average, lowland, 78 ha)	38	14	66
The UK (average, upland, 123 ha)	44	19	73
Czech Republic (small, 100 ha)	49	11	37
Czech Republic (medium, 140 ha)	44	8	11
Czech Republic (large, 551 ha, 145 cows)	75	12	32
Czech Republic (large, 500 ha, 160 cows)	49	8	18
Slovenia (small, 9 ha, 9 cows)	25	12	132

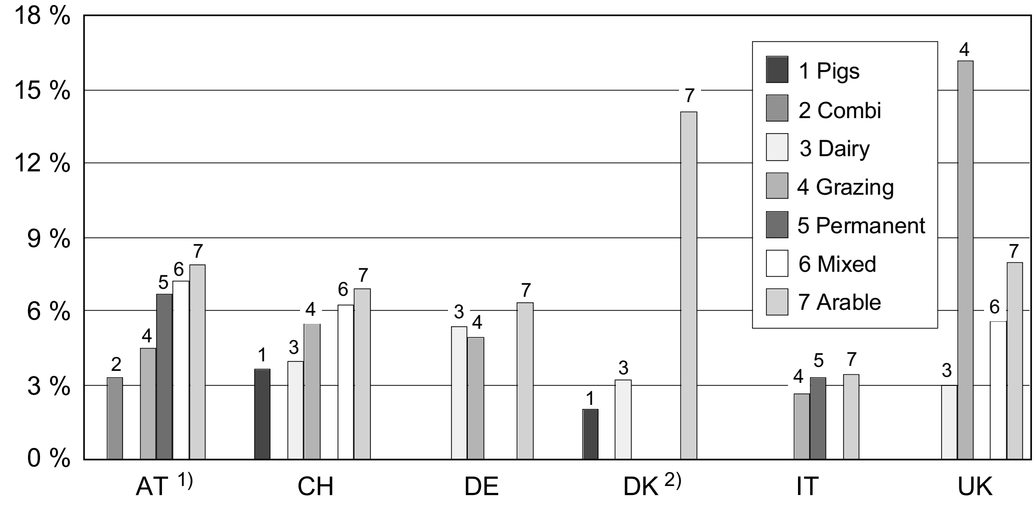
IT*:Grazing livestock farms including dairy farms.
Data is referring to 2001 for Western and 2003 for Eastern European countries.
1) Extra payments for organic farming in the EU-15 countries

Source: Own calculations based on national FADNs and on typical farm modelling.

The ranking of farm types according to the share of extra support payments for organic farming in gross output is remarkably similar in all **Western countries** (Figure 3-12).[8] The contribution of such support to gross output is highest for arable farms, due partly to the fact that the participation of conventional arable farms in agri-environmental programmes is still the exception. In combination with the approach chosen in this study to approximate the extra value of organic support programmes, this leads to high values. Where non-organic agri-environmental programmes support the extensification of arable farming, the relevance of the specific support to organic arable farming in the respective regions will be correspondingly reduced. The importance of extra support payments for organic farming is lowest for the pig farms, also showing the high degree of market-orientation of organic pig production.

8 The only exception is the very high value for organic grazing livestock farms in the UK which is a result of the comparatively low level of gross output on these farms while, at the same time, the level of agri-environmental payments is relatively high due to the combination of payments from the Organic Farming Scheme and other agri-environmental schemes.

Figure 3-12: Share of extra payments for organic farming in gross output by farm type, Western European countries, 2001



1) Combi = farms with more than 25 % of total Standardised Gross Margin from forestry.
2) Values for farm type "Pig" extrapolated from 2000 + 2002.

Source: Own calculations based on national FADNs.

In **Eastern European study countries**, no general trend can be identified in relation to the ranking of farm types according to share of organic farming payments in gross output. While in the Czech Republic, the relevance of organic payments in gross output is highest for the typical arable farms, in Slovenia this holds true for the dairy farm.

Developments

The development of the role of specific support payments for organic farming (Figure 3-13) is very different across the **Western European countries**[9] analysed:

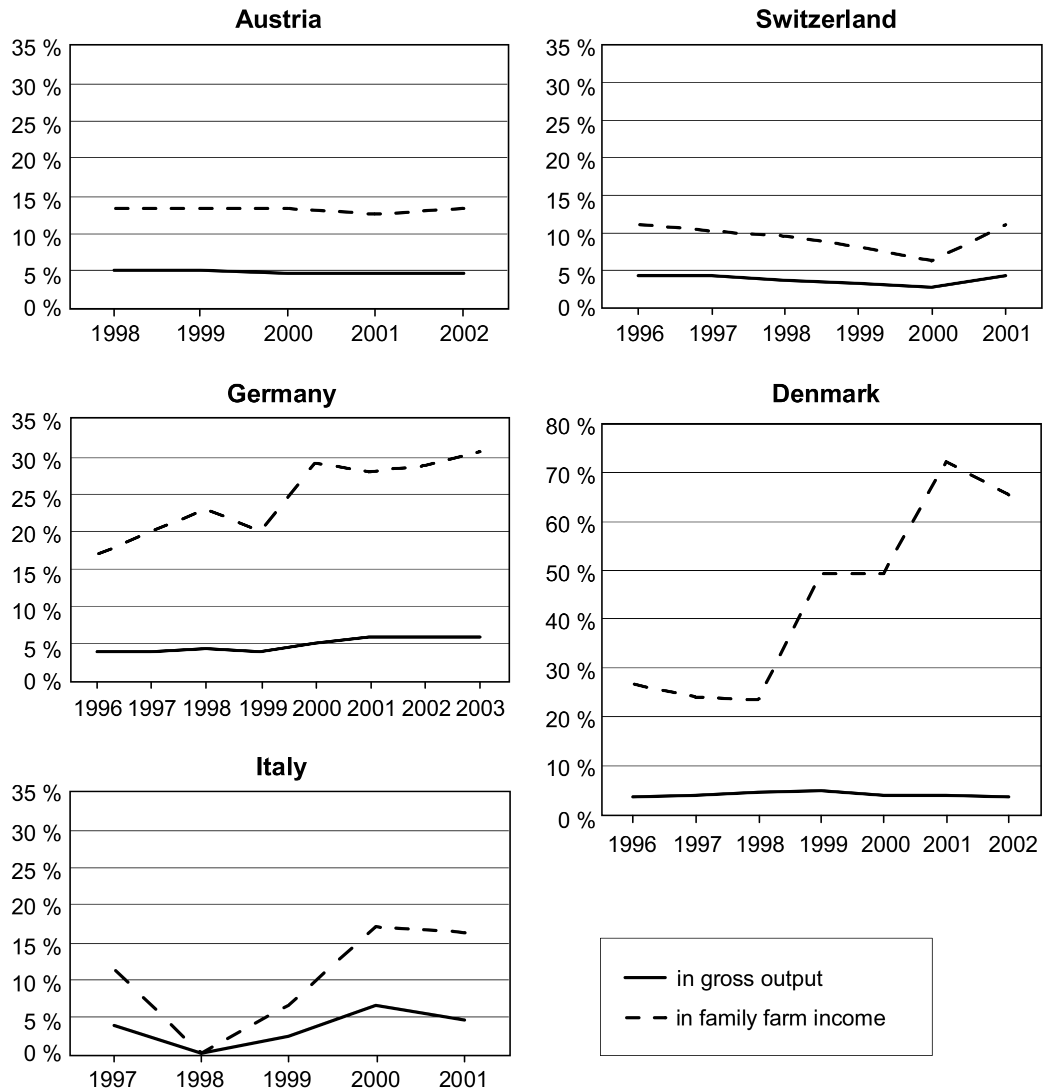
- In Austria, the share of extra payments for organic farming in gross output and FFI is comparatively stable for the years 1998-2002, reflecting the continuity of support policies and sample composition. The share of specific support in gross output even decreases slightly.
- In Switzerland, the importance of specific support payments declines until 2000, reflecting the continuously improving market situation for organic products since the beginning of the 1990's, thus increasing the share of market revenues in total output. In 2001, the share of extra support payments for organic farming increases, as the level of support payments for organic farming was raised.
- In Germany, the importance of support has been growing significantly over the years, reflecting increased payment rates for organic farming within the agri-environmental programmes. In part,

[9] No such data were available for organic farms in the Eastern European countries.

this may also be a consequence of the changing composition of the organic farm sample in the national FADN.

- In Denmark, the share of payments in gross output remains stable, while the contribution to FFI rises quite dramatically over the period. This development is due to the decline in average FFI over the years.
- In Italy, the time series data reveal a drop to zero in the share of extra payments for organic farming in 1998. This can be attributed to the difficulties experienced by many farms with respect to the transition from the first five-year contracts, according to Council Regulation (EEC) 2078/92, to new contracts. The importance of specific organic farming support in farm performance has been increasing since then.

Figure 3-13: Development of the share of extra payments for organic farming in gross output and FFI, Western European countries, all farms

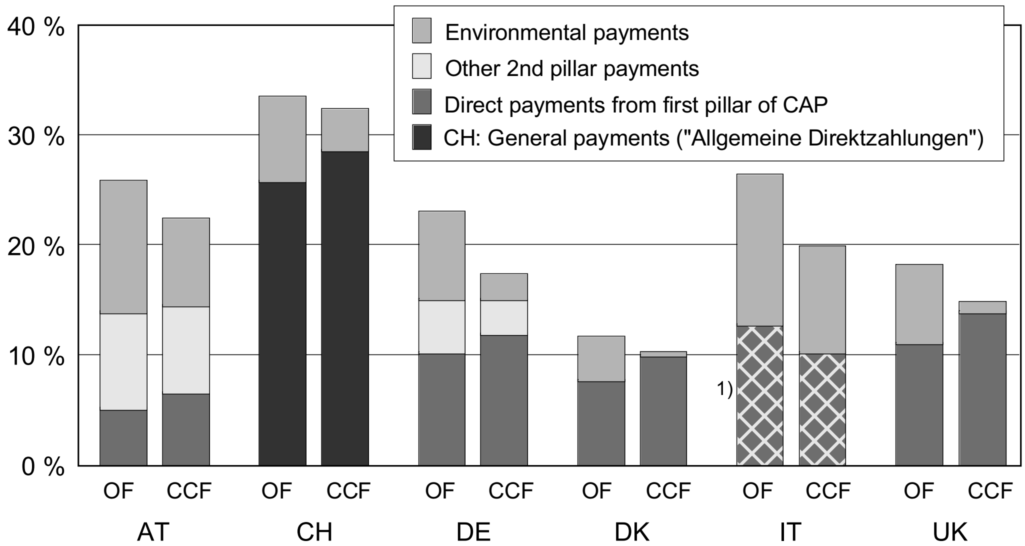


Source: Own calculations based on national FADNs.

3.2.2 Comparing policy dependency with that of conventional farming

In **Western European countries**, both organic and conventional farms receive substantial direct payments, with significant variations between countries, ranging from 10% in Demark to more than 30% in Switzerland, in terms of their contribution to gross output (Figure 3-14). In all countries, the share of total direct payments in gross output is higher for organic farms than for comparable conventional farms due to the higher importance of payments from agri-environmental programmes. The share of payments from the first pillar of the CAP in gross output is higher on conventional than on organic farms for all countries except Italy. Nevertheless, payments from the first pillar are more important than agri-environmental payments for organic farms in Germany, Denmark, the UK and Switzerland.

Figure 3-14: Share of direct payments in gross output on organic and comparable conventional farms in selected Western European countries, 2001

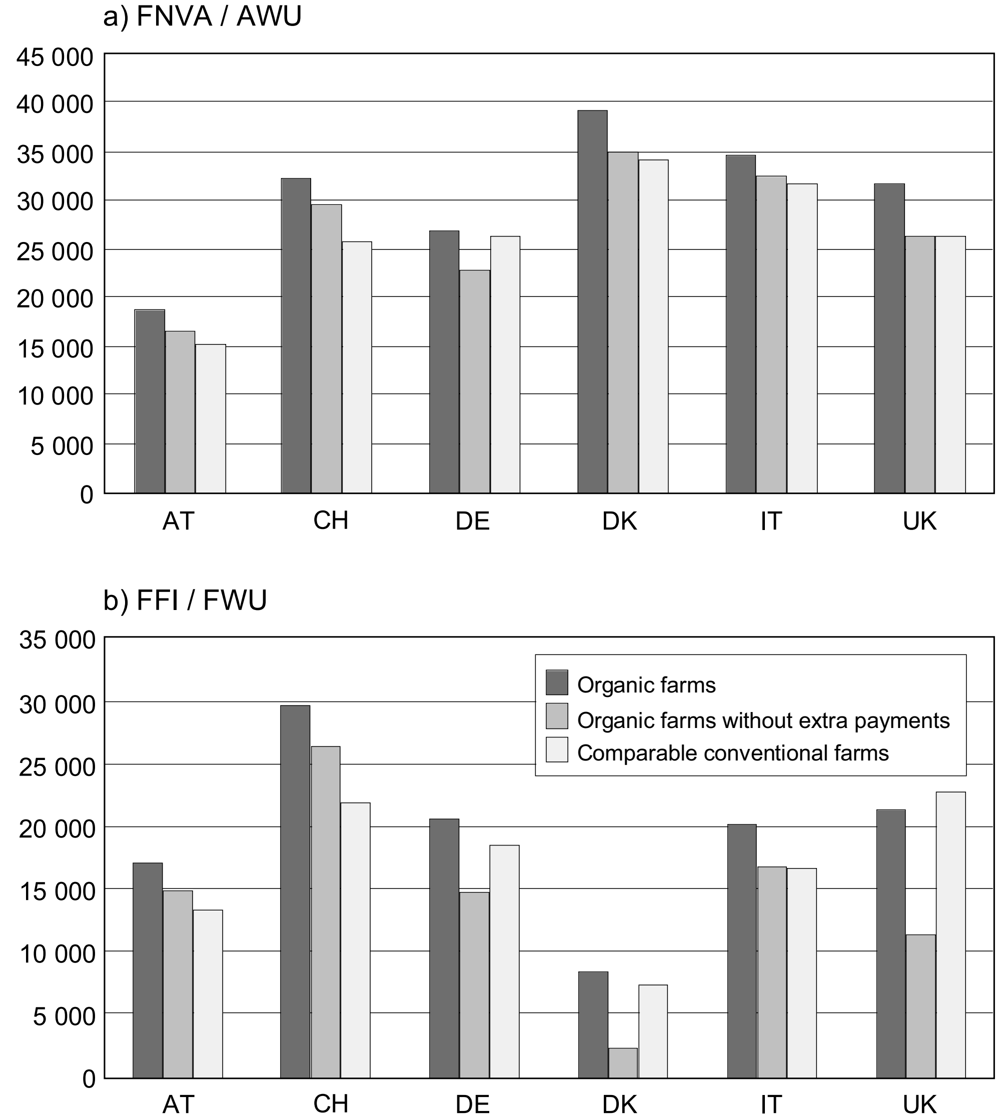


OF: Organic farms
CCF: Comparable conventional farms
1) First and second pillar payments could not be differentiated in data.

Source: Own calculations based on national FADNs.

Even without specific support payments for organic farming, FNVA/AWU would be at least as high as in comparable conventional farms in all countries except Germany (Figure 3-15), indicating that the relative performance of organic farming in these countries may be less dependent on specific support schemes than is often assumed. However, using FFI/FWU as an indicator of actual farm income available for the remuneration of family factors, the income situation of organic farms in Denmark and the UK, which are faced with comparatively high wages, interest payments and rental prices, as well as high shares of rented land, would deteriorate dramatically without specific support payments for organic farming (Figure 3-15).

Figure 3-15: FNVA/AWU and FFI/FWU with and without extra payments for organic farming, Western European countries, 2001



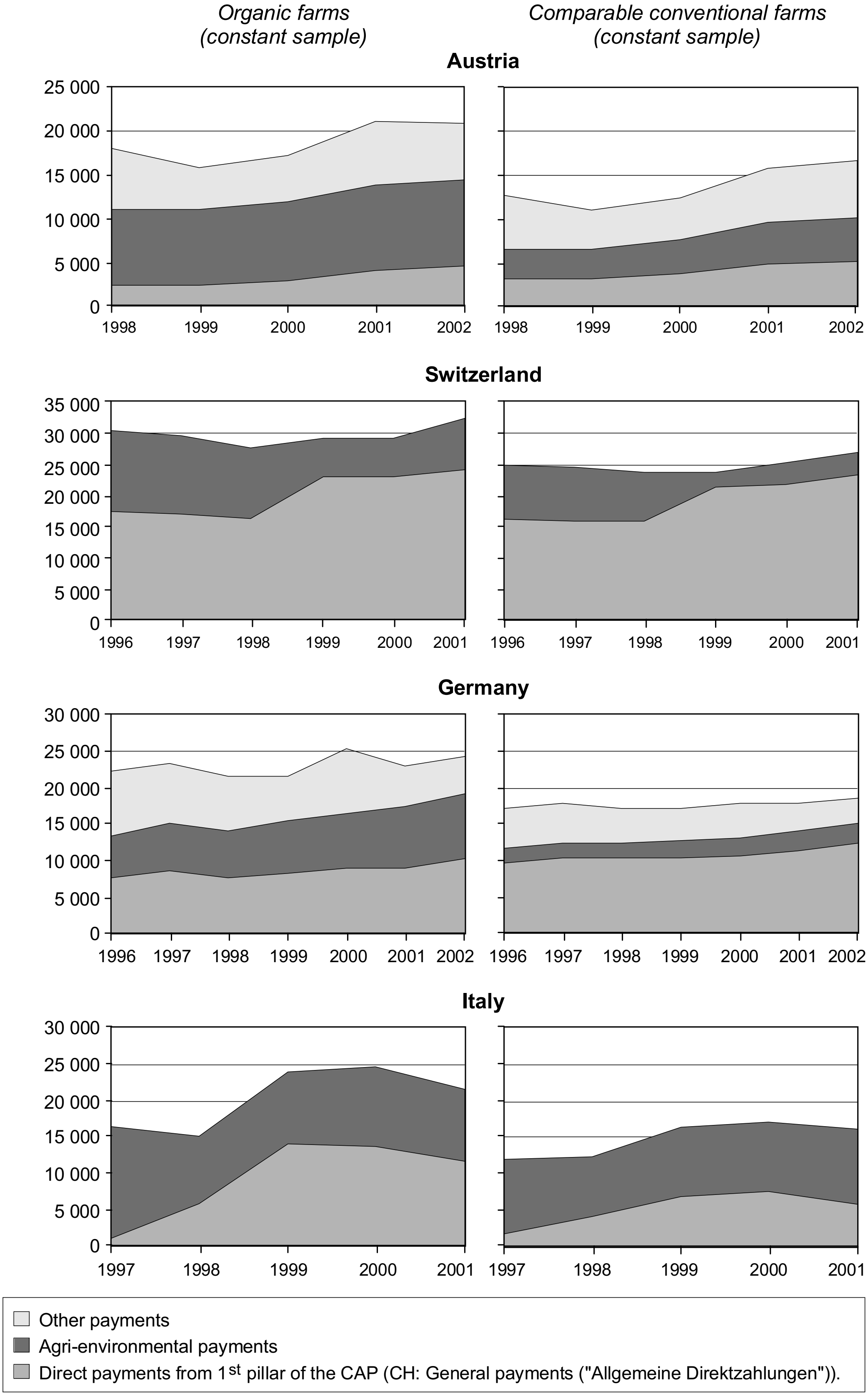
Source: Own calculations based on national FADNs.

These findings contrast markedly with the farmers' assessment of the importance of organic support payments for the economic viability of their farms, whereby almost 50% of farmers surveyed in Denmark and the UK rate support payments as unimportant for the economic viability of their farm. In the case of the UK, the apparent discrepancies can be attributed partly to the methodological approach chosen to estimate the level of extra payments for organic farming, as organic farms in the UK receive a comparatively high share of support payments from other agri-environmental programmes. In Denmark, the share of part-time farmers in the survey is by far the highest of all the countries analysed (Table 2-12) and, for these farmers, the subsidy would not be important in total family income, as off-farm income would be far higher than income from farming. In addition, it should be noted that the figures shown above are a one-year snapshot and are, therefore, sensitive to yearly variations in average income. The time series data on the share of extra payments for organic farming in FFI show that in Denmark, during the period 1998-2002, this value was highest in 2001 (see Figure 3-13).

Figure 3-16 provides an impression of the development of different direct payments on organic and comparable farms for constant farm samples. Payments from the first pillar have been increasing in both organic and conventional farms, reflecting the ongoing shift from market support to direct payments. The development of the level of environmental payments depends on the country:

- In Austria, the volume of environmental payments is rising for both farm groups, but the increase is significantly larger in the group of comparable conventional farms, both in absolute and relative terms (+59% during 1998-2002), pointing to a decrease in the relative preference for organic production in agricultural policy. The increase in environmental payments to conventional farms is particularly notable in 2001 at the start of the second period of the environmental programme ('ÖPUL 2000'), the adoption of which was considerable among conventional farmers due to attractive, 'tailor-made' measures.
- In Switzerland, the visible fall in the level of environmental payments from 1998 to 1999 in Figure 3-16 is due to the policy reform ('AP 2002') which, in effect, made 'integrated production' the minimum standard of eligibility for general direct payments (which, in turn, were increased). Environmental payments are only forthcoming if the environmental requirements and contributions of a production system exceed this standard, as in the case of organic farming. In 2001, payment levels for the support of organic farming were raised significantly.
- In Germany, environmental payments become more important over the given time period for both organic and comparable conventional farms. However, the increase is larger for organic farms (+42% during 1996-2002), reflecting the preference for organic farming which has been established at national level during the past few years.
- In Italy, the data reflect the drop in environmental payments to organic farms already discussed, following the end of the first contract period in 1998. In subsequent years, environmental payments received by organic farms increased only slightly (+9%), whereas those of comparable conventional farms increased by 25%. This reflects the higher acceptance of environmental measures by conventional farmers, due to the increased number of options and measures offered under the new programmes.

Figure 3-16: Development of different direct payments on organic and comparable conventional farms in selected Western European countries, constant farm samples



Average farm size in 2001: Austria 30 ha, Szitzerland 19 ha, Germany 54 ha, Italy 24 ha.

3.3 Farmers' expectations of the post-enlargement future

For many years now, the opportunities and risks for organic farming posed by EU Eastern enlargement – particularly for those countries immediately adjacent to the accessing countries – have been discussed throughout Europe in professional journals, by scientists and consultants, and also at farmer meetings. Generally, the view of Western countries is dominated by scepticism and many expect a drop in prices in the medium term. It is assumed that production in the Eastern European countries will expand significantly and that exports to Western Europe will increase markedly. Potential opportunities for Western European producers on the organic markets of Eastern Europe, however, have seldom been addressed.

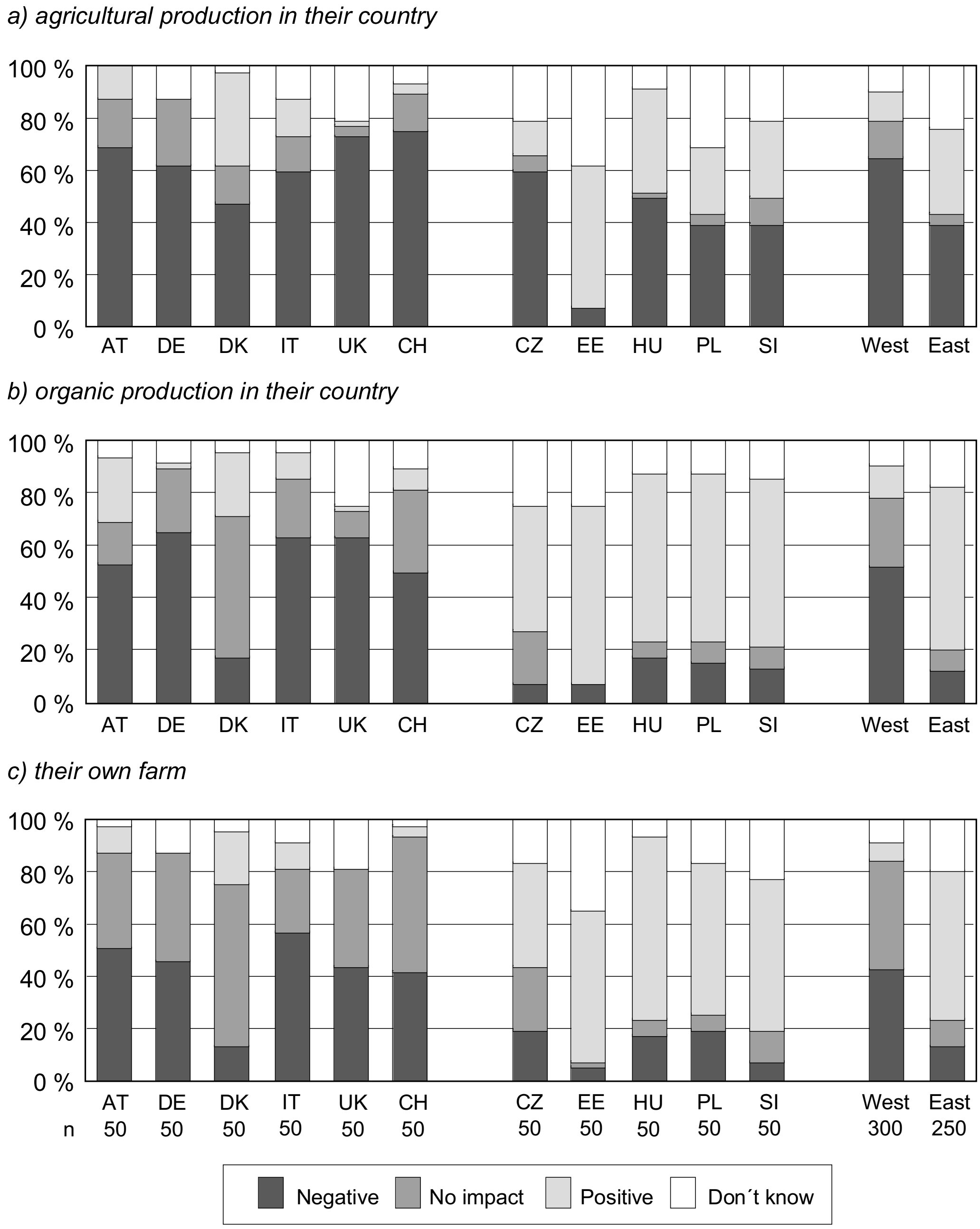
Against this background of continuing debate, the question remains as to which points of view predominate among organic farmers in the different Western and Eastern European countries with regard to EU expansion. The comparative analysis given in ensuing sections will illustrate the extent to which farmers realistically assess the situation.

During the survey, farmers were asked to consider the impact of EU Eastern expansion. The approach was three-fold: firstly, farmers were asked how they might assess the overall impact on agriculture in their country. In the second step, the question was limited to the specific case of organic farming in each country. The third question finally addressed the impact of the Eastern expansion on their own farms.

As can be seen immediately from Figure 3-17, the impact of expansion is, as anticipated, perceived very differently by Western and Eastern organic farmers. While Western European farmers have a relatively negative perception of enlargement, the Eastern European farmers appear to react more positively. It is important to note that perceptions varied according to the level of agriculture being considered (agriculture overall, organic farming overall, own farm).

The results show that most farmers are worried about the impact of Eastern expansion **on agriculture overall**. A total of 65% of the Western European organic farmers in the survey and 40% of those in Eastern Europe are of the opinion that EU expansion will have a negative impact on agriculture. In this regard, farmers in Switzerland (76%), the UK (74%) and Austria (70%) were particularly concerned. In the Eastern European group, it was primarily the Czech farmers who gave a negative evaluation (60%). The more positive prospects for agriculture, meaning opportunities arising from EU expansion, were acknowledged by just 11% of the Western European farmers. In Eastern countries, the percentage of farmers with positive expectations is significantly higher at 33%, on average. Denmark and Estonia, both of which deviate strongly from the Western and Eastern European averages respectively, should be highlighted. In Denmark, 36% of farmers and, in Estonia, 54% of those surveyed expect positive overall impacts on agriculture.

Figure 3-17: Farmers' expectations of the impact of EU enlargement on agriculture in their country[1)]



n: number of farmers answering

1) Question asked: How would you assess the probable general impact of EU enlargement taking place in a few month? A) On agriculture production in your country as a whole? B) On organic production in general in your country? C) On your own farm?

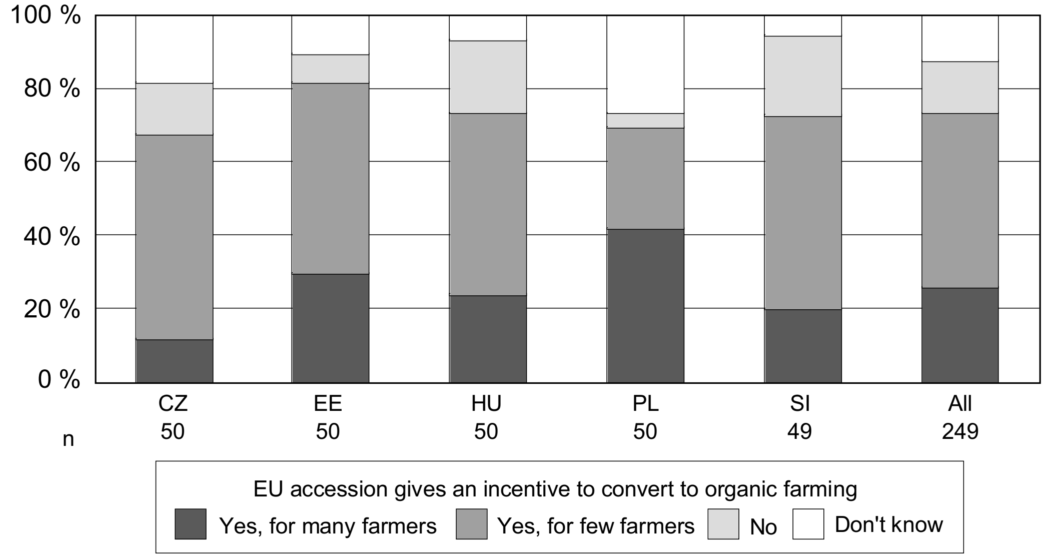
Source: Own calculations based on farm survey winter/spring 2004.

In the context of the more specific impact on **organic agriculture** in their countries, farmers' attitudes to enlargement appear to improve. Even in this case, however, the majority of Western European organic farmers (53%) anticipate negative consequences. In the Eastern countries, the corresponding proportion is, on average, just over 13%. The percentage of farmers with a sceptical viewpoint is especially high in Germany (66%), Italy and the UK (each 64%), and particularly low in Denmark (18%). The majority of Danish organic farmers (54%) assumed that EU expansion would have no influence on organic farming. Positive impacts are anticipated particularly by Eastern European farmers (62%), but also, in the West, by an above average proportion of those in Denmark and Austria (24% in each case).

When asked about the effects of EU expansion on their **own farm**, a much more optimistic picture is drawn by the Western European farmers. Although most are still of the opinion that the impact will be negative, the proportion is reduced significantly to 43%, and about 42% think that they will not be affected at all. This is particularly the case on farms with an emphasis on permanent crops and horticulture in all the Western European countries, where farmers believe that they have nothing to fear from Eastern expansion. It can be assumed that these farmers are largely independent of market changes due to the existence of direct marketing outlets or other secure sales channels. Positive effects of expansion, e.g., in the form of new sales opportunities for their products, are noted by only 7% of all Western organic farmers surveyed although, in the case of Danish producers, this figure is somewhat greater, at 20%. Farmers in Eastern Europe estimate the impacts of expansion on their own farms about as positively as that for organic agriculture in their countries overall.

The optimism of Eastern European farmers is also reflected in their appraisal of the influence of expansion on the willingness to convert to organic farming (Figure 3-18). Three-quarters of those surveyed in the East were convinced that the enlarged market would send positive impulses to convert to organic farming in their countries. The highest proportion (42%) is to be found in Poland. Conversely in the Czech Republic, which has the largest share of organically-farmed area of all the Eastern European countries, it is anticipated that such incentives will affect only a few farmers.

Figure 3-18: Farmers' perception of the impact of EU accession on the willingness to convert to organic farming[1)]



n: number of farmers answering

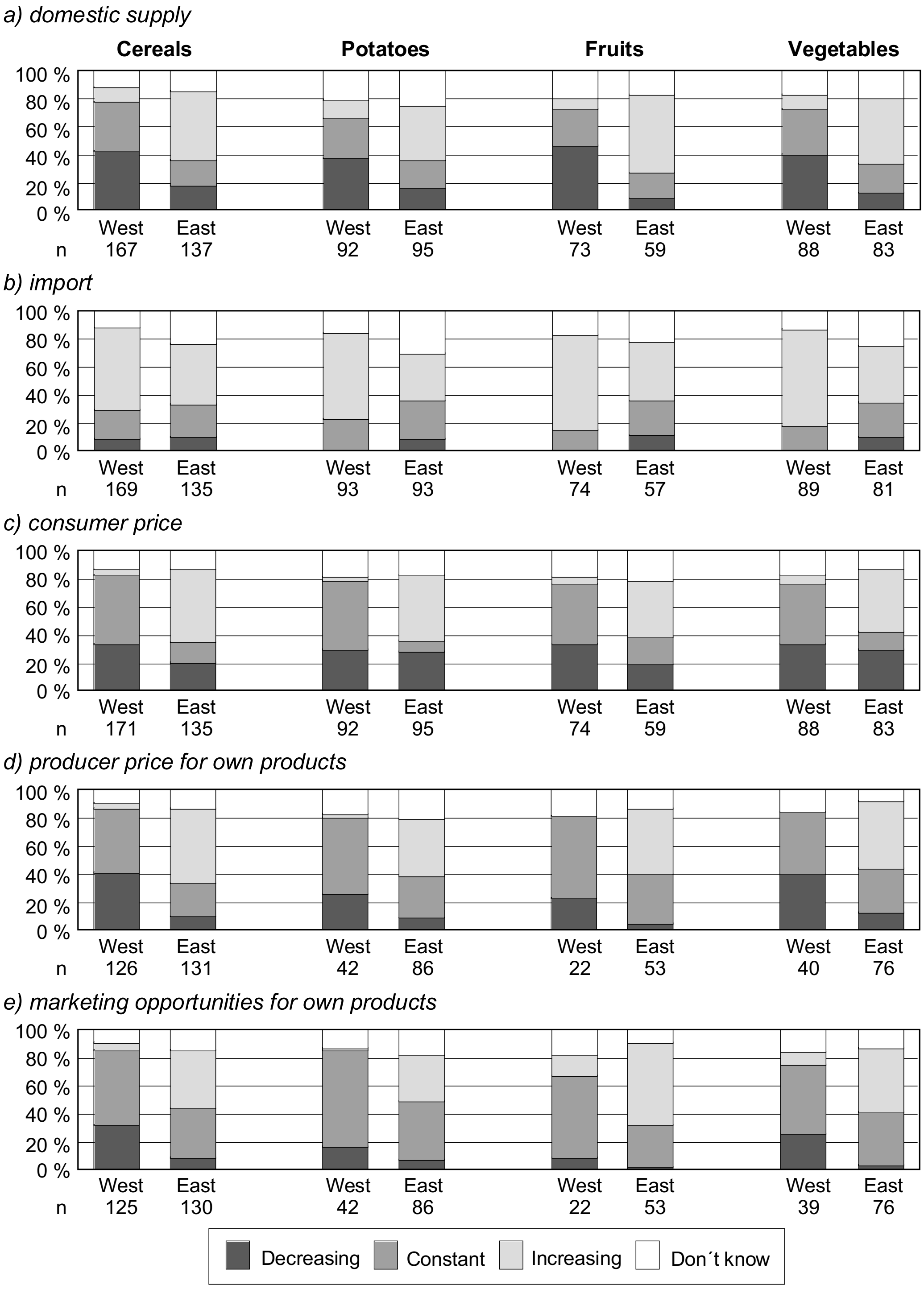
1) Question asked: Do you think, that EU accession might give incentives for more farmers in your country to convert to organic farming systems?

Source: Own calculations based on farm survey winter/spring 2004.

The predominantly critical stance of Western European countries towards Eastern expansion can be explained by the fear of growing competition, as can be seen in Figures 3-19 and 3-20, as well as in Figures A-7 to A-16 in the Annex. The Western organic farmers anticipate that, for all products considered in the questionnaire according to different extents depending on the product, imports from Eastern European countries will increase and that, as a consequence, both producer prices and domestic production will fall. The percentage of farmers expecting drops in production prices is particularly high for beef meat and milk. Since these products have been exported infrequently from Eastern Europe until now, it can be assumed that this unfavourable evaluation has more to do with the difficult market situations for these products in the farmers' own countries at the time of the survey.

It is interesting to note that in almost all Western European countries, the general market situation is assessed more critically than the specific marketing circumstances of own products (see Figure A-7 to A-16 in the Annex). In the case of cereals, vegetables, beef meat and milk, 67%, 70%, 73% and 76% of the Western farmers expect decreased production prices as a consequence of Eastern expansion. In relation to the marketing situation for their own products, however, only 42% of the farmers anticipate decreasing producer prices for their cereals (vegetables: 40%, beef meat: 50%, milk: 64%). While these price considerations reflect the generally critical perception of farmers, it would appear that the actual marketing situation is better reflected in the case of their own products and thus assessed more realistically. With regard to consumer prices, the majority of Western European farmers expect these to remain constant, with about one-third anticipating consumer price falls.

Figure 3-19: Farmers' expectations of the impact of EU enlargement on domestic organic plant product markets 1)

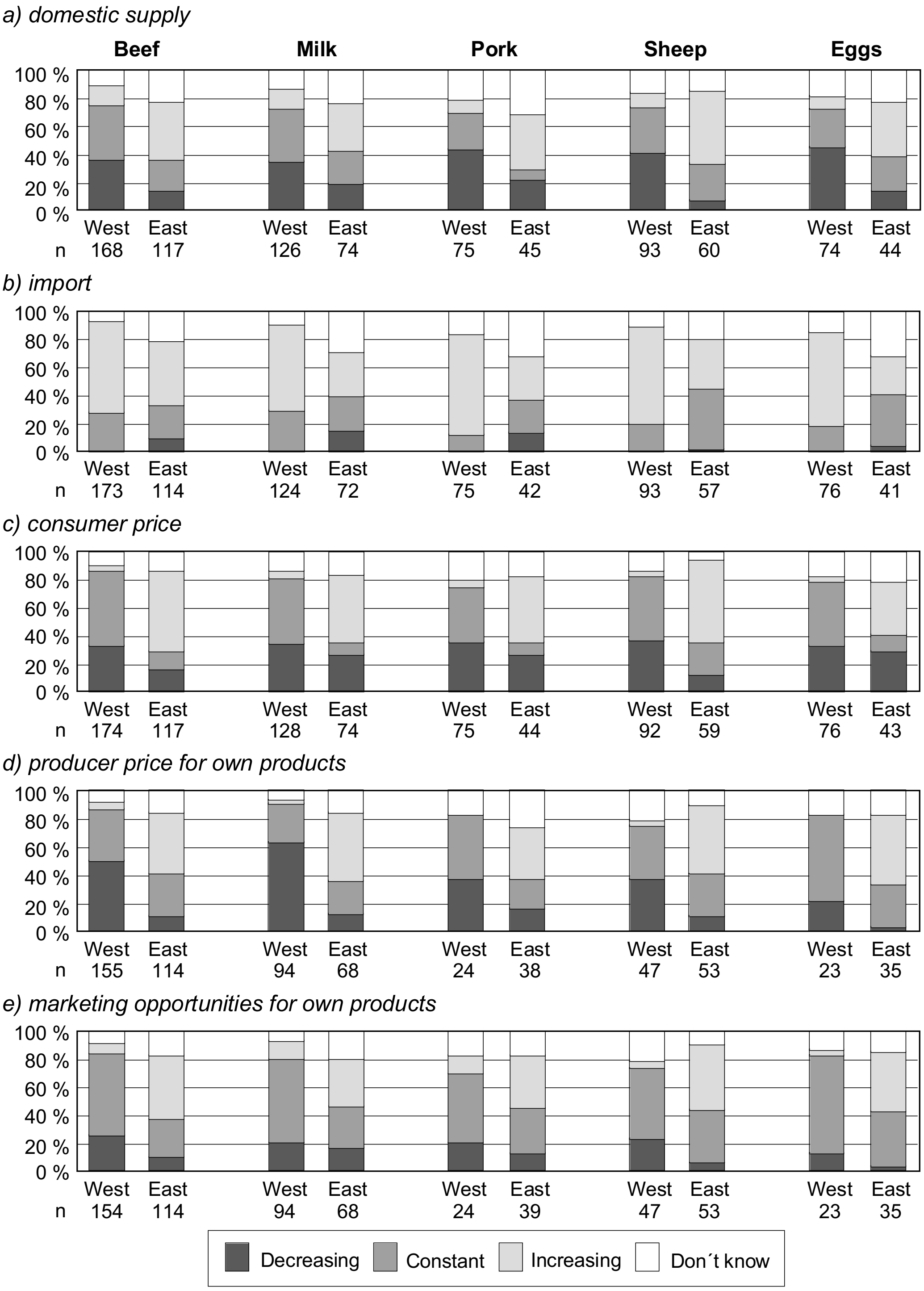


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure 3-20: Farmers' expectations of the impact of EU enlargement on domestic organic animal product markets 1)



n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

As anticipated, market developments for organic products in the Eastern European countries are assessed completely differently in comparison with Western Europe (See Figure 3-21 and 3-22, as well as Figure A-7 to A-16 in the Annex). With the exception of those in Slovenia, the majority of organic farmers surveyed in Eastern Europe assume that, for almost all products, domestic supply, marketing opportunities, producer prices[10] and consumer prices will increase as a result of EU expansion. In Slovenia, farmers expect more constant or slightly declining producer prices for many products. Finally, the fact that Eastern European farmers also expect increased imports should be highlighted. Interestingly, these expectations are related both to unprocessed and processed products.

The largely critical evaluation of EU enlargement by Western European farmers and the positive assessment of their Eastern counterparts are also reflected in their perspectives on the future economic situation.

- While 76% of the farmers surveyed in Western Europe rated the economic situation on their farm as still positive or very positive at the time of the survey (Figure 3-1), only 56% expect a positive economic future for their farm (Figure 3-21). In terms of the future economic situation for all organic farms in their country, assessments are also pessimistic: in this respect, the proportion of farmers with a positive outlook drops from 54% to 41%. In particular, Austrian organic farms see their favourable economic situation as weakening in the future. Of the 92% of Austrian farmers who registered a positive attitude at the time of the survey, just under half see the future prospects as negative. An explanation for this could be that Austria is an immediate neighbour to four Eastern European countries (the Czech Republic, Slovakia, Hungary and Slovenia) and some of these had already exported organic raw materials to Austria, at varying levels, before EU enlargement.
- As expected, the Eastern European farmers anticipate positive economic development. At the time of the survey, the economic situation was held to be positive by only 36% of farmers for organic farming in general, and by 57% of farmers in relation to their own farm (Figure 3-1). In contrast, 67% (for organic farming in general) or 76% (for own farm) expect a positive economic future (Figure 3-21). The highest number of positive or very positive answers was given by Hungarian farmers, where only 2% believe that their future economic situation will worsen.

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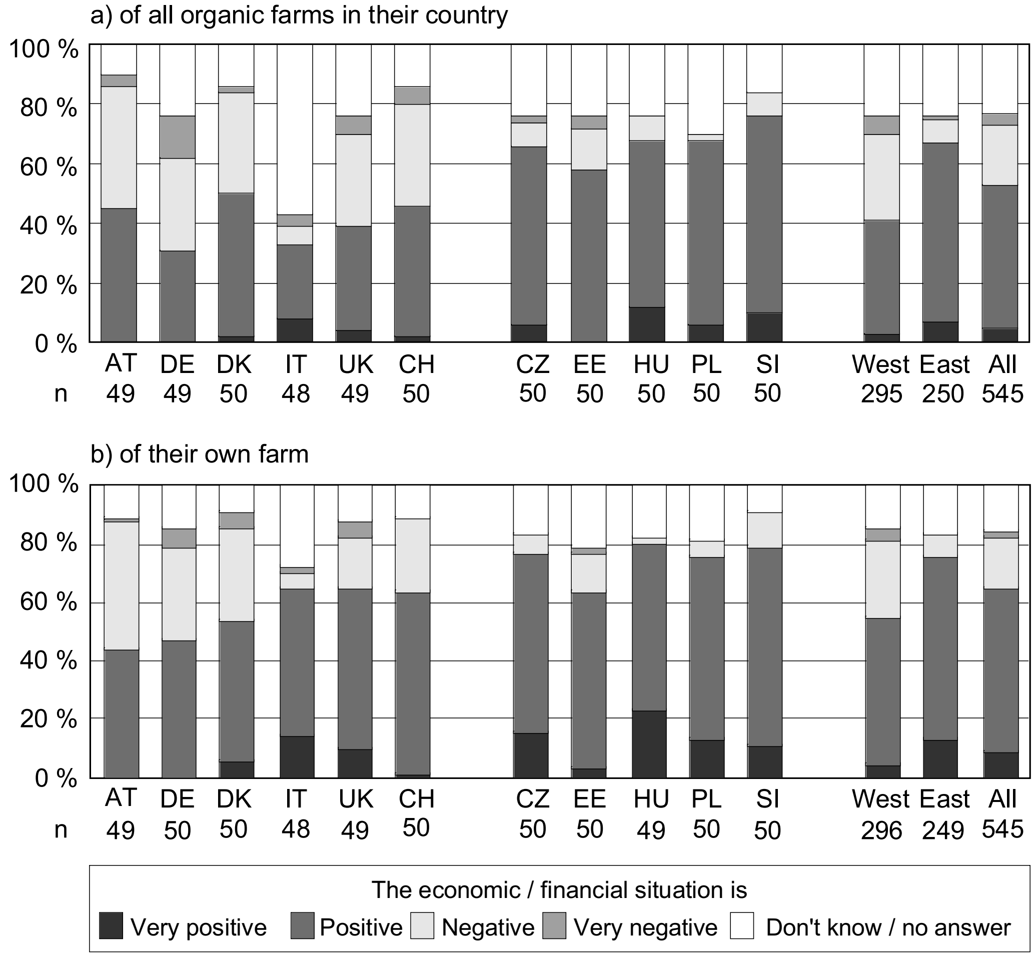
[10] In some countries, the expectation of increasing producer prices may be attributed to low producer price levels during the period before EU accession.

Figure 3-21: Farmers' perception of the overall economic situation for organic farming in the future[1)]



n: number of farmers answering

1) Question asked: How do you estimate the overall economic situation of (a) all organic farms in your country, (b) of organic farms with similar focus of production and (c) of your own farm, currently and in the future?

Source: Own calculations based on farm survey winter/spring 2004.

The positive expectations of most Eastern European organic farmers can also be seen in their investment plans (Table 3-10). About 83% of these farmers plan greater investment in the next five years. In contrast, only about one-third of the surveyed Western European farmers indicate that they would invest extensively over the same period. The greater need for investment on Eastern European farms in comparison with those of the Western European countries is significant in this context. In addition, it is probable that increasing direct payments have a positive influence on the propensity of Eastern European farmers to invest.

Table 3-10: Farmers' considerations about future investment plans[1)]

		Country											Region		All
		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	
Number of farms		50	50	50	50	49	50	50	50	50	50	50	299	250	549
		Percentage of farmers													
Yes	%	26	50	30	12	53	40	90	88	76	74	86	35	83	57
No	%	70	40	66	44	43	58	10	4	22	20	14	54	14	36
I don't know	%	4	10	4	44	4	2	0	8	2	6	0	11	3	8

1) Question asked: Are you considering some bigger investments in the next 5 years?

Source: Own calculations based on farm survey winter/spring 2004.

As Table A-20 in the Annex shows, 67% of the Eastern European farmers plan to invest in machinery and other equipment, 39% in storage capacity, 27% in land, 24% in animal husbandry/animal welfare (in order to comply with standards for livestock production) and 21% in off-farm activities (tourism, catering, energy, etc.). For the Western European farmers, main investments are in machinery and other equipment (31%), housing for cattle and sheep (23%), storage capacity (22%), off-farm activities (21%) and land (17%).

As has been noted above, Western European farmers were, in general, relatively critical about EU enlargement. However, farmers' forecasts became more optimistic when they considered the impacts of enlargement on their own farm (see Figure 3-17). It is not surprising, therefore, that just 2% of the Western European farmers explicitly mention EU Eastern enlargement in an open-ended question about the two most important constraints hampering organic farming development in their country (see Table 3-11). Other constraints in a similar vein, e.g., 'rising imports, cheap imports' and 'increasing international competition' are only mentioned by a few farmers (4% and 3% respectively). Both the Western and Eastern farmers see considerable problems in the organic market, with one-third of those surveyed mentioning 'low or stagnating consumer demand' as one of the greatest limitations. This is followed by 'no or limited organic markets/access to organic markets' (17%), 'insufficient market structure' (13%) and, particularly in Western European countries, 'low or falling farm gate prices for organic products' (average: 13%, West: 19%). 'Insufficient government support for organic farming' (including 'lack of organic payments/low organic payments') was cited by 14% of the farmers as one of the most important constraints. The restrictions: 'knowledge deficits about organic farming methods and marketing', 'bureaucracy, increasing administration costs'[11], 'limited financial resources' and 'unfavourable agricultural structure' are mentioned more frequently by Eastern, rather than by Western, European farmers. These, in turn, most often see 'genetic engineering/introduction of genetically-engineered plants' as a potential problem.

11 Noticeably, this constraint was mentioned by Czech organic farmers (32%).

Table 3-11: ***Farmers' statements on the two most important constraints hampering the development of organic farming in their country[1)]***

		Country											Region		All
		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	
Number of farms		50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farmers													
Low or falling farm gate prices for organic products	%	16	14	28	16	28	12	4	12	0	6	4	19	5	13
No or limited organic markets, limited sales opportunities, no or only limited access to organic markets	%	10	20	32	22	6	28	10	28	14	12	6	20	14	17
Insufficient market structure (fragmentation, lack or only few processors, insufficient co-operation, instability, market is too small and fragile)	%	4	8	16	12	18	2	18	18	6	22	16	10	16	13
Buying and pricing power of supermarkets, multinationals, large processors	%	0	4	6	0	14	0	0	0	0	0	0	4	0	2
Low consumer demand (consumers don't want to pay higher prices, low purchasing power, small interest in organic foods, lack of / low consumer awareness for and knowledge of organic products); stagnating consumer demand	%	36	64	34	10	18	38	18	36	40	24	24	33	28	31
Supply increases faster than demand	%	4	2	2	0	0	4	0	0	0	0	2	2	0	1
Rising imports, cheap imports	%	0	2	0	0	18	6	0	0	0	6	0	4	1	3
EU enlargement	%	4	4	0	0	0	2	0	0	0	0	0	2	0	1
Increasing international competition	%	2	0	0	8	2	8	2	0	2	4	8	3	3	3
Uncertainty regarding future agricultural policy	%	2	6	0	0	2	2	4	0	8	2	2	2	3	3
General agricultural policy	%	4	4	0	0	2	6	2	0	2	6	0	3	2	2
Organic payments are too low; lack of organic payments	%	2	2	2	14	14	0	14	0	20	4	8	6	9	7
Insufficient governmental support of organic farming / of the organic sector	%	8	4	20	4	0	2	8	8	20	4	4	6	9	7
Bureaucracy, increasing administration costs	%	8	6	2	10	4	2	32	2	4	8	4	5	10	7
Insufficient control system / certification	%	6	0	0	2	6	2	0	2	0	0	0	3	0	2
Organic standards (increasing and often changing rules and regulations, production and processing standards partly too strict and too costly to comply with, difficulties to fulfil the requirements)	%	4	4	10	0	4	26	4	2	2	10	14	8	6	7
Lower organic standards in other EU countries, inadequate harmonisation across Europe	%	2	2	0	2	12	0	2	0	0	0	0	3	0	2

(continued on next page)

Table 3-11: ***Farmers' statements on the two most important constraints hampering the development of organic farming in their country[1)] (continued)***

		Country											Region		All
		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	
		Percentage of farmers													
Genetic engineering	%	14	6	0	0	12	6	2	2	0	0	2	6	1	4
Technical problems with organic production	%	6	0	0	0	0	0	0	4	4	0	0	1	2	1
High or increasing production costs (high labour costs, high costs for seeds etc.)	%	2	4	4	26	2	2	4	2	12	10	10	7	8	7
Farms are too small, unfavourable agricultural structure, poor infra-structure	%	4	0	0	2	0	2	0	10	2	0	16	1	6	3
Knowledge deficits about organic farming methods and marketing (farmers need more education and training, lack of professional extension service)	%	0	0	2	2	2	0	4	20	12	10	8	1	11	5
Limited financial resources (e.g. for investments)	%	0	0	0	0	0	0	8	16	12	0	6	0	8	4
Declining profitability, profit is too low	%	2	0	6	0	6	8	2	0	4	14	0	4	4	4
Want of appreciation of organic farmers, negative attitude towards organic farming, unfavourable public image	%	2	6	0	0	4	6	2	6	4	4	0	3	3	3
Disorganised organic farming movement, non-uniform behaviour among organic farming representatives	%	4	2	0	0	0	4	0	2	2	0	2	2	1	1
Other constraints	%	28	6	14	8	10	10	16	18	12	22	28	13	19	16
I can't see any constraints	%	4	2	0	2	0	0	6	0	2	0	2	1	2	2
I don't know	%	0	0	0	10	2	0	8	0	0	6	4	2	4	3

1) *Question asked: In your opinion, what are - in the near future - the two most important constraints hampering the development of organic farming in your country?*

Source: Own calculations based on farm survey winter/spring 2004.

4 Impact of agricultural policy changes

Organic farms in the EU are facing fundamental changes to the policy environment in which they operate. The adoption of the Common Agricultural Policy (CAP) in new member states and the 2003 CAP reform will influence the level and composition of both policy support and prices, and will require adjustments on organic farms. This chapter will analyse the respective impacts on production, income and the policy dependency of organic farms in selected EU member states.

4.1 The changing policy environment

In the following paragraphs, the main policy changes faced by organic farms as a consequence of the implementation of the 2003 CAP reform or adoption of the CAP in new member states, respectively, are summarised. Subsequently, in the context of these policy changes, the specification of model-exogenous variables for the baseline scenario is discussed. These variables include policy parameters as well as the projection of other model-exogenous variables, e.g., factor prices.

4.1.1 The 2003 CAP reform

On 26 June 2003, EU farm ministers adopted a fundamental reform of the CAP. The key elements of the new, reformed CAP include:

- a Single Farm Payment (SFP) for EU farmers, independent of production,
- the linkage of this payment to agricultural and environmental standards ('cross-compliance'),
- a strengthened rural development policy,
- a reduction in direct payments ('modulation') for larger farms,
- a mechanism for financial discipline to ensure that the farm budget, fixed until 2013, is not exceeded,
- revisions to the market policy of the CAP, in particular the further reduction of intervention prices for dairy products and the abolition of rye intervention,
- an exemption of organic farms from obligatory set-aside.

The 2003 CAP reform provides a variety of options for national implementation, especially with respect to the design of the Single Farm Payment and the degree of decoupling. This has led to the coexistence of various decoupling schemes across the EU, which may differ in their impact on organic farming in the respective countries. Table 4-1 provides an overview of the approaches to the Single Farm Payment in the EU-15 countries analysed for this study. Decoupled payments are based on historical, individual farm reference premiums in Austria, Italy, Scotland and Wales and on regional references in Germany and England, while

Denmark and Northern Ireland opted for a hybrid of these approaches. Payments will be fully decoupled in Germany, Italy and the UK, while Denmark and Austria chose to keep some premiums in the beef sector partially coupled to production.

Table 4-1: Summary of approaches to the Single Farm Payment (SFP) in selected member states

Country	Regional Option	SFP Model	Effect of Model:	Coupling for:
Austria	No	Historical	The payment is based on historical farm receipts.	Suckler cow and calf slaughter premium (100%), adult slaughter premium (40%), hops (25%).
Denmark	Yes (one region)	Hybrid	Two area payments: 310 €/ha flat rate payment for arable and rotational grassland. 67 €/ha flat rate payment for permanent grassland. A first supplement consisting of 64% of the suckler cow premium, the slaughter premium, the extensification premium and the national envelope as well as 16% of the special premium for male cattle is historically based. A further supplement consists of 73 % of the dairy premium.	Male beef special premium (75%); ewe premium (50%); dried fodder (50%); potato starch premium (60%).
Germany	13 regions, by Länder	Transitional Hybrid -> Regional in 2013	Most premia will fuel into a flat rate premium which is allocated to permanent grassland and other area according to a regional coefficient. By 2013, regional flat rate payments for all eligible area will be about 328 €/ha on average.	Hops (25%), tobacco (60%) until 2009.
Italy	No	Historical	The payment is based on historical farm receipts.	Tobacco, seed premiums partially coupled.
UK	England	Transitional Hybrid - Regional in 2012	Payment will be 10% regional and 90% historic in 2005. By 2012, 3 flat rate zones: 1. Severely disadvantaged areas (SDAs) (135 £/ha) 2. Moorland areas within the SDAs (30 £/ha) 3. Non SDAs (220 £/ha)	
	Scotland	Historical	The payment is based on historical farm receipts.	Use of national envelope.
	Wales	Historical	The payment is based on historical farm receipts.	
	Northern Ireland	Hybrid	Area payment topped up with payment based on historical farm receipts. Basic area payment of 68 €/ha fuelled from: 50% of beef special premium, 50% of slaughter premium, 35% of sheep premium, 80% of LFA sheep supplement, 20% of arable area premium. The remaining (around 80%) will be a top up based on historical farm receipts.	

Source: Gay et al. (2005)

4.1.2 The implementation of the CAP in the new member states

For farmers in the new member states, EU accession means adoption of the CAP. From the first year of accession, farmers have access to CAP market measures. Much more important for organic farms is the introduction of direct payments. All accession countries except Slovenia and Malta opted for the 'Simplified Area Payment Scheme' (SAPS) which is a system of flat rate payments. Slovenia has chosen the Single Farm Payment Scheme based on historical references with a regional model that distinguishes between arable and grassland. Many details of the implementation of the CAP in the new member states were still under discussion at time of writing, so that some of the information on agricultural policy presented here must remain provisional.

Under SAPS, direct payments are phased in over a ten-year period starting with 25% of the full EU payment rate in 2004 and reaching 100% in 2013. New member states may top-up these EU payments with national funds. These national complements may amount to an additional 30% of the full EU level. The sum of EU payments and national top-ups must not exceed 100% of the full EU rate. While direct payments from the EU will be divided equally across all eligible hectares of utilised agricultural area (UAA), national top-ups in most of the new member states are sector specific for products covered by the CAP support schemes (Popp 2005).

In Slovenia, there was no final decision on the implementation of the CAP, beginning in 2007, when this analysis was prepared. Most probably, Slovenia will choose a hybrid system similar to the Danish one. The reference level for the direct payments is that of 2003, when payments were at 75% of the EU level. Beginning in 2004, EU funds were topped-up by national resources, so that direct payments were at 85% of the EU level in 2004, at 90% in 2005 and at 95% in 2006. This will be the final level of payments and will remain stable until 2013. Area payments will be granted for arable area and for grassland. Livestock payments will be reduced by about 50% when payments for grassland are introduced in 2006 (Erjavec 2006).

Apart from first pillar payments, farmers can apply for payments from the second pillar of the CAP. This pillar comprises national Rural Development Plans (RDPs) and programmes for agricultural and rural development under structural funds. Agri-environmental measures are part of RDPs. National priorities become obvious in the countries studied when comparing the share of funds dedicated to agri-environmental measures. This share is 49% in the Czech Republic, 30% in Estonia, 41% in Hungary, 31% in Slovenia and only 10% in Poland. In addition, Poland is the only study country which makes full use of the possibility of shifting back a maximum of 20% of RDP funds to the first pillar (FoEE 2004).[1]

Thus, for organic farmers in all the new member countries studied, the adoption of the CAP implies a marked increase in payments.

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1 According to the head of the local extension service in Olecko, Zdzislaw Kaminski, organic farming area payments are the only relevant support measure at farm level within the agri-environmental scheme in Poland.

4.1.3 Specification of baseline parameters

The 'baseline' is oriented to agricultural policy developments as they can be foreseen at the moment.[2] The time horizon for this study is the year 2013 when the policy changes (CAP reform and adoption of the CAP, respectively) will be finally implemented. Changes in organic markets are explicitly excluded[3]. For old EU member states, in addition to a comparison with the situation in the base year 2002, an analysis of the impact of the 2003 Luxembourg reform of the CAP on organic farms is made by comparing the situation after full implementation of the respective policies with a reference scenario, based on a continuation of current policy regimes (i.e. Agenda 2000) in 2013. For new member states, an analysis of the adoption of the CAP can be made by comparing the likely situation in 2013 with that under national pre-accession policies in the year 2003. In the EU-15 countries, the baseline is also analysed for conventional farms, providing information on the development of the economic incentive for (re-) conversion.

When modelling the impacts of the reform of agricultural policy for the year 2013, probable changes in external variables, such as yields, and changes in overall economic development have to be taken into account as well. An overview of the direction of the development of the main model-exogenous variables in the baseline, compared to the base year, is given in Table 4-2.

Table 4-2: Development of key indicators under the baseline (2013) compared to the base year (2002/2003)

	EU15	NMS
First pillar direct payments	Decoupling	↑
Second pillar		
...Organic farming payments	→	↑
...Other agri-environmental payments	→	↑
...Payments for Less Favoured Areas	→	↑
Yields in organic farming	↗	↗
Organic product price premia	→	→
Share of domestic organic production sold as organic	→	→
Factor prices		
a) Wages	→	↗
b) Other inputs	→	↗

→ as in baseline; ↗ moderate increase; ↑ (↓) strong increase (decrease)

Source: Own assumptions.

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2 Sugar market reform was still in the early stages of discussion at the time of this study, and related policy changes are, therefore, not covered by the scenarios.

3 They will be tackled in Chapter 5.

For the **EU-15**, most of the CAP reform measures can be modelled without the need to differentiate between organic and conventional farming, even though the impacts on the farming systems may differ. Exceptions are the exemption of farms which are fully organic from obligatory set-aside, and those measures which affect conventional (intervention) prices for agricultural products. As past analyses (Nieberg et al. 2005) have shown, the link between changes in the price support regimes of the CAP and organic farm gate prices is indirect and often weak. For the 2003 CAP reform, this issue is relevant, especially with respect to the reduction in intervention prices for dairy products (-15% for skimmed milk powder and -25% for butter). For conventional milk, farm gate prices are projected to decline by approximately 17% by 2013[4] compared to the base year (Kleinhanß et al. 2004). Asked how this would affect the average price for milk on their own farm, the majority of organic farmers expects a similar price reduction (Table 4-3).

Table 4-3: Farmers' assessment of the impact of falling producer prices for conventional milk on their own average farm gate price 1)

		AT	DE	DK	IT	UK	All
Number of farms		18	17	19	3	9	66
		Percentage of farmers					
No, no effect (price is independent of the conv. price level)	%	0	12	16	0	0	8
Yes, I expect a similar price reduction	%	61	76	53	100	67	65
Yes, I expect a lesser price reduction	%	33	6	21	0	22	20
Yes, I expect a higher price reduction	%	0	0	0	0	0	0
I don't know yet, I can't decide yet	%	6	6	11	0	11	8

1) Question asked: Do you think that a reduction in the producer price for conventional milk [by 20%] will affect the average price you receive for your milk?

Source: Own calculations based on farm survey winter/spring 2004.

It is therefore assumed that the price for organic milk falls by the same percentage as the conventional farm gate price, for the 2003 CAP reform scenario. However, 20% of farmers think the reduction may be less than that for conventionally-produced milk[5], and some farmers in Germany and Denmark even suggested that there would be no impact on the price received for organic milk at all, which may be linked to a high share of milk marketed directly to the consumer. Thus, for interpretation of the model results, it is important to remember that the impact on individual

4 This means -5% compared to the milk price under Agenda 2000 policies in 2013.

5 The occurrence of different developments in organic and conventional milk prices is supported by the developments observed in the UK and Denmark in 2006, where organic milk shortages returned due to sharply increased demand. Prices increased as a result, in contrast to the situation in the conventional sector (Nic Lampkin, personal communication). However, as the focus in this part of study is to isolate the impacts of CAP reform, the development of demand is assumed to be similar under both the reference and the CAP reform scenarios.

dairy farms may be significantly lower than shown for the average of the farm group, depending on the respective marketing situation of the farms.

The values and assumptions for other key parameters are described in Table 4-4 for the EU-15 member states. Assumptions had to be made for the increase in yields in organic farms, while the development of inputs, conventional product prices and conventional yields is based on trends and projections from other models (Kleinhanß et al. 2004; Jensen & Frandsen 2003). For the baseline, it is assumed that the organic price premiums remain constant.

Table 4-4: Key indicators in the baseline (national implementation of the CAP reform in 2013) compared to the base year (2002) for the EU-15

	Value / Assumption	Source
First pillar direct payments	Decoupling according to national implementation	Gay et al. (2005)
Yields in organic farming	Assumption: yields in organic farming will increase by half of expected yield growth for conventional production	Own assumption
Conventional product prices	Milk: - 17% Beef: + 7% Rye: - 12%	Kleinhanß et al. (2004)
Organic product price premiums	Constant	Own assumption
Share of domestic organic production sold as organic	Constant	Own assumption
Factor prices **Land**	Compared to Agenda 2000 AT: + 31% DK: + 9% UK: + 84%	Jensen & Frandsen (2003)
	DE: arable: - 5%; grassland: + 81%	Bertelsmeier (2005)

Source: Own illustration.

For the **new member states**, the values and assumptions included in the model are described in Table 4-5. Again, assumptions are made for the increase in yields in organic farming and for the growth rate of factor prices, as well as for wages and for land. Organic price premiums are assumed to remain constant in this stage of the analysis, where changes in organic markets are explicitly excluded. Conventional prices are assumed to remain unchanged in the new member states for the time period under consideration, irrespective of the price reactions observed in some of the study countries immediately after accession (e.g. Hungary). There was no clear source of information for justifying any other assumption for the aggregate of all study countries. The future development of wages is assumed to follow the historical trend. Price changes for other inputs, including land prices, were taken as observed for 2004 and 2005 and then extrapolated according to the 2005 inflation rate.

Table 4-5: Key indicators in the baseline (2013) compared to the base year (2003) for the new member states (national implementation of CAP reform)

	Develop-ment	Value / Assumption	Source
1st Pillar direct payments	↑	Flat rate area payments plus sector specific national top-ups	Data from partners observed for 2004 and 2005, Gay et al. (2005), Erjavec (2006)
2nd Pillar **a) Organic farming payments** **b) Other agri-environmental payments** **c) Payments for Less Favoured Areas**	 ↑ ↗ ↗	 a) Strong increase in all countries b) Strong increase in CZ, EE, HU, SI; in PL little importance for organic farms at the moment c) Increase depending on country and on land use	 Data from partners observed for 2004 and 2005
Yields in organic farming	↗	Assumption: yields in organic farming will increase by half of expected yield growth for conventional production Crops: + 0.85 % / year Milk: + 0.8 % / year Beef: no change	FAPRI (2005a)
Organic product price premiums	→	Constant Prices for conventional products in the NMS are assumed to remain constant too	OECD (2005), FAPRI (2005b)
Share of domestic organic production sold as organic	→	Constant	Own assumption
Factor prices **a) Wages** **b) Other inputs**	 ↗ ↗	 a) Annual growth rate: CZ + 5.1 %, EE + 5.9 %, HU + 4.9 %, PL + 4.2 %, SI + 3.5 % b) Prices from 2005 extrapolated with inflation rate	 a) EUROSTAT (2005), linear extrapolation of historical trend b) Data from partners for 2004 and 2005, CIA (2005)

→ as in base year; ↗ moderate increase; ↑ (↓) strong increase (decrease)

Source: Own illustration.

4.2 Impacts of the 2003 CAP reform on organic farming in selected EU-15 countries

The 2003 CAP reform comprises a complex package of different policy changes, including the reform or the complete cessation of existing market regimes and the introduction of new measures and requirements (see Chapter 4.1.1). Many of the changes will be phased in and be finally implemented in 2013 only, making assessment of the consequences difficult for policy makers and farmers alike. In the following chapter, an attempt is made to provide some insights into how selected elements of the reform will affect organic farmers, focusing on the impact of changes to first pillar regimes. To this end, the organic farmers surveyed were asked for their assessments and planned adjustments to the key parts of the reform. The results are presented and discussed here. In a second step, the EU-FARMIS model was used to quantitatively assess the impact on production and incomes in typical organic farm groups in selected countries. The income effects were compared with those of comparable conventional farms, in order to provide an indication of how the reform will affect the relative competitiveness of organic farming systems.

4.2.1 Farmers' reactions/adjustments

In the following paragraphs, the opinion of organic farmers surveyed and their planned adjustments to key policy changes, namely the decoupling of direct payments, the reforms in the dairy sector and the exemption of fully organic farms from obligatory set-aside, are presented and discussed.

Decoupling

A central element of the 2003 CAP reform is the decoupling of direct payments from production. Depending on the level of payments before the reform and the degree of decoupling, this measure is expected to lead to changes in the relative profitability of different production activities which may, in turn, induce adjustments on farms. Farmers were therefore asked whether the decoupling of payments would make changes on their farms necessary or more likely.[6] Overall, a surprisingly low number of farmers (24%) said that the decoupling would lead to changes on their farm, while 61% saw no need for changes (Table 4-6). However, it seems likely that not all of the farmers had given detailed thought to CAP reform and its impact on their farm at the time of the survey. Thus, even if the response 'I don't know' would have been adequate, it can be assumed that some of these farmers have answered 'no' instead and that, therefore, a higher proportion of farmers than is suggested by the survey will carry out adjustments on their farm in reality, and over time.

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6 As details of the national implementation of the reform were not yet finalised in most of the countries at the time of the survey, farmers were confronted with a situation of fully decoupled payments, transformed to a Single Farm Payment based on historical receipts. Exceptions were Germany where the regional model was decided upon on at the time, and Denmark where the partial decoupling of some payments was already fixed.

Table 4-6: ***Farmers' assessment of the need for changes on the farm following the decoupling of direct payments1)***

		AT	DE	DK	IT	UK	All
Number of farms	N	50	50	50	35	49	234
		Percentage of farms					
Changes necessary or likely	%	10	26	34	17	31	24
No changes necessary	%	72	56	60	69	49	61
I don't know	%	18	18	6	14	20	15

1) Question asked: Do you think that the decoupling of direct payments could make changes on your farm necessary or likely?

Source: Own calculations based on farm survey winter/spring 2004.

Of the 57 farmers (i.e. 24% of all respondents) who said that they planned to adjust to the decoupling of payments, the majority identified changing the level of some production activities as the most important strategy (Table 4-7). More than a quarter of these farmers intended to cease some enterprise activity, generally referring to dairy or beef production. Only four farmers were contemplating the sale of premium rights and farm closure, while nine farmers said that decoupling would lead to re-conversion of the farm to conventional farming. More than one-third of farmers were pondering a more active response to decoupling by introducing new activities on the farm, such as pig or poultry production and the provision of services like bed and breakfast or direct marketing.

Table 4-7: ***Farmers' planned adjustments to the decoupling of direct payments1)***

		AT	DE	DK	IT	UK	All
Number of farms	N	5	14	17	6	15	57
		Percentage of farmers					
Changes in the level of currently practised production activities	%	60	57	53	67	53	56
Elimination of farm enterprises / prod. activities	%	20	29	29	0	40	28
Introduction of new farm enterprises / new prod. activities	%	20	29	24	0	73	35
Sale of premium rights and closure of farm	%	0	7	12	0	7	7
Re-conversion to conventional farming	%	0	14	12	33	20	16
Introduction of nature conservation / wildlife habitat activities	%	20	0	24	0	20	14
Other measures	%	40	43	6	0	7	18

1) Question asked: Do you think that the decoupling of direct payments could make changes on your farm necessary or likely? If yes, please specify according to importance (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Reform of the dairy sector

The dairy sector is affected specifically by the 2003 CAP reform. Falling milk prices (see Chapter 4.1.3) and the decoupling of direct payments in particular, are likely to induce adaptations in both the conventional and the organic dairy sector with regard to milk supply, allocation of production and farm income. Therefore, the farmers were asked if and how they would react to these changes in dairy policies. Less than half of the farmers said that the reforms in the dairy sector would have no effect on their milk production (Table 4-8). A relatively high proportion of farmers was still unsure of the potential consequences for their farm, especially in Germany and the UK. The adjustment strategies of those farmers who had already given some thought to this issue are quite diverse and differ between countries. Of the farmers with milk production, 28% in Austria and 18% in Germany were considering ceasing such activity; in contrast, many farmers, especially in Denmark, contemplated increasing milk production. This may be a consequence of not only an inverse supply reaction, but also of farmers' expectations that the milk quota price could drop sharply following the implementation of the reform, thus increasing the profitability of milk production on their own farms. Other adjustment strategies such as cost reductions, the strengthening of marketing and processing or the introduction of new production activities were not generally regarded as viable options.

Table 4-8: Farmers' planned adjustments to the reforms in the dairy sector[1)]

		AT	DE	DK	IT	UK	All
Number of farms		18	17	19	4	9	67
		Percentage of farmers					
No effect	%	44	41	47	25	56	45
Reduction in milk production, sale/leasing of quotas	%	6	12	0	25	0	6
Expansion of milk production, purchase/renting of quotas	%	6	6	37	0	11	15
Ending of milk production	%	28	18	5	0	0	13
Re-conversion to conventional farming	%	0	0	0	25	0	1
Production improvement (lower costs, higher yields etc.)	%	6	0	5	0	0	3
Increase of other activities (suckler cows, sheep)	%	6	0	0	0	0	1
Other (direct marketing, on farm processing etc.)	%	6	0	0	0	0	1
I don't know yet, I can't decide yet	%	17	47	11	25	33	25

1) Question asked: Do you think that in 2005/2008 and beyond you will undertake changes in your farm's dairy production as a consequence of the decrease of producer price the increase of direct payments? (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Exemption from set-aside

An element of the reform uniquely affecting organic farms is the exemption of farms which are fully organic from obligatory set-aside. The positive impact of this exemption is, however, expected to be limited since the impact of set-aside schemes has been assessed to be neutral or positive for many organic farms (Offermann & Nieberg 2000) which are often able to use the set-aside for fertility building by including legumes in set-aside mixtures. In addition, in 2001, EU-wide permission for organic farmers to use forage produced on set-aside land for livestock feed has made a considerable contribution to increasing the flexibility with which set-aside is used (Häring et al. 2004). Also, partial conversion, for which the exemption is not valid, is widespread in some countries.

Of those surveyed, most farmers shared the opinion that the impact of exemption from set-aside would be limited (Table 4-9). Approximately 40% of surveyed farms in the Western European countries had set-aside land. On average, only 27% of farmers who were formerly subject to obligatory set-aside, said that they planned to adjust the area in response to the new regulation, the proportion being less than 15% in most countries. The only notable exception is Denmark, where 51% of farmers planned to reduce set-aside area. In particular, this applies to arable and intensive livestock farmers in Denmark (Table 4-10), as well as more than one third of the dairy farmers, whereas other grazing livestock farmers appear to be less affected and would maintain current levels. Generally, those farmers intending to reduce set-aside planned to do so completely, taking all the area into production.

Table 4-9: Impact of the exemption of wholly organic farms from set-aside1)

		AT	DE	DK	IT	UK	All
Number of farms	**N**	16	23	37	2	19	97
		Percentage of farms					
No effect	**%**	88	96	49	0	89	73
Reduction of set-aside	**%**	13	4	51	100	11	27

1) Question asked: According to the new decisions for agricultural reform, wholly organic farms will be exempted from obligatory set-aside. Will this change the amount of land set-aside on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Model results highlight the fact that total area under set-aside and leys will remain almost constant (Figure 4-1). In general, the exemption of organic farms from obligatory set-aside will only result in a change of classification, rather than an actual change in land use.

Table 4-10: Impact of the exemption of wholly organic farms from set-aside, by farm type1)

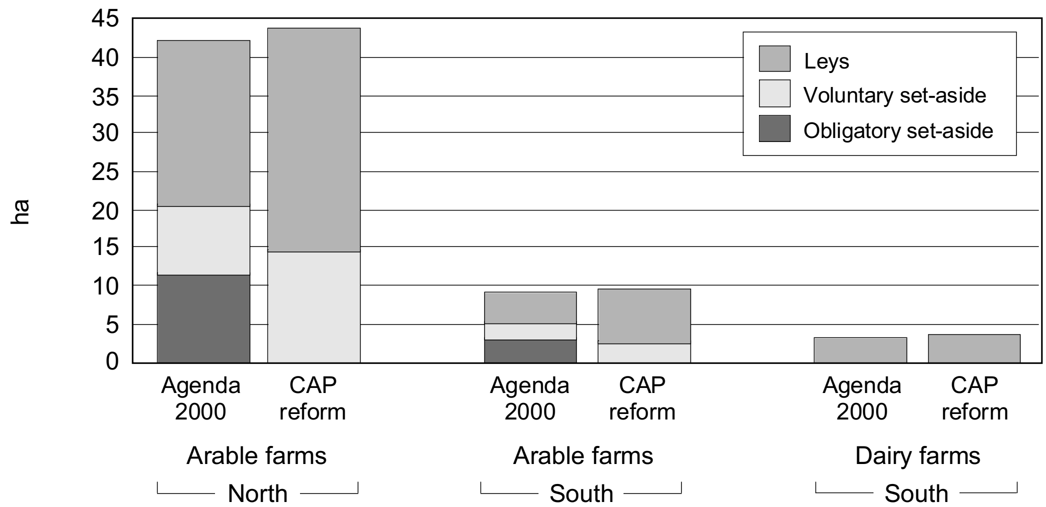
		MF	AF	DF	OG	IF	PF	All
					Austria			
Number of farms	N		14			1	1	16
				Percentage of farms				
No effect	%		86			100	100	88
Reduction of set-aside	%		14			0	0	13
					Denmark			
Number of farms	N	1	13	16	5	2		37
				Percentage of farms				
No effect	%	100	23	63	80	0		49
Reduction of set-aside	%	0	77	38	20	100		51
					Germany			
Number of farms	N	6	7	3	6		1	23
				Percentage of farms				
No effect	%	100	100	100	83		100	96
Reduction of set-aside	%	0	0	0	17		0	4
					UK			
Number of farms	N	5	6	2	5		1	19
				Percentage of farms				
No effect	%	100	100	100	60		100	89
Reduction of set-aside	%	0	0	0	40		0	11

MF = Mixed farms, AF= Arable farms, DF = Dairy farms, OG = Other grazing livestock farms, IF = Intensive livestock farms, PF = Permanent crops and horticultural farms

1) Question asked: According to the new decisions for agricultural reform, wholly organic farms will be exempted from obligatory set-aside. Will this change the amount of land set-aside on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Figure 4-1: Set-aside and leys on organic farms in Germany under Agenda 2000 and CAP reform policies



Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

4.2.2 Impacts on production

The EU-FARMIS model (see Chapter 2.1.3) was used to assess the impact of the respective national implementation of the CAP reform on the production structure and output of typical organic farm groups in selected EU-15 countries.

Austria

The decoupling of payments leads to a marked reduction of cereal production (-17% in arable farms, Table 4-11). For arable farms, the new CAP regime renders the use of some agricultural land unprofitable and some areas of both arable land and grassland fall fallow in consequence.[7] There is a slight reduction in the number of suckler cows even though the suckler cow premium remains fully coupled. In addition, since slaughter premiums remain partially coupled, the impacts on beef production are generally small. The milk quota is still fully utilised.

Table 4-11: Impact of the 2003 CAP reform on production on organic farms in Austria, 2013

	Arable farms Valley+Hills		Dairy farms Hills		Dairy farms Mountains		Other grazing livestock Mountains	
	Agenda 2000 level	CAP reform to Agenda 2000	Agenda 2000 level	CAP reform to Agenda 2000	Agenda 2000 level	CAP reform to Agenda 2000	Agenda 2000 level	CAP reform to Agenda 2000
Area (ha)								
Cereals	25	-18%	2	-38%	1	-42%	1	-39%
Pulses	5	12%						
Potatotes	3	2%						
Leys and set-aside	11	-10%	4	15%	3	12%	5	12%
Other crops	5	0%	1	-8%				
Permanent grassland	2	-60%	20	0%	20	0%	26	0%
Animals (number)								
Dairy cows	1	0%	19	0%	14	0%	6	0%
Suckler cows							11	-5%
Bulls			1	-32%	1	-38%	2	-40%
Production (t)								
Cereals	87	-17%	6	-38%	3	-41%	4	-39%
Milk	5	0%	120	0%	87	0%	37	0%
Beef			3	3%	2	2%	3	-2%

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

7 The interpretation of the occurrence of fallow land needs to reflect that the model analysis takes into account only those production alternatives currently observed on the farms. Changing technological and market conditions could lead to new enterprises (e.g., biomass production) becoming viable on marginal land even under the CAP reform).

Denmark

The impact of decoupling on production structure shows marked differences by farm type (Table 4-12). On arable farms, the reduction of cereal area is small as there are few profitable opportunities for alternative land use due to low stocking rates. Conversely, on dairy farms, the shift in the relative competitiveness of different land uses leads to a strong decrease of cereal-growing and an increase in arable fodder area. The additional forage substitutes for some fodder maize and concentrates in feed rations. While on arable farms, therefore, an incentive exists to maintain or increase bull and suckler cow numbers, the number of bulls is reduced rather sharply on dairy farms, despite the remaining, partially coupled, special premiums for male cattle. Total beef production on dairy farms declines by only 8-9%, however, since the number of dairy cows remains constant and milk quota is still fully utilised.

Table 4-12: Impact of the 2003 CAP reform on production on organic farms in Denmark, 2013

	Arable farms		Dairy farms < 100 cows		Dairy farms > 100 cows	
	Agenda 2000 level	CAP reform to Agenda 2000	Agenda 2000 level	CAP reform to Agenda 2000	Agenda 2000 level	CAP reform to Agenda 2000
Area (ha)						
Cereals	28	-5%	14	-22%	29	-25%
Oilseeds					1	-15%
Pulses	4	-2%	4	-27%	5	-40%
Leys and set-aside	47	3%	57	8%	104	9%
Other crops	5	1%	5	-5%	9	-4%
Permanent grassland	8	0%	11	0%	16	0%
Animals (number)						
Dairy cows	1	0%	68	0%	118	0%
Suckler cows	3	23%				
Bulls	3	4%	10	-26%	15	-24%
Production (t)						
Cereals	89	-5%	57	-22%	133	-26%
Milk	6	0%	481	0%	937	0%
Beef	2	8%	10	-9%	18	-8%

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Germany

With respect to crop production (Table 4-13), the decoupling of direct payments induces a slight reduction in cereal production, while the growing of pulses gains in relative competitiveness. On arable farms, the area used for arable fodder/leys increases as a consequence of improved relative profitability under national implementation of the CAP reform and the requirements to keep all land in good agricultural condition. In combination with rising beef prices (see Chapter 4.1.3, Table 4-4), this leads to an increase in the number of suckler cows and bulls despite the full decoupling of cattle premiums. The milk quota is still fully utilised.

Table 4-13: Impact of the 2003 CAP reform on production on organic farms in Germany, 2013

	Arable farms North		Arable farms South		Dairy Farms South	
	Agenda 2000 level	CAP reform to Agenda 2000	Agenda 2000 level	CAP reform to Agenda 2000	Agenda 2000 level	CAP reform to Agenda 2000
Area (ha)						
Cereals	102	-4%	22	-7%	2	-24%
Oilseeds	4	-2%				
Pulses	13	15%	8	15%		
Potatotes	5	3%	1	3%		
Leys and set-aside	42	4%	9	5%	3	17%
Other crops	5	0%	5	0%	1	-3%
Permanent grassland	42	0%	5	0%	28	0%
Animals (number)						
Dairy cows	1	0%			25	0%
Suckler cows	19	14%	8	22%		
Bulls	5	15%	3	5%	2	-9%
Production (t)						
Cereals	208	-2%	82	-7%	6	-23%
Milk	4	0%			148	0%
Beef	3	11%	1	7%	3	-3%

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

UK

The British organic farms selected for analysis were based, almost completely, on grassland and the CAP reform affects production in the beef sector only, as the milk quota is still fully utilised (Table 4-14). The number of bulls is reduced by 12% and the decline in suckler cow numbers is quite drastic (-39%). Interpretation of effects is hindered by the fact that due to the small number of organic farms in the EU FADN for the UK, farms from England, Wales and Scotland, each of which has chosen a different approach to the CAP reform, had to be aggregated for the analysis.

Table 4-14: Impact of the 2003 CAP reform on production on organic farms in the UK

	Dairy and grazing livestock farms	
	Agenda 2000 level	CAP reform to Agenda 2000
Area (ha)		
Cereals	2	-32%
Leys and set-aside	18	4%
Other crops	1	-2%
Permanent grassland	243	0%
Animals (number)		
Dairy cows	34	0%
Suckler cows	35	-39%
Bulls	25	-12%
Production (t)		
Cereals	12	-29%
Milk	186	0%
Beef	14	-11%

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

4.2.3 Impacts on income

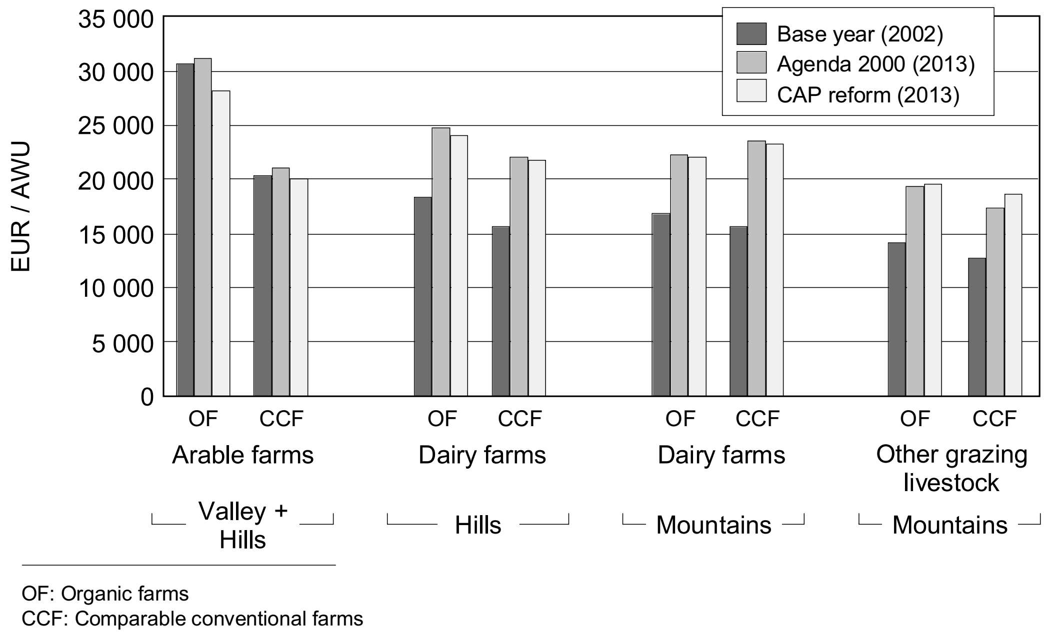
To assess the impacts of the CAP reform on the financial situation of organic farms, 'Family Farm Income plus Wages per Agricultural Working Unit' (FFI+W/AWU; see Chapter 2.4, Box 5) is used as an indicator for the return for labour.

The income in 2013 under the CAP reform is compared with the respective income in the base year for both organic and comparable conventional farms, in order to determine the development of absolute and relative profitability on organic farms. In addition, a comparison is made with the profitability in 2013 under a policy scenario based on Agenda 2000 conditions, which allows the effect of the CAP reform on organic and comparable conventional farms to be isolated.

Austria

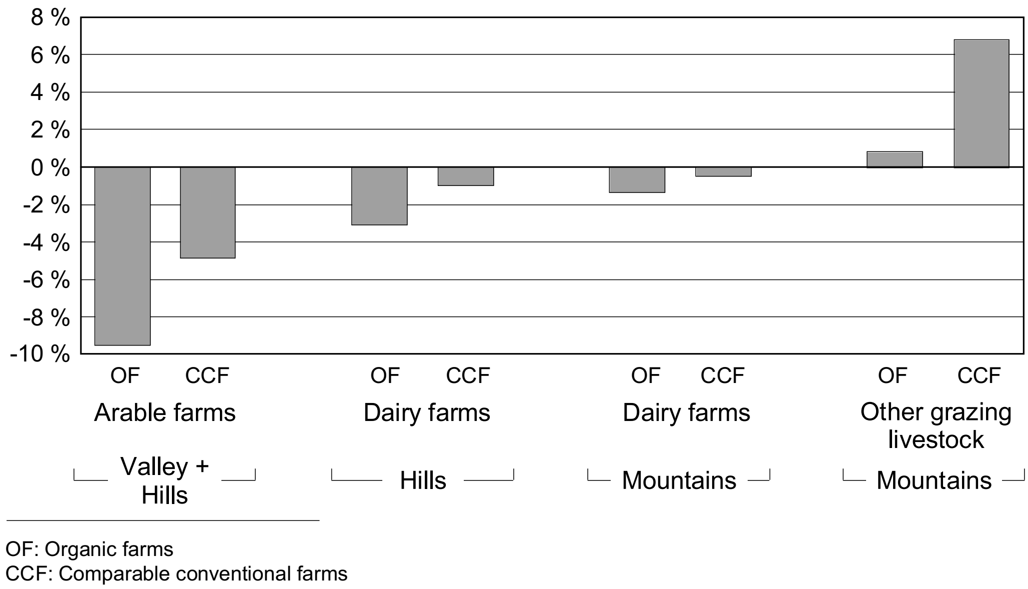
In Austria, profits per AWU on organic and comparable conventional farms are projected to rise in the case of dairy and other grazing livestock farms from the base year to the projection year 2013 under Agenda 2000 policies, whereas they stagnate on arable farms (Figure 4-2). Compared to the Agenda 2000 policy scenario, the impact of the CAP reform on profitability within farm types is in the same direction for both organic and conventional farming systems (Figure 4-3). However, in relative terms, the CAP reform has either a more negative or less beneficial effect on organic rather than on comparable conventional farms for all the farm groups analysed here. This can be attributed to the implementation of the Single Farm Payment on the basis of historical payments which retains the higher share of first pillar payments going to conventional farms (Figure A-17, Annex). In addition, the results indicate that the transfer efficiency of the remaining (partially) coupled payments in the cattle sector could be even lower on the organic than on the conventional farms.

Figure 4-2: Development of FFI+W/AWU on organic and comparable conventional farms in Austria for different policy scenarios



Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

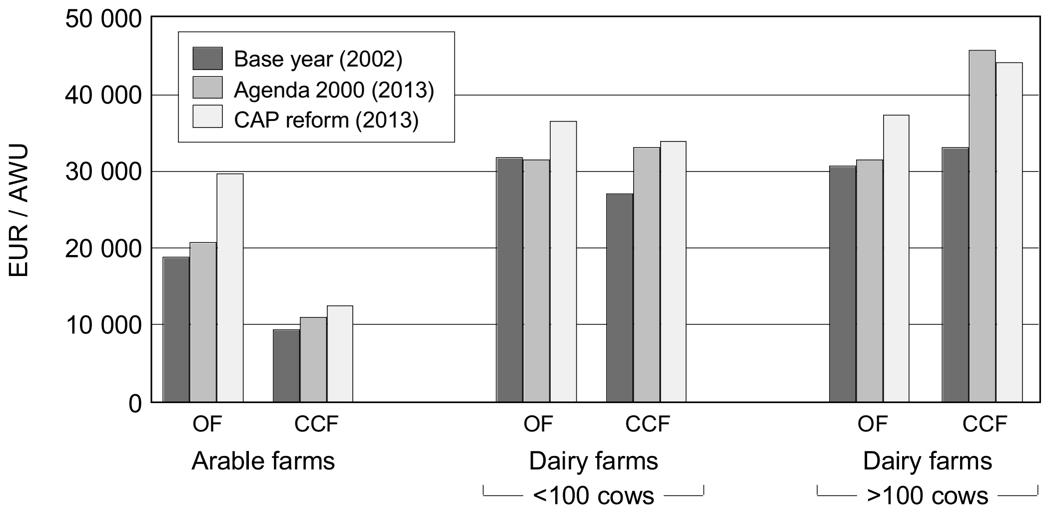
Figure 4-3: Change of FFI+W/AWU, CAP reform to Agenda 2000, Austria, 2013



Denmark

Figure 4-4 provides an overview of the development of profits on Danish organic and comparable conventional farms from the base year to the projection year 2013. Under Agenda 2000, profits on arable farms are projected to increase slightly due to technical progress and yield increases, and organic farming systems remain significantly more profitable, albeit at a very low absolute level. The profitability of organic dairy farms stagnates under Agenda 2000 policies, while that of conventional farms is projected to both increase and surpass the profit of organic farms, mainly because of the assumed higher increase in dairy yields. The picture changes with CAP reform (Figure 4-5). Organic arable farms profit strongly from the redistribution of direct payments (Figure A-18, Annex) and income is projected to rise to levels which, possibly, could sustain these farms.[8] Organic dairy farms also benefit more than comparable conventional farms from the increase in direct payments. Their income increases by 16-19% compared to the Agenda 2000 scenario, while that of comparable conventional farms stagnates or even decreases.

Figure 4-4: Development of FFI+W/AWU on organic and comparable conventional farms in Denmark for different policy scenarios

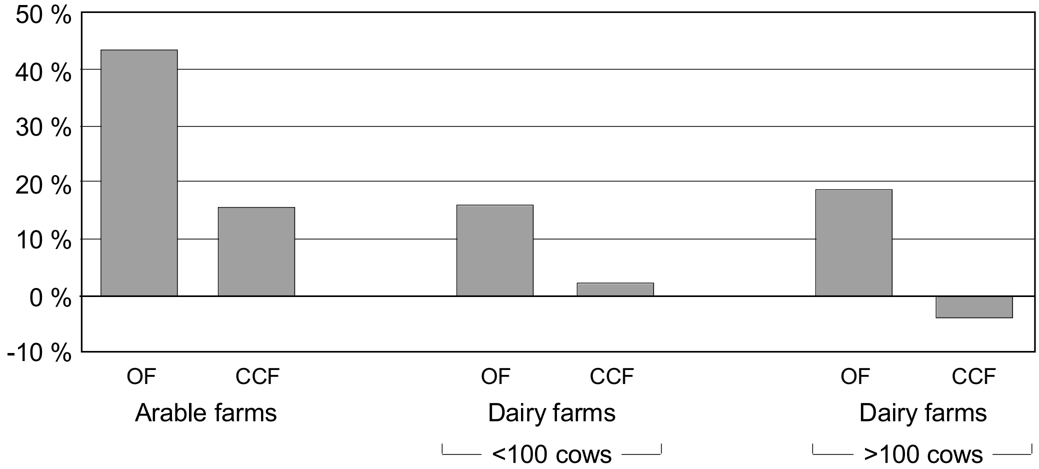


OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

8 It should be noted that the modelled group of Danish organic arable farms has an average of 93 ha of land. The profits from farming small organic arable farms will remain at levels too low to sustain full-time farming.

Figure 4-5: Change of FFI+W/AWU, CAP reform to Agenda 2000, Denmark, 2013



OF: Organic farms
CCF: Comparable conventional farms

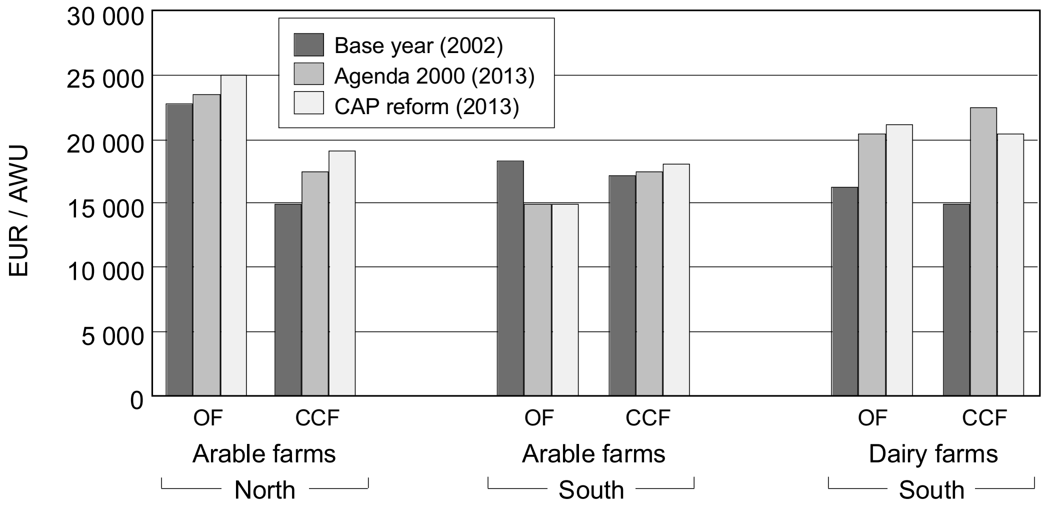
Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Germany

Figure 4-6 provides an overview of the development of profits on organic and comparable conventional farms from the base year to the projection year 2013, under Agenda 2000 policies as well as under the CAP reform scenario. In most farm groups, profits are expected to increase, mainly as the result of the assumed (labour-saving) technical progress and rise in yields. The increase is larger in the group of comparable conventional farms which are projected to draw near to, or in the case of the farms in the south, even overtake organic farms with respect to financial performance.

The partial impacts of CAP reform on income can be isolated by comparing the CAP reform scenario with the situation under the Agenda 2000 scenario. Figure 4-7 shows that the mostly extensive, arable farms in the north profit from the reform, since leys which were formerly unsupported are now eligible for the regional premium. In addition, conventional farms benefit from the fact that the sugar beet area is eligible for the regional premium under CAP reform, leading to a rise in direct payments from the first pillar (Figure A-19, Annex). Interestingly, the reform has a diametrically opposed impact on the incomes of organic and comparable conventional dairy farms. While organic dairy farms benefit from the redistribution of direct payments due to their low ratio of dairy cows to fodder area, conventional dairy farms lose out due to the decrease in producer prices for milk, which is not fully compensated for by the regional premium on these farms. The income effects on dairy farms are strongly influenced by the projected increase in rental prices for grassland, implying that the effect of the CAP reform will be even more positive than is shown here for organic farms with a high share of owned land.

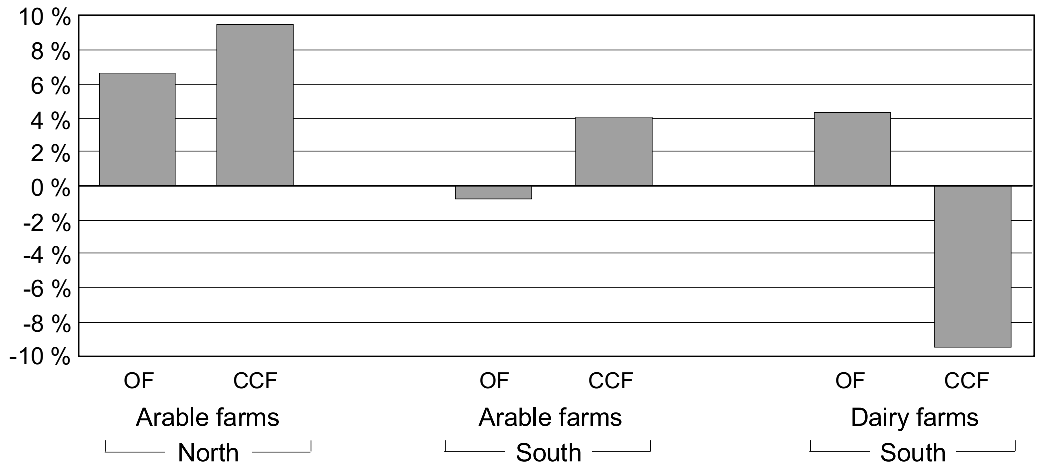
Figure 4-6: Development of FFI+W/AWU on organic and comparable conventional farms in Germany for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Figure 4-7: Change of FFI+W/AWU, CAP reform to Agenda 2000, Germany, 2013



OF: Organic farms
CCF: Comparable conventional farms

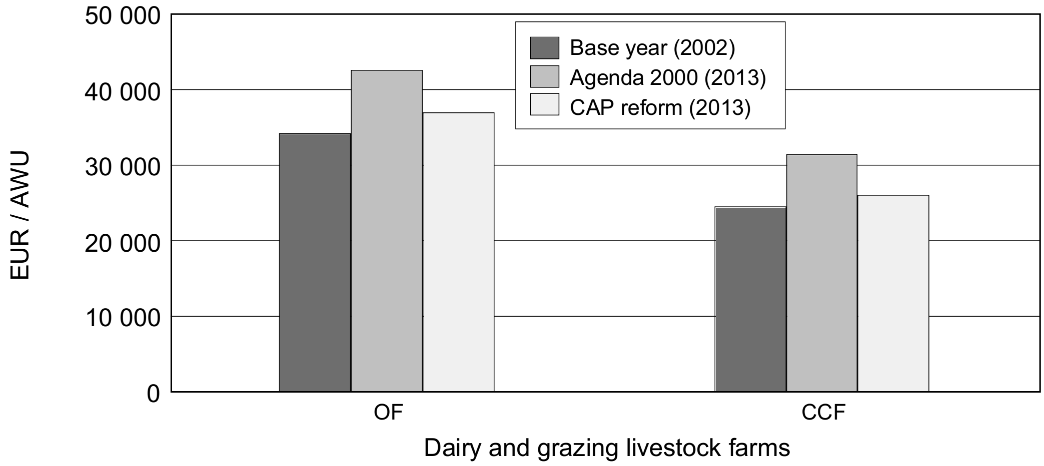
Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

UK

In the UK, the profits per AWU on organic and comparable conventional farms are projected to rise on dairy and other grazing livestock farms from the base year to the projection year 2013 under Agenda 2000 policies, mainly due to the assumed (labour-saving) technical progress and the rise in dairy yields (Figure 4-8). Compared to the Agenda 2000 policy scenario, the CAP reform reduces the income on dairy and other grazing livestock farms under both farming systems (Figure 4-9).

However, this reduction is slightly lower on organic farms which either lose less or benefit from the redistribution of direct payments in those parts of the country where the regional model has been implemented (Figure A-20, Annex). Again, the interpretation of effects is hindered by the fact that due to the small number of organic farms in the EU FADN for the UK, farms from England, Wales and Scotland, each of which has chosen a different approach to the CAP reform, had to be aggregated for the analysis.

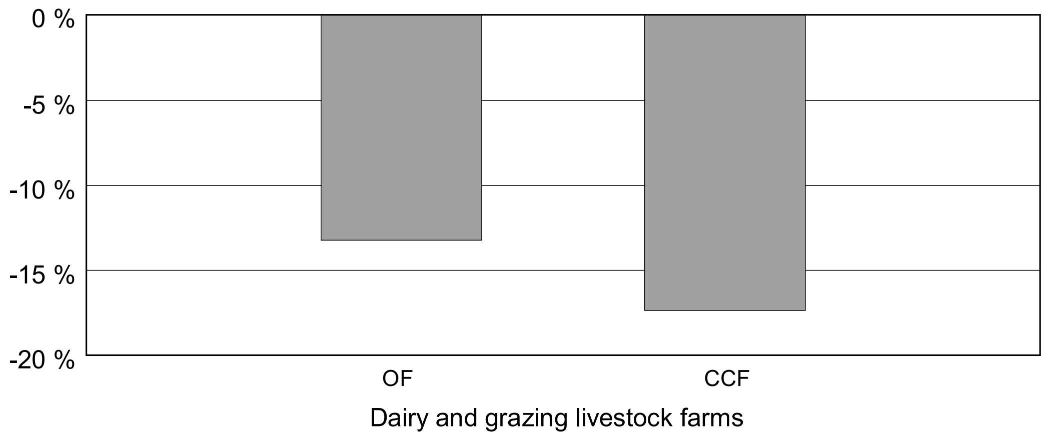
Figure 4-8: Development of FFI+W/AWU on organic and comparable conventional farms in the UK for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Figure 4-9: Change of FFI+W/AWU, CAP reform to Agenda 2000, UK, 2013



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

4.2.4 Development of the importance of support payments

As outlined above, direct payment schemes in the EU-15 countries, especially those of the first pillar, are subject to significant modifications over the period 2002 to 2013. This section analyses if, and how, the dependency of organic farms on these payments will change, using the indicators discussed in Chapter 2 (see Box 6).

An overview of developments is given in Table 4-15. With CAP reform, the share of total payments in gross output rises in the organic dairy farm groups due to the increased compensatory payments for milk and, in countries which implement the regional model, due to the redistribution of direct payments. For the organic arable and grazing livestock farm groups, changes in the share of total payments in gross output are generally small. As the agri-environmental programmes are assumed to continue unchanged, the importance of extra support for organic farming remains constant for most farm groups. Exceptions are arable and other grazing livestock farms in Austria and arable farms in Denmark, whose dependency on this support decreases, and organic arable farms in Germany, where the share of extra support payments in FFI+W increases.

Table 4-15: Share of payments in gross output and in FFI+W on organic farms in selected Western European countries in 2013 compared with 2002

	Total payments		Extra payments for organic farming			
	% of gross output		% of gross output		% of FFI+W	
	2002	2013	2002	2013	2002	2013
			Austria			
Arable farms, valley+hills	35	32	12	10	23	21
Dairy farms, hills	25	30	8	8	18	18
Dairy farms, mountains	29	33	5	5	10	9
Other grazing livestock, mountains	47	47	10	10	24	21
			Denmark			
Arable farms	37	40	9	7	60	37
Dairy farms, < 100 cows	12	22	3	3	15	16
Dairy farms, > 100 cows	12	22	3	3	16	16
			Germany			
Arable farms, North	38	39	11	10	32	31
Arable farms, South	29	29	9	9	34	45
Dairy farms, South	19	29	7	7	24	25
			UK			
Dairy and grazing livestock farms	29	34	5	5	14	16

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

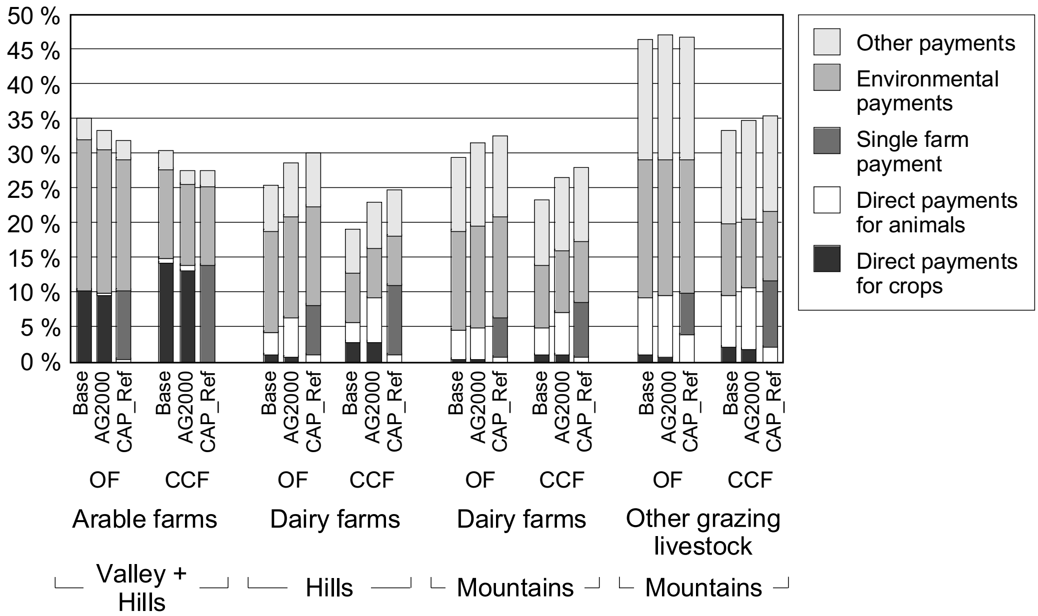
As the implementation of the Single Farm Payment and the degree of decoupling differ between EU member states, further analysis and the comparison with developments on comparable conventional farms, require more detailed examination at country level.

Austria

The share of total direct payments in gross output increases on both organic and comparable conventional dairy farms due to the introduction of the milk premium, whereas it declines slightly on arable farms (Figure 4-10). As the Single Farm Payments are based on historical references, few changes take place in comparison with the Agenda 2000 scenario, except for the increase of the milk premium.

With respect to the importance of the extra payments for organic farming, a decline in the share of this support in FFI+W can be observed for the organic arable, dairy mountain and for other grazing livestock farms (Table 4-15). The reasons for the reduced significance of the extra support differ according to farm type. On the organic arable farms, part of the land falls fallow (see Chapter 4.2.2) and is not eligible for organic payments, thus reducing the total amount of organic support received by these farms. On the organic dairy and the other grazing livestock farms, the rise in FFI+W reduces the relative importance of organic support payments under CAP reform.

Figure 4-10: Share of direct payments in gross output on organic and comparable conventional farms in Austria for different policy scenarios



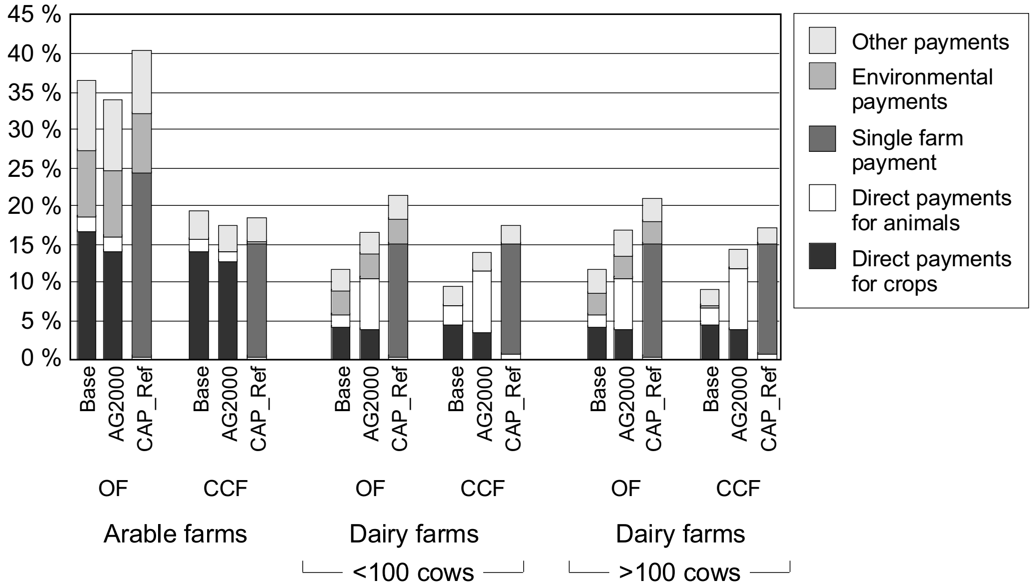
Base: Base year (2002)
AG2000: Agenda 2000 (2013)
CAP_Ref: CAP reform (2013)
OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Denmark

All organic farms experience an increase in the share of direct payments in gross output (Figure 4-11) due to rising first pillar payments. The increase is strongest on organic arable farms due to the redistribution of direct payments via the regional component of the Single Farm Payment. On all organic farms, the importance of the SFP is significantly greater than that of the environmental payments under CAP reform. The importance of the extra support for organic farming does not change on dairy farms. However, it is reduced considerably for the organic arable farms, even though the share of such support in FFI+W on these farms is still higher than on dairy farms (Table 4-15).

Figure 4-11: Share of direct payments in gross output on organic and comparable conventional farms in Denmark for different policy scenarios



Base: Base year (2002)
AG2000: Agenda 2000 (2013)
CAP_Ref: CAP reform (2013)

OF: Organic farms
CCF: Comparable conventional farms

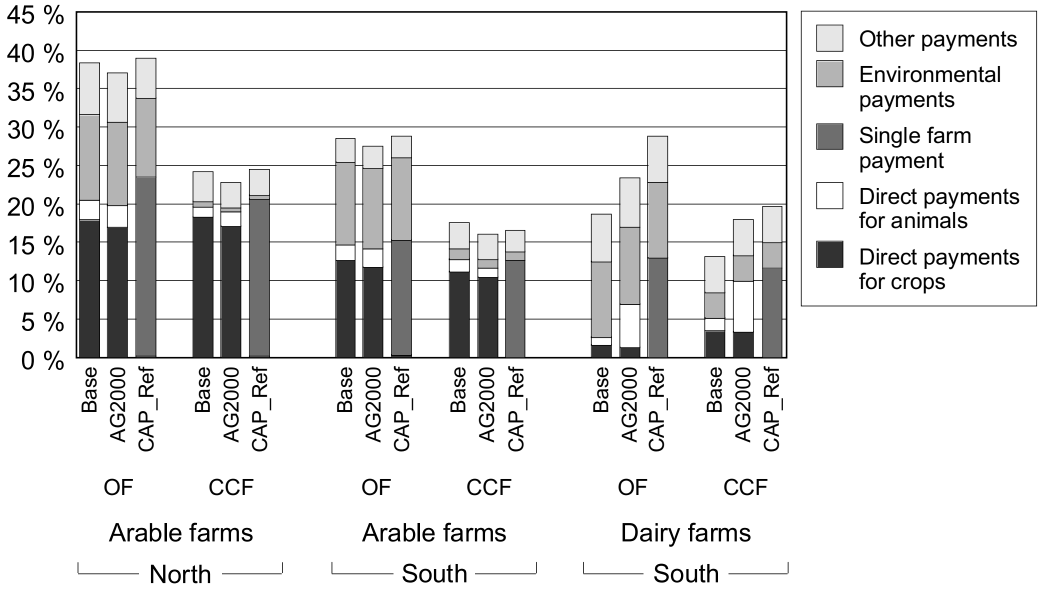
Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Germany

The share of total direct payments in gross output does not change much between the different policy scenarios on arable farms, however it increases on dairy farms due to the compensatory payments for milk under Agenda 2000 and the redistribution of the SFP under the CAP reform scenario (Figure 4-12). The dependency of gross output on direct payments rises especially in the case of organic dairy farms, to a level formerly observed only on arable farms.

The importance of extra support payments for organic farming generally remains constant (Table 4-15). The exceptions are organic arable farms in the south where the share of this support in FFI+W increases as a consequence of the 'redefinition' of 'set-aside area' as 'leys/arable grass' (see Figure 4-1) which are eligible for organic support schemes.

Figure 4-12: Share of direct payments in gross output on organic and comparable conventional farms in Germany for different policy scenarios



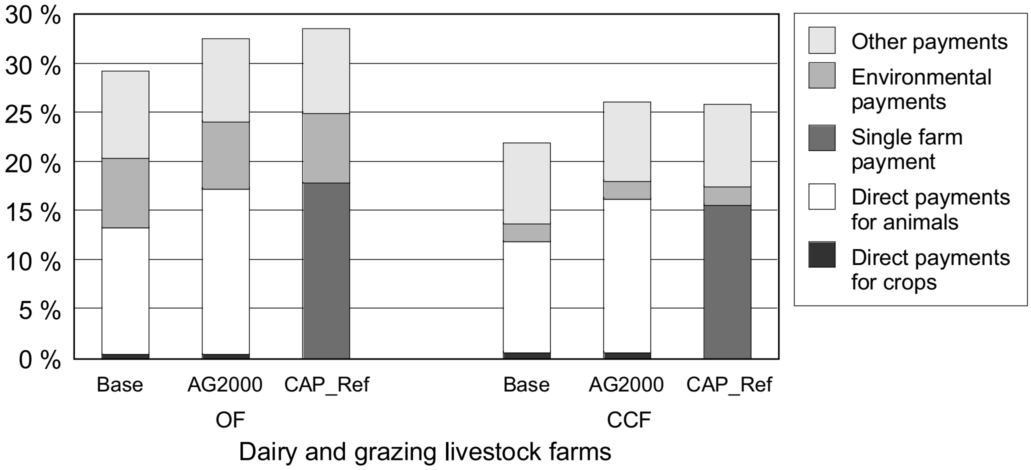
Base: Base year (2002)
AG2000: Agenda 2000 (2013)
CAP_Ref: CAP reform (2013)
OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

UK

The share of direct payments in gross output on the British farms increases when compared to the base year due to the introduction of the milk premium (Figure 4-13). The dependency on extra support for organic farming, measured as a percentage of gross output or of FFI+W, remains comparatively low under all policy scenarios (Table 4-15).

Figure 4-13: Share of direct payments in gross output on organic and comparable conventional farms in the UK for different policy scenarios



Base: Base year (2002)
AG2000: Agenda 2000 (2013)
CAP_Ref: CAP reform (2013)

OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

4.3 Impacts of the adoption of the CAP on typical organic farms in selected new member states

Adoption of EU agricultural policy causes marked changes for organic as well as conventional farmers in new member states. The increase in payments is the most positive result for farmers, but it is almost always accompanied by an increase in European standard compliance requirements, primarily relating to hygiene and agri-environmental issues, and by increasing costs.

The following chapter describes and analyses the impacts of EU accession on the production structures and economic performance of organic farms in the new member states studied. The impact of possible organic market developments on organic farms is excluded at this stage of the analysis and will be discussed in Chapter 5. Thus, the emphasis of this chapter is on pure policy changes and changes in overall economic indicators, such as increases in costs, rents and wages. The analyses are undertaken for the so-called 'baseline' in comparison to the base year (see Chapter 4.1.3). The base year is 2003 with pre-accession national policies, and the baseline is the assumed policy and economic environment in the year 2013, at which time new member states will have completed the implementation of the CAP. Assumptions had to replace hard facts where agricultural policy measures were still under discussion which was the case in most of the study countries at the time the calculations were performed.

Since the structure of typical organic farms may change over the ten-year period due to reactions to the changing policy environment, such changes were considered in the analyses. An interactive approach was adopted with participation by the farmers themselves (see Chapter 2.2.1) and, consequently, it was not always possible to separate pure policy effects from those caused by medium-term farm strategies or by farmers' anticipation of likely market developments.

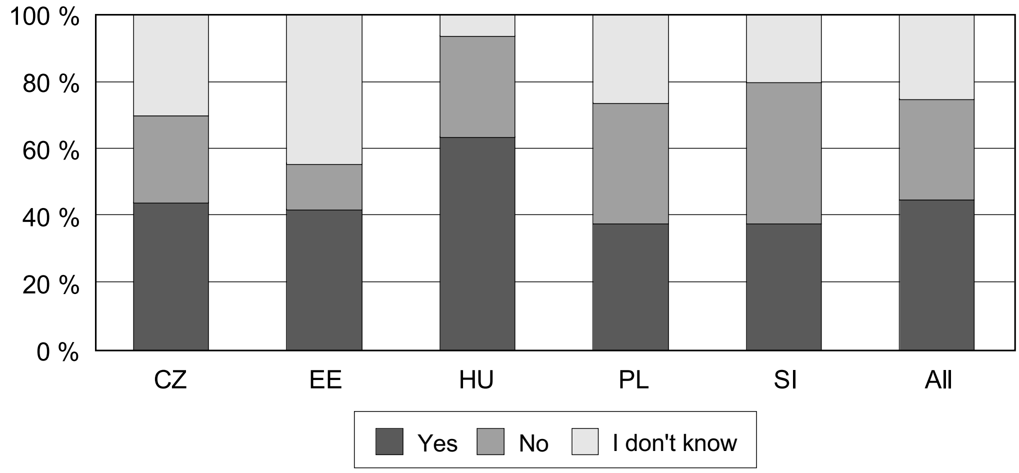
As an introduction to this section, the results of the farm survey concerning farmers' expectations and possible adjustment reactions to EU accession are presented. This is followed by a detailed description of the likely adjustments to a changed policy environment on the typical farms defined for each country. The section concludes with the economic analysis of the impacts of policy changes on typical organic farms.

4.3.1 Farmers reactions/adjustments

4.3.1.1 Farm survey results

During the survey of 50 organic farms in each of the study countries, farmers were asked about any necessary adaptations at farm level after EU accession. In all countries, with the exception of Slovenia, the proportion of farmers expecting adaptations to become necessary was higher than the share of farmers not thinking changes to be required (Figure 4-14). However, the proportion not knowing if any changes would be required was relatively high (25% on average, across all countries). Obviously, many farmers in most of the study countries were not well-prepared for accession at the time of the survey.

Figure 4-14: Farmers' assessment of the need for changes on the farm following EU accession [1]



1) Question asked: Do you expect any other adaptations required due to EU accession on the level of your farm?

Source: Own calculations based on farm survey winter/spring 2004.

The question about necessary adaptations after EU accession was formulated as a follow-up question, where farmers who answered 'yes' in the first step were then asked an open-ended question concerning the kind of adaptations required. The responses are categorised in Table 4-16 which indicates that the ranking of issues differs between countries. Although an increase in bureaucracy is seen as an important consequence of EU accession in all the countries studied, this is not always the most important aspect. In total, adjustments of the farm production system to new regulations in various areas (environment, hygiene, animal welfare standards) are generally held to be more important. There appears to be no explanation for the Polish farmers' opinion that virtually no adaptations will be caused by the new standards, other than insufficient knowledge about the impacts of EU accession on their farms. The relatively high percentage of responses under the category 'Other adjustments' from farmers in Estonia and Poland can be explained by wide-ranging answers, not all of which were focused on the purpose of the question.

Table 4-16: Farmers' expectations of further adaptations required due to EU accession [1)]

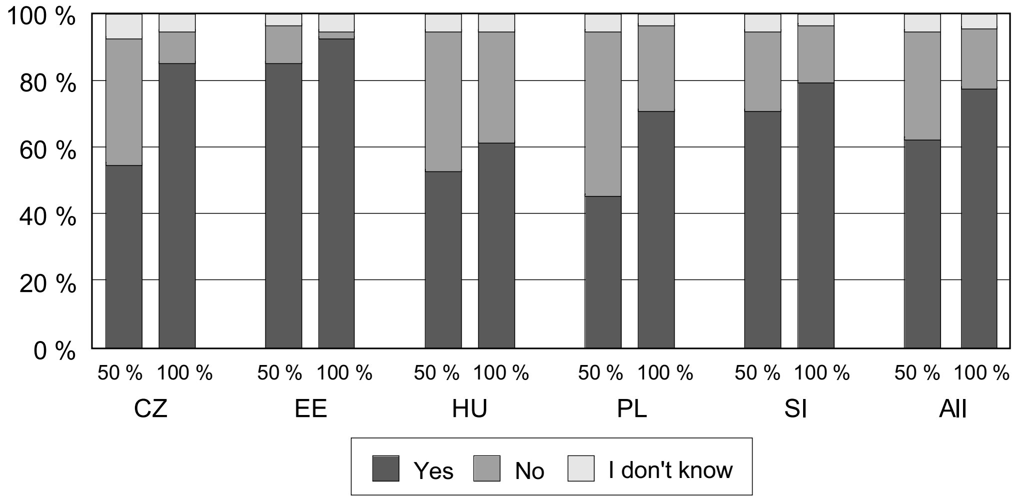
	CZ	EE	HU	PL	SI	All
Number of farms	22	16	30	19	19	111
	Percentage of farmers					
Adaptation to more bureaucracy	18	44	27	32	16	25
Adjustments to new environmental regulations	23	69	23	0	11	23
Adjustments to new hygienic/ processing regulations	0	0	43	0	26	16
Adjustments to new animal welfare standards	9	6	17	0	0	7
Adjustments to the new regulations in general	18	0	7	5	0	6
Investment in new technology	18	6	0	5	16	8
Changes in marketing and promotion	14	0	0	16	11	8
Other adjustments	9	44	27	58	32	31

1) Question asked: Do you expect any other adaptations required due to EU accession on the level of your farm? If yes, please specify (max. 2 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Since organic farming payments were about to increase just after accession, organic farmers were asked about their likely reactions to increases in organic farming payments of 50% and 100% respectively. Responses indicate that almost two-thirds of all farmers interviewed would react to an increase of 50% in organic farming payments, with large differences between countries (Figure 4-15). As anticipated, the share of farmers who would make changes if organic farming payments were to increase by 100% was consistently higher in all of the countries.

Figure 4-15: Farmers' assessment of the need for changes on the farm following an increase of organic payments by 50% and 100%, respectively [1)]



1) Question asked: Do you think any changes would become reasonable on your farm if the payment for organic farming per hectare would increase by 50 / 100 %?

Source: Own calculations based on farm survey winter/spring 2004.

Additional financial resources would be used most frequently for investments in field machinery and machinery in general, increases in farm size and the introduction of new production activities (Table 4-17). Priorities are affected slightly by the percentage increase in payments. There are some differences between countries: whereas the introduction of new production activities takes high priority among Czech farmers, investment in field machinery appears to be most important for Estonian farmers. For Hungarian farmers, increases in farm size and marketing investments are more significant. Their Polish colleagues plan an expansion of crop production and, in the case of larger payment increases, investment in processing equipment. For Slovenian farmers the most important issues are investment in machinery and increases in livestock production.

Table 4-17: Farmers' reactions to an increased payment for organic farming [1)]

	CZ		EE		HU		PL		SI		All	
Increase of organic farming payments by:	**50%**	**100%**	**50%**	**100%**	**50%**	**100%**	**50%**	**100%**	**50%**	**100%**	**50%**	**100%**
Number of farms	28	43	43	47	27	31	23	36	36	40	157	197
	Percentage of farmers											
Increase of farm size	32	30	12	15	37	48	17	36	25	35	24	31
Investment in field machinery	21	14	63	60	26	19	22	22	6	3	30	25
Investment in irrigation system	0	0	0	0	4	13	0	8	0	0	1	4
Investment in equipment for processing	7	16	0	4	19	23	22	39	14	20	11	19
Investment in machinery in general	32	30	14	26	15	26	22	11	42	38	25	26
Investment in buildings	11	21	14	32	4	13	4	11	22	18	12	20
Investment in agri-tourism	0	7	0	2	0	3	0	6	0	0	0	4
Investment in marketing	11	14	7	9	37	29	9	22	14	18	15	17
Increase in crop production	11	7	12	11	7	10	39	42	11	15	15	16
Increase in animal husbandry	21	14	9	9	26	32	13	22	36	53	21	25
Introduction of new production activities	57	47	5	11	22	13	35	28	28	30	27	26
Other measures	7	9	16	19	4	19	4	3	8	8	9	12

1) Question asked: Do you think any changes would become reasonable on your farm if the payment for organic farming per hectare would increase by 50 % / 100 % ? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

4.3.1.2 Adjustments on typical organic farms

In the following section, the consequences of EU accession for typical organic farms, identified at workshop sessions ('full panels' as described in Chapter 2.3.2), are presented country by country. At the beginning of each section, farmers' perceptions of the general consequences of EU accession for organic farms are summarised. This is followed by a detailed description of changes in the payment system and, finally, their impact on the production structures of typical farms.

In each of the study countries, two workshops were conducted with the aim of identifying likely farm strategies under changing policy and market environments (see Chapter 2.3.2). In the course of these workshops, participating farmers and advisors discussed the most important aspects of EU accession. Subsequently, participants were presented with the results from typical farm modelling. Impacts of changes in the payment system, as well as of the probable increases in costs, were discussed and farmers were asked about likely adjustment reactions at the farm level. The results presented here are thus the outcome of extensive discussions among farmers and advisors. The pros and cons of different arguments were considered carefully until agreement was reached on the most appropriate reactions for each typical organic farm.

Czech Republic

One of the most important aspects of accession to the EU is the increase in payments (see Chapter 2.3). Workshop discussions between farmers and advisors indicated that other important consequences for organic farmers are:

- Increases in bureaucracy, not only for organic farmers.
- Problems with the organic certification body which is perceived as interpreting organic farming conditions, according to EU Council Regulation (EEC) 2091/92, very strictly.
- Problems with inspections relating to EU hygiene and agri-environmental standards.
- Poor transparency of European agricultural support schemes: farmers expressed lack of confidence in the receipt of payments and highlighted the implications of delays.
- Taxation consumes a large proportion of payments since they are received at the end of the tax year: this impedes expenditure during the previous year and directly increases farm profit, along with tax liability.
- The market for land which was described as being very difficult before accession, has become even worse after accession, with increasing land prices because of higher subsidies.
- Farmers report that rent accounts for about half of payments; due to land speculation, it is difficult to get five-year rent contracts which, in turn, are a precondition for being eligible for payments.

Generally, farmers with access to organic markets (which is the case mainly for arable farms) expect the situation to develop quite positively after accession.

A comparison of the outcome of the workshops held in the Czech Republic with the farm survey results (Table 4-16) shows that the expectations of Czech farmers revealed during the survey (before accession) correspond to the real experiences of organic farmers up to 2005 (when the workshops took place) with regard to bureaucracy and new EU standards.

With the adoption of the CAP in the Czech Republic, SAPS flat rate payments of 61 €/ha UAA were introduced in 2004. This amount is equivalent to 25% of the reference payment in the Czech Republic. As agreed in almost all of the accession states, the share will increase year by year and will reach 100% in 2013 (Gay et al. 2005). These direct payments from the EU are topped-up from national funds according to production sector. In 2004, Czech farmers received national top-up payments for arable land (50 €/ha, increasing in 2005 to 86 €), suckler cows (142 €/head), cattle (29 €/LU) and for sheep/goats (23 €/head). Since no information on future top-up payments was available, it is assumed that they will remain constant until 2010 and will be reduced step by step to zero in 2013. Organic farming payments increased from 34 to 37 € for grassland and from 67 to 118 € for arable land between 2003 and 2004. According to the discussions taking place at time of writing, organic farming payments for arable land will be increased further up to 152 €/ha, beginning in 2007 (Hrabalova 2005). All other agri-environmental payments are assumed to remain constant until 2013, as no other information was available and Rural Development Plans were still under negotiation.

Table 4-18 shows the effects of the described changes in the payment system (in €, recalculated per hectare), differentiated by types of payments for the years 2003, 2005 and 2013. National top-up payments are shown as 'Payments crop', 'Payments dairy', and 'Payments cow-calf'. National top-ups for cattle other than cows, paid per LU (livestock unit), are not explicitly shown in the table, being included in cow-calf payments.

It is apparent that the grassland-based, cow-calf farms generally received higher payments per hectare in 2003, since different types of agri-environmental (including organic farming) payments, LFA payments and CAP payments had already accumulated before accession. By 2013, total payments for this type of farm will be two to (more than) four times greater. Although the relative increase of payments will be higher for farms with a large share of arable land (arable and dairy farms), total payments per hectare on these farms in 2013 will still be lower compared with the grassland-based, cow-calf farms.

Table 4-18: Payments for typical organic farms in the Czech Republic (€ per hectare)

	Arable farm (large, 200 ha)			Dairy farm (small, 58 t milk)			Cow-calf farm (small, 100 ha)		
	2003	2005	2013	2003	2005	2013	2003	2005	2013
Organic farming payments	57	99	133	49	87	102	31	37	37
Other agri-environm. payments	0	0	0	0	16	16	0	143	164
LFA payments	0	0	0	0	0	0	94	157	157
SAPS/SPS	0	74	246	0	74	246	0	74	246
Payments crop	0	72	0	0	69	0	0	0	0
Payments dairy	0	0	0	4	17	0	0	0	0
Payments cow-calf	0	0	0	0	0	0	16	19	0
Total payments	57	245	378	53	263	364	142	429	604
	Cow-calf farm (medium, 140 ha)			Cow-calf farm (large, 551 ha, 145 cows)			Cow-calf farm (large, 500 ha, 160 cows)		
	2003	2005	2013	2003	2005	2013	2003	2005	2013
Organic farming payments	31	37	37	31	37	37	36	0	0
Other agri-environm. payments	63	83	72	58	119	119	3	87	87
LFA payments	28	117	117	67	145	145	132	117	117
SAPS/SPS	0	74	246	0	74	246	0	74	246
Payments crop	0	0	0	0	0	0	0	4	0
Payments cow-calf	62	55	0	46	30	0	42	41	0
Total payments	184	365	471	202	408	547	213	326	450

Categories of payments not included in the table are without relevance for typical organic farms.

Source: Own calculations based on typical farm modelling.

During the two workshops held in the Czech Republic, the implications of these changes in the payment system for their own farms were discussed extensively by organic farmers. Their reported probable, and already partly-commenced, adjustment reactions at farm level after accession to the EU can be summarised as follows (Table A-21, Annex). Three groups of farms are identified:

a) The first group contains typical farms almost without any adjustments with regard to production structure. The typical small dairy farm and large cow-calf farm (1) belong to this group. The dairy farm would use additional funds for investment in buildings, which are in poor condition due to their roots in socialist history, while the production structure of the typical large cow-calf farm is not affected at all by policy changes, being locked into an efficient low input production system. This farm type would expand its share of owner-occupied land by the purchase of land previously rented.

b) The second group of typical farms would increase farm area. In the case of the large arable farm, this is clearly not an isolated reaction to policy changes but to anticipated improvement of marketing possibilities. The medium-sized cow-calf farm would use additional funds to foster its expansion strategy.

c) The third group comprises farms which would decrease their farm area. The typical small cow-calf farm, which is located in a national reserve, has had to return rented land for the purposes of establishing nature protection areas. Since this is also of interest to tourists, this farm type would embark on agro-tourism, open a restaurant and market its own beef in this way. The typical large cow-calf farm (2) would commence agro-tourism and re-convert to conventional farming because of the increased requirements for organic certification. Its production system with regard to animal husbandry would not change however. Crop activities are reduced to the production of own feed stuff only, as conventional prices would not cover production costs.

For the most part, these results are consistent with the responses given by farmers during the survey (see Table 4-17). Farmers participating in the workshops were sceptical about future payments and, therefore, displayed a lower than anticipated incentive for larger investments or adaptations on their farms. A further aspect concerns the perception that high payments imply high risk, in that even minor violations of the existing regulations (albeit unintentionally) carry the consequence of having to reimburse the state.

Estonia

The most important issues of accession according to participants of the workshops in Estonia are as follows:

- Increases in hygiene, animal welfare and agri-environmental standards.
- Investments are needed to fulfil these European standards.
- Rising land prices as the result of increasing competition for land.
- Problems with higher wage rates which hamper the development of private farms.

In Estonia, farmers rarely receive a price premium for organic products. However, the farmers and advisors who participated in the workshops were convinced that improved communication of product quality and animal welfare aspects to consumers would increase demand and, therefore, prices.

Comparing the outcome of these workshops with the results of the farm survey (Table 4-16), it is clear that even shortly before accession, and particularly in the fields of hygiene, processing and animal welfare standards, Estonian farmers had insufficient knowledge about the new challenges of adopting EU regulations.

Before EU accession in 2003, Estonian farmers received direct support payments for cereals, legumes and oilseeds (21 €/ha), for dairy cows

(69 €/head) and for sheep (10 €/ewe) from the state. They could also apply for several other payments, such as interest rate and land improvement subsidies, and compensation for losses caused (for example) by extreme weather conditions. The implementation of the CAP at farm level brought about SAPS flat rate payments of 27 €/ha UAA in 2004. This amount is equivalent to 25% of the reference payment in Estonia and will increase annually to reach 100% in 2013. Estonian farmers received national top-ups for cereals, legumes and oilseeds (40 €/ha), dairy cows (75 €/head in 2004, increasing to 125 €/cow in 2006)[9], calves (10 €/head), heifers (35-69 €/head dependent on age) and for sheep (14 €/head). Organic farming payments increased from 36 to 74 €/ha for grassland (with at least 0.1 LU/ha, 50% of these animals have to be organic) and from 39 to 97 €/ha for arable land between 2003 and 2004. It was agreed that organic farming payments should be held constant for a five-year period (true for all agri-environmental schemes). At the time of this analysis, no policy decision had yet been made on how available funds will be distributed within agri-environmental schemes as of 2009. Similarly, values of 74 €/ha grassland and 97 €/ha arable land are assumed for the period 2009 until 2013.

Table 4-19 shows the effects of these changes in the payment system for the typical farms, differentiated by types of payments and recalculated per hectare. National top-up payments are included as 'Payments crop' and 'Payments dairy'. As sheep payments are minimal in relation to total UAA on large arable farms, they are not mentioned separately in Table 4-19. It is clear from the table that total payments per hectare of UAA for typical Estonian farms will have undergone a more or less three-fold increase by 2013.[10]

Table 4-19: Payments for typical organic farms in Estonia (€ per hectare)

	Arable farm (large, 89 ha)			Dairy farm (large, 194 t milk)		
	2003	2005	2013	2003	2005	2013
Organic farming payments	31	96	96	36	79	79
SAPS/SPS	0	32	108	3	34	114
Payments crop	12	13	0	0	4	0
Payments dairy	0	0	0	17	24	0
Other payments	27	0	0	7	0	0
Total payments	70	142	204	63	142	193

Categories of payments not included in the table are without relevance for typical organic farms.

Source: Own calculations based on typical farm modelling.

Although the increase in payments is quite notable at farm level, family farms in Estonia would not make substantial changes to their crop production patterns (Table A-22, Annex); they usually grow crops that

9 2006 is the final year in which these payments will be granted.

10 However, farmers experience in 2004 and 2005 has been that, finally, payments at farm level were lower than announced previously.

they are familiar with. However, both types of typical Estonian farm would increase livestock activities in response to changes in the payment system. The typical large arable farm plans to increase its sheep flock by 20 animals (in 2006) without changing its production patterns or factor inputs. Here, crop production still covers additional feed requirements and labour productivity on the farm increases. The typical dairy farm has already followed a moderate growth path. Farms of this type need to invest irrespective of changes in policy, especially if they want to compete on quality. The typical dairy farm plans to increase its herd size (by 30 cows in 2006) by the purchase of cows (inclusive quota) and by using own replacements. These results are not at all in accordance with those of the farm survey (Table 4-17) where the increase in livestock activity was only a minor issue.

Hungary

The outcome of workshop discussions conducted in Hungary, in terms of the most important issues arising from EU accession, can be summarised as follows:

- Lack of confidence in financial support due to severe delays in payment during 2004 and 2005.
- Delays in the payment of subsidies which hinder the planning of future activities.
- Decreases in the price for organic cereals: the reason being that prices are related to conventional prices and these declined due to difficulties with the intervention system for conventional cereals.
- Decreases also in the demand for organic products (especially cereals): in some cases, farmers have been forced to sell their products at conventional prices.

With regard to these market problems, farmers identified stronger cooperation as one approach to solving the price question. From the farmers' point of view, other options might be to improve profitability by reducing production costs, and/or to lower the risk by diversifying production. Some farmers also see the chance to be more independent from both markets and trading partners by starting their own processing activities.

It was reported that re-conversion to conventional farming had led to a decrease of organically-farmed area in previous years because payments offered for integrated production were higher than organic farming payments in 2002 and 2003. This unfavourable relationship was improved in favour of organic farming after accession (Kürthi 2006).

Before EU accession in 2003, Hungarian farmers received national direct payments for cereals and oilseeds (28 €/ha). Farmers could also apply for several other payments including a diesel oil subsidy for land and for cows (8 €/ha; 3 €/cow), other financial subsidies, insurance subsidy and a milk quota suspension subsidy. The implementation of the CAP at farm level brought about SAPS flat rate payments of 70 €/ha UAA in 2004. This amount is equivalent to 25% of the reference payment in Hungary and will increase annually to reach 100% in 2013. In 2004, Hungarian farmers received national top-up payments for cereals (including rice) and oilseeds (75 €/ha), fattened bulls (137 €/head), fattened heifers (158 €/head), sheep (8 €/head) and for milk (6 €/ton).

The most important payment for organic farms is the organic area payment which started in the year 2002 as part of the national agri-environmental programme in Hungary. Between 2003 and 2004, organic farming payments for fully converted area increased from 79 to 125 €/ha for arable crops (seed production included), from 40 to 59 €/ha for meadows and pastures, and from 83 to 200 €/ha for vegetables. According to the discussions taking place while preparing this analysis, organic farming payments for cereals and oilseeds will be further increased to between 142 € and 227 €/ha for arable crops (depending on the crop) and up to 67 €/ha in 2013 for meadows and pastures. Apart from the area payments, support for organic livestock (paid per head) will be offered (Hrabalova et al. 2005). These payments are assumed to increase from 73 € in 2004, to 82 €/dairy cow in 2013.

The different types of payments were recalculated on a per hectare basis for the typical farms (Table 4-20). National top-up payments are included as 'Payments crop' and 'Payments dairy. As the beef payments are minimal in relation to the total UAA of large arable farms, they are not referred to explicitly in Table 4-20. It is clear that, for typical Hungarian arable farms, payments per hectare of UAA will be four to six times greater by 2013; for the typical dairy farms, the corresponding increase is two to four times greater than 2003 levels.

Table 4-20: Payments for typical organic farms in Hungary (€ per hectare)

	Arable farm (small, 9 ha)			Arable farm (medium, 374 ha)			Arable farm (large, 1 245 ha)		
	2003	2005	2013	2003	2005	2013	2003	2005	2013
Organic farming payments	54	128	144	80	135	152	57	88	155
SAPS/SPS	0	87	290	0	87	290	0	63	210
Payments crop	9	26	0	8	70	0	20	53	0
Other payments	0	0	0	0	0	0	9	9	9
Total payments	63	241	435	88	291	443	86	212	374

	Dairy farm (medium, 335 t milk)			Dairy farm (large, 3 360 t milk)		
	2003	2005	2013	2003	2005	2013
Organic farming payments	65	61	69	44	69	78
Other agri-environm. payments	0	0	0	23	0	0
SAPS/SPS	0	87	290	0	87	290
Payments crop	19	27	0	13	40	0
Payments dairy	0	22	0	0	35	0
Other payments	125	128	128	20	21	21
Total payments	209	326	488	100	251	389

Categories of payments not included in the table are without relevance for typical organic farms.

Source: Own calculations based on typical farm modelling.

Reactions to the new policy situation with respect to changes in production structure on typical organic farms in Hungary are limited (Table A-23, Annex). Only the typical large dairy farm aims at increasing labour and land productivity and at expanding herd size by 80 cows as a basic strategy for the future. These changes can be assumed to be almost independent of policy. No other typical farm experiences any changes in production structure due to the adoption of the CAP. However, additional finance will be used for different kinds of investment.

These very small adjustments to production structure are not consistent with the results of the farm survey (Table 4-17) whereby a significant proportion of farmers declared that they would expand farm size in response to increasing payments. One reason for this might be that farmers expressed intentions or wishes during the farm survey which were not realistic. A more important reason for the lack of far-reaching reactions to adjustment might also be the difficulties Hungarian farmers experienced with the payment system after accession (Wagner 2005).

Poland

In Poland, workshop participants emphasised the following challenges:

- Increased standards in agri-environmental, animal welfare and hygiene regulations.
- Short transition periods for complying with animal welfare standards.
- Farmers must satisfy different conditions imposed by different agencies and requirements of the different monitoring institutions are not always consistent.
- Lack of qualified personnel in some of the controlling institutions.
- Large investments are necessary to comply with agri-environmental and hygiene standards.
- Increases in bureaucracy.

Farmers agreed that payments are helpful with regard to the investments needed for compliance with new European regulations although they would not usually cover all the additional costs. The fact that conventional farmers care more and more about environmental issues and about the risks of intensifying agricultural production was mentioned as a positive aspect of EU accession.

A notable disparity emerges when comparing the outcome of workshops held in 2005 after EU accession with the results from the farm survey of winter/spring 2003/2004, before EU accession (Table 4-16). The results of the survey show that none of the farmers had any idea of the adaptations necessary to comply with specific standards. Adjustments to the new regulations in general were mentioned by only 5% of all farmers. It is possible that Polish farmers, generally, were insufficiently prepared for the consequences of EU accession at farm level at that time. When the workshops took place, however, farmers had already had first experiences of the consequences of accession.

As in most of the other accession countries, the adoption of the CAP brought about the introduction of direct payments from the EU as flat rate payments. In Poland, farmers received 46 € for every hectare of UAA in 2004. These payments will reach 100% of the reference level, amounting to 185 € by 2013. Additionally, farmers received national top-up payments of 56 €/ha for cereals and oilseeds. These payments will be reduced to zero by 2013, since the sum of direct payments from the EU and national top-ups may not exceed 100% of reference payments. National top-up payments will not be granted for livestock production (Szeremeta 2005). Although agri-environmental schemes have been developed, their relevance at the farm level is generally still low (Tyburski 2005). Organic farming payments are the only important scheme within agri-environmental measures. For arable land, they increased from 58 € in 2003 to 133 €/ha in 2004; for grassland, from 18 to 58 €; and for vegetables, from 92 to 208 € which means that organic farming payments more than doubled over the period. At time of writing, there was no final decision on the RDP and it is assumed that organic farming payments remain the same for the whole projection period.

Payments to the typical Polish organic farms in 2003, 2005 and 2013 were recalculated on a per hectare basis (Table 4-21).

Table 4-21: Payments for typical organic farms in Poland (€ per hectare)

	Arable farm (small, 17 ha)			Arable farm (large, 100 ha)			Dairy farm (small, 34 t milk)		
	2003	2005	2013	2003	2005	2013	2003	2005	2013
Organic farming payments	86	221	197	56	142	142	73	146	146
Other agri-environm. payments	0	45	50	0	0	0	0	0	0
SAPS/SFP payments	0	54	180	0	54	180	0	54	180
Payments crop	0	33	0	0	54	0	0	48	0
Total payments	86	352	426	56	250	322	73	248	325

	Dairy farm (medium, 88 t milk)			Dairy farm (medium, 100 t milk)		
	2003	2005	2013	2003	2005	2013
Organic farming payments	66	154	154	35	94	94
SAPS/SFP payments	0	54	180	0	54	180
Payments crop	0	54	0	0	55	0
Total payments	66	262	334	35	203	273

Categories of payments not included in the table are without relevance for typical organic farms.

Source: Own calculations based on typical farm modelling.

Total payments grew four-fold between 2003 and 2005 and will amount to about a 400% increase by 2013. In the case of the typical medium-sized dairy farm (2), the increase is even greater due to its large share of grassland which experiences a comparatively higher rise in payments.

Organic farming payments per hectare decrease between 2005 and 2013 for the small arable farm as it expands its grassland area. Since the payments for grassland are lower, so are payments per hectare in terms of farm average.

Reactions to the new policy situation in Poland with respect to the production structure of typical farms are limited (Table A-24, Annex). Changes in farm organisation would occur only on the typical small farm with intensive cropping, as the result of an additional need for manure to improve plant production. However, this reaction is not caused by policy. None of the other typical farms would experience any changes in production activities due to the adoption of the CAP. Nevertheless, farmers need to invest to comply with changing standards, e.g. the medium-sized dairy farm (1) will have to invest in a new stable to fulfil animal welfare requirements.

These results coincide only partly with the results of the farm survey (Table 4-17) whereby about 20-30% of all farmers stated that they would increase crop production when payments increased. About the same share of all farmers intended to introduce new production activities, yet this response was not at all evident on the typical farms. One reason for these discrepancies might be that the typical farms selected have less need for adjustments merely by chance. Another possible explanation could be that some potential reactions were withdrawn following the extensive workshop discussions. A further reason may be lack of confidence in the receipt of payments and a marked uncertainty about future developments (see, also, Anonymous 2005). The farmers participating in the workshops indicated a preference for spending the additional finance in fulfilling higher European standards, improving their farm yards or educating their children.

Slovenia

The two workshops conducted in Slovenia showed that Slovenian organic farmers felt less affected by EU accession than farmers in other study countries. The issues stressed elsewhere were not perceived to have changed as much in Slovenia. This was the case in terms of bureaucracy, for instance, which was seen as presenting only slight difficulties. Problems with different types of standards or with certification bodies did not appear to be an issue among Slovenian farmers either. With regard to market observations, farmers reported that prices for conventional products on farmers' markets decreased by about 30% (in the year 2005) compared with pre-accession levels. Up to 2005, prices for organic products did not seem to have been affected, as demand and supply increased simultaneously. Farmers agreed that small quantities can always be sold at good prices.

Slovenia did not opt for SAPS, as was the case in most of the other new member states, but for the SFP scheme (see Chapter 4.2). Most probably, Slovenia will implement a hybrid system similar to the Danish one. Before accession, Slovenian farmers received 'market payments' for cereals of about 250 €/ha. These payments were increased step by step to reach 318 €/ha by the beginning of 2006 (until 2013). Payments for grassland (141 €/ha) will be introduced in 2006 and livestock payments will be reduced by about 50% (Erjavec 2006). As part of the second pillar of the CAP in 2003 and in 2004, agri-environmental payments increased by about 100%. Organic farming payments for arable land went up from 349 to 462 €/ha; for vegetables, from 449 to 546 €/ha; and for grassland, from 174 to 231 €/ha, so that organic farming payments increased at a rate of about 30% (Bratusa 2005). However, organic farming payments per hectare in Slovenia are highest in comparison with the other study countries. Since the RDP for the period 2007 to 2013 was still under negotiation at time of writing, it is assumed that all agri-environmental payments will remain constant on a per hectare basis from 2005 until 2013.

Table 4-21 shows the payments per hectare received by typical organic farms in Slovenia. For all typical farms, total payments increase between 2003 and 2013. There is a slight decrease in payments for the typical small cow-calf farm between 2005 and 2013. Obviously, area payments for grassland cannot compensate completely for the reduced payments for suckler cows. According to the assumptions described above, organic farming payments remain unchanged after 2005. In the case of the typical arable farm, the changes in organic farming payments between 2005 and 2013 are caused by the replacement of grassland with cereals and vegetables.

Table 4-22: Payments for typical organic farms in Slovenia (€ per hectare)

	Arable farm (small, 13 ha)			Dairy farm (small, 28 t milk)			Cow-calf farm (small, 9 ha, 9 cows)		
	2003	2005	2013	2003	2005	2013	2003	2005	2013
Organic farming payments	251	389	450	181	248	248	174	255	255
Other agri-environm. payments	32	44	51	0	0	0	0	0	0
LFA payments	0	3	2	82	159	159	80	156	156
SFP payments	0	0	211	0	0	137	0	0	137
Payments crop	96	154	0	0	0	0	0	0	0
Payments dairy	0	0	0	0	33	17	0	0	0
Payments cow-calf	18	0	0	0	0	0	110	138	55
Payments beef	0	0	0	0	0	0	0	129	52
Total payments	397	591	714	264	440	560	363	678	655

Categories of payments not included in the table are without relevance for typical organic farms.

Source: Own calculations based on typical farm modelling.

Resulting changes in farm structure can only be identified on the typical small arable farm in Slovenia. In 2003, this typical farm was at the beginning of a process of restructuring: livestock farming is discontinued (manure being obtained from neighbours); some labour-intensive activities, such as on-farm processing, are reduced and direct marketing is replaced partly by marketing via retailers. It must be stressed that these changes in farm organisation are independent of policy issues. Farmers and advisors who participated in the workshops did not expect increased payments to provoke any reactions concerning the production structures of the two farms based on livestock activities (Table A-25, Annex). These expectations do not correspond with results from the farm survey, whereby two-thirds of the Slovenian farmers stated that they would like to increase livestock numbers if organic farming payments increased by 50% (Table 4-17). In fact, payments increased by only 30% between 2003 and 2004. As was also reported in other countries, farmers may have thought over their ideas during the workshops and, in the end, agreed that reactions would be less frequent.

4.3.2 Impacts on income

The objective of this chapter is to analyse the income situation of typical organic farms before and after EU accession. When used on-farm, additional payments give farmers the opportunity to realise necessary re-investments, to invest in order to comply with new standards or to increase the farm's productivity with the introduction of new technologies or farm activities. Simultaneously, costs increase as a consequence of economic development and also because of higher payments which are shifted to factor markets. The question to be answered here, therefore, is whether typical organic farmers will gain in the long run.

The effects of policy and development of costs were incorporated into the typical farm models as described in Chapter 4.1.3. Changes in prices for organic products were explicitly excluded. When considering the results, it should be remembered that unchanged income over the ten-year horizon would mean a decrease in real income, as income was not deflated.

In the economic context, there are various measures of farm success (see Chapter 2.4). For this part of the analysis, it was decided to use the indicator 'Family Farm Income plus Wages per Agricultural Work Unit' (FFI+W/AWU). This indicator allows a comparison of incomes on farms with different legal status and is particularly relevant in the new member states where family farms stand side by side with limited or joint stock companies. It may thus serve as an indicator for the return for labour.

On all typical organic farms in the Eastern European countries studied, FFI+W//AWU increased markedly between 2003 and 2005. Income will be further increased by 2013. The income of typical organic farms already shows wide diversity in 2003 (Table 4-23), so that no general conclusions can be drawn regarding the economic superiority of one farm type over another in the comparison between countries (see also Chapter 3). As payments are paid mostly per hectare, it might be supposed that larger farms would benefit most from the adoption of the CAP. This assumption is not supported by the results.

In the **Czech Republic**, no general conclusion can be reached regarding the farm type which benefits most from accession. In the case of the typical small dairy farm, the return for labour hardly increases after 2005, whereas the small cow-calf farm compensates for some of its disadvantages by starting new farm activities like agro-tourism and beef-fattening. Farm income increases only slightly from 2003 to 2005 on the typical large cow-calf farm (2). This is due to marked changes in farm structure, whereby this farm commences agro-tourism and re-converts to conventional farming, thus immediately losing markets for its cereals. The level of income per work unit seems to be extraordinarily high on some farms: these are relatively large 'ranch style' farms with low labour input. However, it must be stressed that the figures shown are before tax. Czech farmers with an income of more than 11 100 € have to pay about 30% taxes, so that disposable income for consumption and for investment is about one-third lower. Nevertheless, the results presented here incorporate the very wide range of economic success among typical organic farmers in the Czech Republic after accession.

Table 4-23: Development of FFI+W/AWU on typical organic farms in the new member states (baseline)

	2003	2005	2013
	EUR / AWU	increase by ... % compared to 2003	
		Czech Republic	
Arable (large, 200 ha)	8 476	164	386
Dairy (small, 58 t milk)	1 324	303	330
Cow-calf (small, 100 ha)	2 867	221	335
Cow-calf (medium, 140 ha)	27 491	62	76
Cow-calf (large, 551 ha, 145 cows)	17 813	181	280
Cow-calf (large, 500 ha, 160 cows)	10 425	5	113
		Estonia	
Arable (large, 89 ha)	2 891	58	224
Dairy (large, 194 t milk)	2 519	58	137
		Hungary	
Arable (small, 9 ha)	2 136	25	50
Arable (medium, 374 ha)	9 433	53	95
Arable (large, 1 245 ha)	173	7 139	14 432
Dairy (medium, 335 t milk)	12 980	67	239
Dairy (large, 3 360 t milk)	10 167	48	140
		Poland	
Arable (small, 17 ha)	2 553	29	42
Arable (large, 100 ha)	6 557	51	57
Dairy (small, 34 t milk)	2 400	35	48
Dairy (medium, 88 t milk)	4 490	34	32
Dairy (medium, 100 t milk)	5 717	83	84
		Slovenia	
Arable (small, 13 ha)	4 867	33	152
Dairy (small, 28 t milk)	2 280	27	40
Cow-calf (small, 9 ha, 9 cows)	956	174	-3

Source: Own calculations based on typical farm modelling.

In **Estonia**, the starting point as well as the absolute increase of farm income until 2005, is higher for the typical arable farm than for the typical dairy farm. After 2005, farm income grows much more on the typical arable farm, as a strong increase in gross output accompanies a moderate increase in costs. The increase in gross output is mostly due to the increase in farm payments and other farm income from expanding sheep activity. On the dairy farm, an expansion of herd size in 2006 requires significant investment in machinery and buildings, so that the increase in costs partly outweighs the increase in gross output by 2013.

In **Hungary,** the large arable, cereal-producing farm benefits the most from area-based payments like those for crops and for organic farming. Before accession, income was almost zero as payments were lower. The typical dairy farms gain from dairy payments paid per kilogram of milk and, from 2006 onwards, from the organic cattle payments paid per head between 2004 and 2008. Additionally, the typical medium-sized dairy farm makes more use of several other payments, including diesel fuel and other financial subsidies, in comparison with other typical farms.

The impacts of the adoption of the CAP for typical organic farmers in **Poland** seem to be less significant than for typical Czech or Hungarian farmers (Table 4-23). Although FFI+W increases on all of the typical Polish farms, starting points, as well as growth rates, are much lower. The increase in income slows down after 2005. For the typical medium-sized dairy farm (1), income even declines slightly since increased costs outweigh the increase in gross output. Comparing the results of the typical small arable farm with those of the small dairy farm, it is surprising that income levels are almost the same. The small, but intensively-managed, fruit and vegetable farm would have been expected to realise a much higher return for labour. The reason is that this farm type employs many seasonal workers, thus reducing the average income per AWU. Clearly, for all typical farms, incomes will be higher in 2013 than in 2003 and it can be concluded that accession to the EU, regardless of any market changes for organic products, will have a positive impact on the economic performance of typical organic farms in Poland.

The significant increase in income on the typical arable farm in **Slovenia** is not only due to changes in the payment system but – as explained above – also to simplification of farm organisation, aimed at increasing labour productivity. In the case of the typical small cow-calf farm, it becomes apparent that the decrease in payments per hectare, in combination with increasing costs, results in declining income (here measured in FFI+W/AWU) between 2005 and 2013. The income level of this farm type is almost the same as before accession.

Compared with their counterparts in other new member states, typical organic farmers in the Czech Republic and in Estonia, as well as Hungarian dairy farmers, gain the most from accession in economic terms. EU accession and the adoption of the CAP have the least impact on the economic performance of Polish and Slovenian farms.

4.3.3 Development of the importance of support payments

As outlined above, the adoption of the CAP by new member states often leads to significant changes in direct payment schemes. This section analyses if, and how, the relative importance of direct payments for organic farms also changes, using the indicators discussed in Chapter 2 (see Box 6).

Agricultural payments and the share of total payments in gross output increase in all of the typical farms in the selected new member states after EU accession (see Table 4-24).

The main developments can be summarised as follows.

- Comparing the contribution of total payments to the gross output of typical organic farms in selected new member states, it becomes evident that the share is highest for Czech farms, particularly the cow-calf farms. This is true in 2003, the last year before accession, as well as in 2013. Typical Slovenian and Estonian organic farmers are next in terms of the share of payments in gross output, while typical Polish organic farmers are at the bottom of the range. However, typical organic farms in Poland actually experience the highest rate of growth in payments between 2003 and 2013, so that the gap with other countries declines.
- With the adoption of the CAP, organic farming payments lose relative importance in comparison with other payments. However, on most of the typical organic farms in the new member states studied, organic farming payments remain important.
- The ranking of the countries with respect to the share of organic farming payments in gross output is not clear, since there are large differences within countries. The share of organic farming payments in farm returns increases between 2003 and 2013 for typical Estonian, Polish and Slovenian farmers. In the Czech Republic and in Hungary, the development of the relative contribution of organic farming payments to gross output depends on farm type.
- The development of the share of organic farming payments in FFI+W varies widely between countries and farms. While the vulnerability to changes in organic farming policy decreases for the typical Czech farms, it increases for typical Polish farms. No general conclusion is possible for typical organic farms in the other countries studied.

Table 4-24: ***Share of payments in gross output and in FFI+W on typical organic farms in selected Eastern European countries in 2013 compared with 2003***

	Total payments		Organic farming payments			
	% of gross output		% of gross output		% of FFI+W	
	2003	2013	2003	2013	2003	2013
			Czech Republic			
Arable (large, 200 ha)	17	53	17	19	63	43
Dairy (small, 58 t milk)	13	49	12	14	76	37
Cow-calf (small, 100 ha)	49	60	11	4	37	7
Cow-calf (medium, 140 ha)	44	76	8	6	11	8
Cow-calf (large, 551 ha, 145 cows)	75	88	12	6	32	10
Cow-calf (large, 500 ha, 160 cows)	49	62	8	0	18	0
			Estonia			
Arable (large, 89 ha)	23	36	9	16	36	34
Dairy (large, 194 t milk)	20	33	11	13	61	63
			Hungary			
Arable (small, 9 ha)	5	23	4	8	9	17
Arable (medium, 374 ha)	10	33	9	11	21	21
Arable (large, 1 245 ha)	21	50	14	21	3 175	59
Dairy (medium, 335 t milk)	20	25	6	4	14	6
Dairy (large, 3 360 t milk)	13	28	5	6	15	11
			Poland			
Arable (small, 17 ha)	4	18	4	8	6	12
Arable (large, 100 ha)	9	33	9	14	17	27
Dairy (small, 34 t milk)	9	37	9	12	20	29
Dairy (medium, 88 t milk)	5	21	5	9	11	22
Dairy (medium, 100 t milk)	4	22	4	7	9	14
			Slovenia			
Arable (small, 13 ha)	23	31	14	20	27	37
Dairy (small, 28 t milk)	27	43	19	19	72	67
Cow-calf (small, 9 ha, 9 cows)	25	38	12	14	132	201

Source: Own calculations based on typical farm modelling.

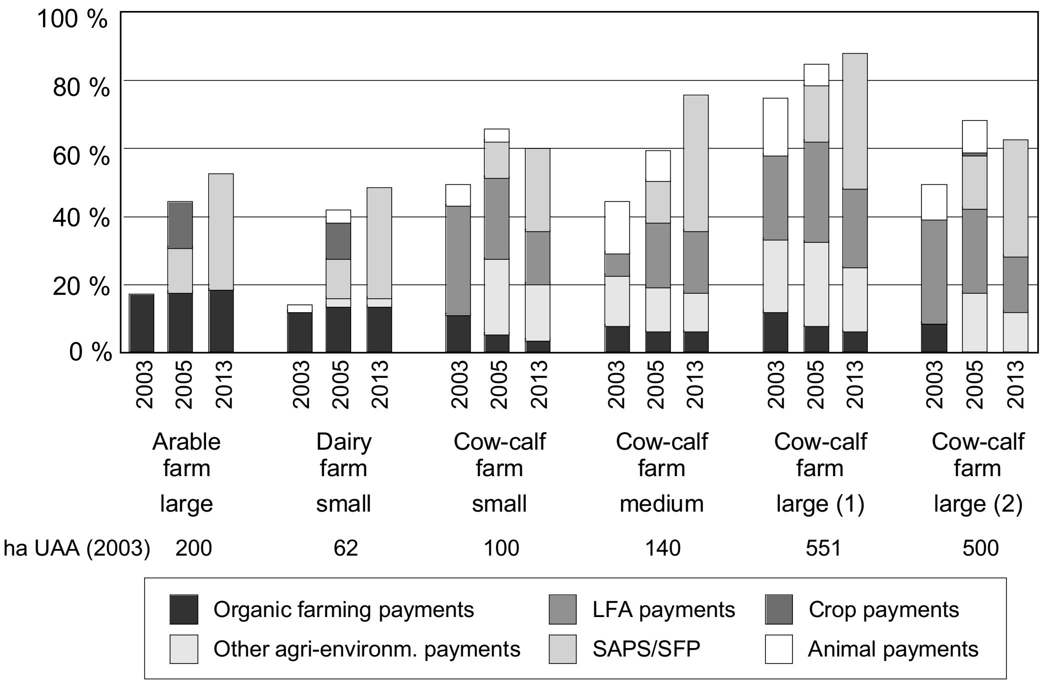
The development of the share of different categories of payments is presented in Figures 4-16 to 4-20. To get an idea of the changes at farm level immediately following accession, the results for the year 2005 are included.

- In all of the study countries except Slovenia, the most important increase in the share of payments in gross output takes place between 2003 and 2005, immediately after accession.

- Crop and livestock payments granted under national pre-accession policies (in the Czech Republic, Estonia, Hungary and Slovenia) will be replaced by SAPS/SFP payments until 2013.
- Although organic farming payments are shown to be the main payments for most typical organic farms in 2003 (with the exception of Czech cow-calf farms), SAPS/SFP payments will almost always be the main category of payments by 2013.

In the **Czech Republic**, the increase in the share of total payments in gross output is most visible for arable and dairy farms. For typical cow-calf farms, agri-environmental and LFA payments are clearly more important than organic farming payments before accession. The amount of these payments at farm level does not decrease over time on these farms, as it might be the impression from Figure 4-16; it is only their relative weight that is decreasing, compared with the newly introduced and increasing SAPS/SFP payments. In some cases, the share of payments in gross output decreases slightly between 2005 and 2013. This is the result of increased gross output in the case of the small and medium-sized cow-calf farms, and due to lower payments arising from the reduction of farm area and re-conversion to conventional production on the typical large cow-calf farm (2). On most of the typical farms in 2013, direct payments from the EU (SAPS/SFP payments) account for at least 50% of all payments.

Figure 4-16: Share of payments in gross output on typical organic farms in the Czech Republic in the baseline (2013) compared with base year (2003) and year 2005 (in %)

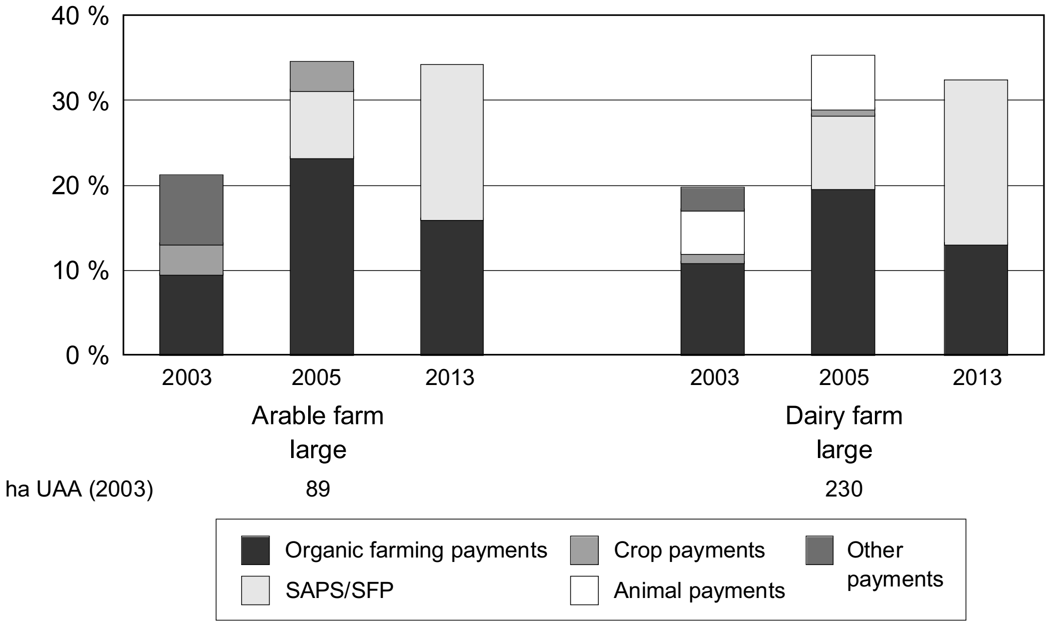


Source: Own calculations based on typical farm modelling.

The share of organic farming payments in gross output remains almost the same on the typical arable and dairy farm whereas, on extensive grazing livestock farms, it decreases. Consequently, it can be concluded that the dependency of Czech organic farms on organic farming support is decreasing, while their dependency on general agricultural policy is increasing over the period.

Before EU accession, national policy in **Estonia** included crop and livestock subsidies (see Chapter 4.3.1.2). Between 2005 and 2013, the total share of payments in gross output declines slightly, since the national top-up payments for animals and crops will not be entirely compensated for by the full amount of the SFP (Figure 4-17). Other payments on the typical arable farm in 2003 include interest and land improvement subsidies.

Figure 4-17: Share of payments in gross output on typical organic farms in Estonia in the baseline (2013) compared with base year (2003) and year 2005 (in %)

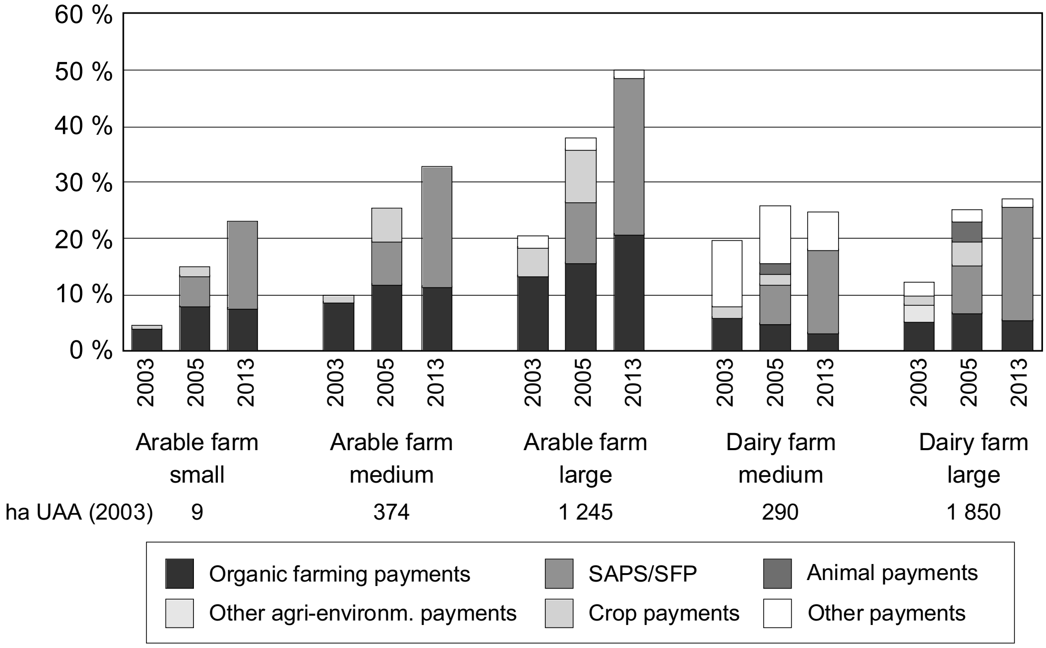


Source: Own calculations based on typical farm modelling.

Although for typical organic arable farms in **Hungary**, the share of payments in gross output also grows between 2005 and 2013, it increases only slightly or even decreases in case of the dairy farms (Figure 4-18). The reasons for this are that rates of growth are higher for gross output than for payments, since productivity can be increased.

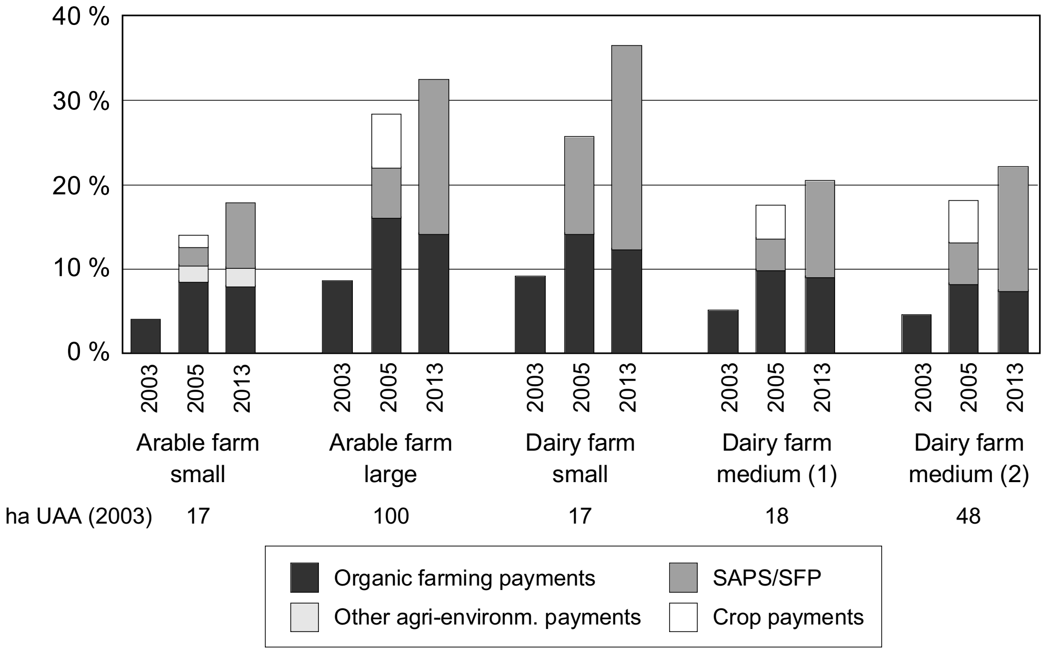
In **Poland**, national pre-accession policy did not offer any direct payments to farmers other than organic farming payments. With the introduction of the CAP, the share of total payments in gross output on all of the typical farms expands by more than 200% between 2003 and 2005 (Figure 4-19). Between 2005 and 2013, however, the increase is much less. Only the smaller, more intensive arable farm receives secondary agri-environmental payments for participation in an extensive meadow scheme.

Figure 4-18: Share of payments in gross output on typical organic farms in Hungary in the baseline (2013) compared with base year (2003) and year 2005 (in %)



Source: Own calculations based on typical farm modelling.

Figure 4-19: Share of payments in gross output on typical organic farms in Poland in the baseline (2013) compared with base year (2003) and year 2005 (in %)

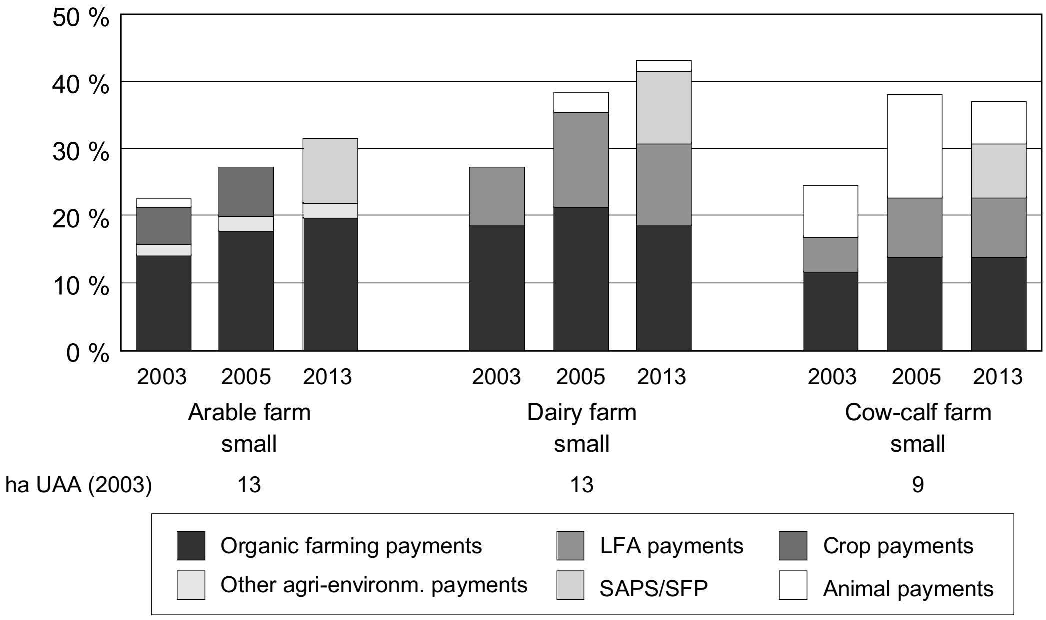


Source: Own calculations based on typical farm modelling.

In **Slovenia**, as in other study countries, total payments on typical organic farms gain importance between 2003 and 2013, as the share of payments in gross output grows over the period analysed (Figure 4-20).

However, for the typical small cow-calf farm, lower per hectare payments in 2013 compared with 2005 (see Table 4-24) result in a lower share of all payments in gross output. Payments for LFAs were already granted for grazing livestock farms before accession. On the typical small dairy farm, the importance of organic farming payments decreases as productivity increases between 2005 and 2013, and first pillar payments gain significance.

Figure 4-20: Share of payments in gross output on typical organic farms in Slovenia in the baseline (2013) compared with base year (2003) and year 2005 (in %)

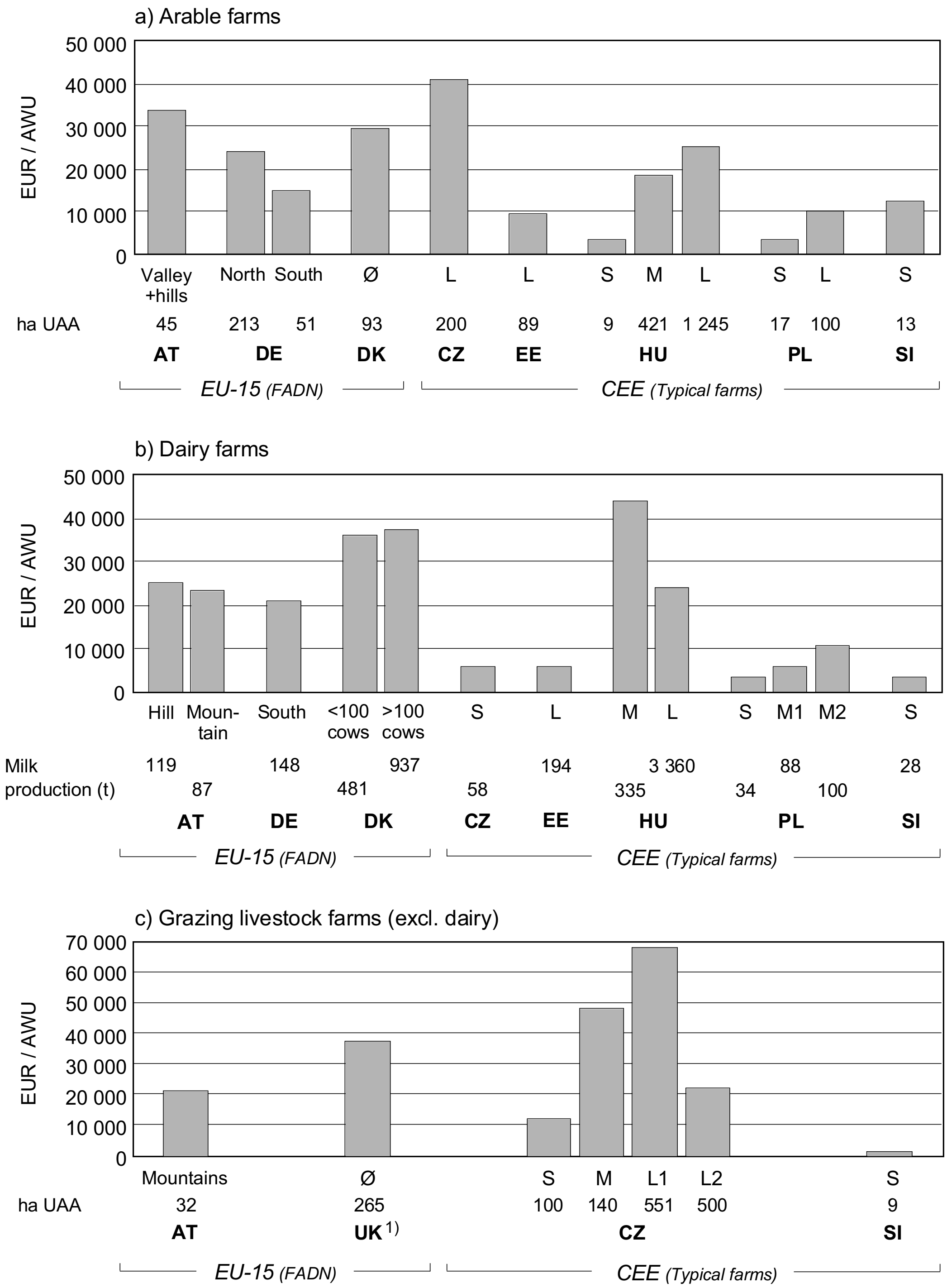


Source: Own calculations based on typical farm modelling.

4.4 Profitability and policy dependency of organic farms in the old and the new member states in 2013

As demonstrated in the preceding paragraphs, the considerable policy changes facing organic farms in Europe during the period 2003 to 2013 will have significant impacts on farm income and the role of support payments. The future profitability and policy dependency of organic farms in Western and Eastern Europe will look quite different in comparison with the pre-enlargement situation (see Chapter 3). Most organic farmers both in the Western and Eastern European countries will benefit from the CAP reform and the adoption of the CAP, respectively. When comparing farm incomes (FFI+W/AWU) in 2013, it is clear that some typical organic farms in the new member states will catch up with their counterparts in the West (Figure 4-21). Increasingly, typical medium and large organic farms in the Czech Republic and in Hungary in particular, achieve incomes that are on par with or even higher than those of Western organic farms which are of a smaller size, on average. To a large extent, the strong performance of the larger farms in the new member states is the consequence of the adoption of CAP regimes, since the volume of support payments is correlated closely with farm size.

Figure 4-21: Projected income (FFI+W per AWU) on organic farms in selected old and new EU member states in 2013



S = small farms; M = medium sized farms; L = large farms; Ø = average of all sample farms
1) Grazing livestock farms including dairy farms.

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3; and typical farm modelling.

With respect to the developing importance of direct payments for organic farms, the changes are generally rather small for farms in the EU-15 countries (see Chapter 4.2.4) and relate mainly to an increase of direct payments to organic dairy farms, which received comparatively few payments before the CAP reform. In contrast, the adoption of the CAP leads to a marked increase in direct payments in the new member states (see Chapter 4.3). For all typical organic farms in the new member states in 2013, the share of total payments in gross output will be as high or even higher (Czech Republic) than that of the organic farm groups analysed in the EU-15 countries.

The share of organic farming payments in gross output will remain almost constant in Western European countries (Table 4-15) while, for the most part, it will increase in Eastern countries (Table 4-24). On some of the typical farms in the new member states, shares of organic farming payments in gross output will exceed those of Western European countries in 2013. The reasons for this are, on the one hand, low prices (Czech dairy farm, Estonian farms) and on the other hand, a comparably high level of organic farming payments (Slovenian farms).

The share of organic farming payments in FFI+W, as an indicator of the vulnerability of the farm to changes in organic farming policy, varies widely between farm types within the countries, both in the pre- and the post-enlargement situation. Consequently, no general conclusions can be drawn when comparing organic farms in old and new member states. The same holds true for developments after the CAP reform and the adoption of the CAP, respectively. There are farms with an increasing share of organic farming payments in FFI+W, side-by-side with those with a decreasing share in the same country.

The analyses in this chapter present an outlook of the situation on organic farms in old and new member states in 2013, assuming constant price premiums for organic products. However, increased trade facilitated by the common market within the enlarged EU and changes in supply and demand for organic products in the new member states could, potentially, have significant effects on prices for organic products. The following chapter, therefore, will examine the further impacts of future developments in organic markets on the economic performance of organic farms in both the Western and Eastern European countries.

5 Impact of different market scenarios

The enlargement of the EU, extending the common market to 25 countries from 2004 and to 27 countries beginning in 2007, affects the supply, demand and prices of many products, not least organic ones. However, there exists considerable uncertainty about future changes, not only with respect to general economic developments but particularly in relation to the organic market, since trade and prices in this rather young sector are highly sensitive to changes in supply and demand. To incorporate the possible range of future circumstances, two very different scenarios have been formulated for the development of organic markets over the next ten years.

This chapter starts with a description of these two market scenarios. The next part presents and discusses farmers' reactions to the price changes assumed in each scenario, and the subsequent impacts on farm production. The results of modelling the impact of the different scenarios on the income of organic farms, as well as on the importance of organic farming payments, constitute the third part of this chapter.

5.1 Market scenarios

The first scenario takes off from the assumption that Eastern European countries will get a strong boost from enlargement and quickly catch up with old member states, whereas the second scenario is based on the assumption that the economic gap between the Western and the Eastern European countries will continue to persist for some time. The narrative for each market scenario is outlined below. Table 5-1 summarises the development of key indicators under the two scenarios compared with the 'baseline scenario' which is based on the policy framework described in Chapter 4.1.3 and constant price premiums for organic products.

Scenario 1: The accession of the new member states is a success story in terms of both economic and of social development. The boost to economic growth translates into increased productivity, as well as income increases in almost all sections of society. Domestic demand for organic products grows despite a corresponding increase in organic prices. Domestic organic production also expands as processing and marketing facilities improve. While technical efficiency in organic production also increases due to the diffusion of know-how, so does production expenditure as a result of rising labour costs. Domestic supply is consumed on the domestic market to a large extent; remaining organic production is exported to the old member states, where prices for organic products fall slightly.

Scenario 2: Industrial, manufactured and processed goods from the EU-15 dominate the markets of new member states, inhibiting the development of these sectors in Eastern countries, where only some labour-intensive sectors gain from accession. Average income increases only slowly. The expansion of organic production – driven mainly by subsidies – in combination with low wages and production costs attracts large multinational companies with considerable market power into the business of buying and processing selected products for export to the EU-15; however, a significant share of organic production still has to be sold conventionally. Organic farming in the new member states becomes the supplier of raw products for Western European processors and consumers. In the old EU member states, prices (wholesale) for organic products fall dramatically.

The consequences of the enlarged common market are thus assumed to be quite different for the old and new EU member states.

Table 5-1: Development of key indicators under different market scenarios compared to the baseline (2013)

	Scenario 1		Scenario 2	
	EU15	NMS	EU15	NMS
Yields in organic farming	→	↗	→	→
Organic product price premia	↘	↗	↓	→
Share of domestic organic production sold as organic	→	↗	↘	→
Factor prices				
a) Wages	→	↗	→	↘
b) Other inputs	→	→	→	→

→ as in baseline; ↗ (↘) moderate increase (decrease); ↑ (↓) strong increase (decrease)

Source: Own assumptions.

Specification of market scenario parameters

For the **EU-15 countries**, the market scenarios only differ from the baseline (Chapter 4.1.3) with respect to the level of farm gate prices for organic products and the costs of seasonal labour. During the modelling procedure, the moderate (Scenario 1) and strong (Scenario 2) decrease in these prices were quantified as specified in Table 5-2.

Table 5-2: Development of prices for organic products and seasonal labour under different market scenarios in selected EU-15 countries and Switzerland (% change relative to baseline)

	Scenario 1	Scenario 2
Cereals	-15	-35
Feed grains	-15	-35
Beef	-15	-35
Vegetables+fruit	-15	-35
Seasonal labour	-15	-35

Source: Own assumptions.

However, as only that part of production which is sold as organic is affected in the two market scenarios, the impact on some farms and products is actually small. This is especially true in the case of beef where a significant share is often still sold at conventional prices. Using data on the share of organic products sold as organic (Hamm & Gronefeld 2004), the estimated impact of each market scenario on the average price of beef realised by farmers is relatively low, especially in Switzerland, Austria and Denmark (Table 5-3).

Table 5-3: Impact of market scenarios on average beef price for organic farms (% change relative to baseline)

	Scenario 1	Scenario 2
AT	-5	-12
CH	-3	-6
DE	-9	-20
DK	-5	-12
UK	-14	-34

Source: Own calculations.

Table 5-4 shows the values and assumptions made for key indicators in the **new member states** for Scenario 1, which implies a dynamic development in these countries. Policy changes are the same as for the baseline, described in Chapter 4. It is assumed that the growth rate of yields will be the same in organic as in conventional farming, since technical efficiency and the diffusion of know-how improves. Organic product prices are supposed to increase at distinct rates according to product group, as the demand on domestic and export markets grows. These growth rates were determined during meetings with all project partners. Prices for products sold conventionally will stay at the same level. Since this scenario implies an expansion of organic markets for Eastern European farmers, the share of organic products which can be marketed as 'organic' will increase. This share is expected to be the same as that of the Western European countries in 2013, as specified in Hamm & Gronefeld (2004). Wages are assumed to increase at a rate 50% higher than the historical trend. However, the wage level in 2013 will still be lower than that of Western European countries. Prices for other inputs will react according to the baseline which means that growth and inflation rates are equalised.

Table 5-4: Key indicators in Scenario 1 (2013) compared to the baseline (2013) for the new member states

	Develop-ment	Value / Assumption	Source
1st Pillar direct payments	→	No changes compared to baseline	
2nd Pillar			
a) Organic farming payments	→	No changes compared to baseline	
b) Other agri-environmental payments	→	No changes compared to baseline	
c) Payments for Less Favoured Areas	→	No changes compared to baseline	
Yields in organic farming	↗	Crops: + 1.7%/year Milk: + 1.6%/year	FAPRI (2005a)
Organic product price	↗ ↗ ↗ ↗	Cereals: + 25% Feed grain: + 25% Beef: + 35% Fruit + veg.: +25%	Farm survey, expert assumptions
Share of domestic organic production sold as organic	↗	Cereals: 93% Potatoes: 96% Vegetables: 95% Fruit: 84% Milk: 68% Beef: 69% Sheep and goats: 54%	Hamm and Gronefeld (2004)
Factor prices			
a) Wages	↗	a) Wages: annual increase starting from base year CZ: 7.0% EE: 8.1% HU: 6.8% PL: 5.9% SI: 5.0%	a) EUROSTAT (2005)
b) Other inputs	→	b) Prices from 2005 extrapolated with inflation rate	b) Data from partners for 2004 and 2005 and CIA (2005)

→ as in baseline; ↗ moderate increase

Source: Own illustration.

The transfer of Scenario 2 into the model for the new member states is carried out as summarised in Table 5-5. As in Scenario 1, agricultural policy will be the same as that of the baseline. This also holds true for technical progress. Prices for organic cereals, fruit and vegetables are assumed to decrease as the result of increasing supply and the market power of traders and processors, while organic milk prices will remain constant. It is supposed that prices for organic beef will still increase, since a decrease in the price of beef is perceived to be very unlikely regardless of the development of organic markets in the future. Direct marketing would not be affected by decreasing prices in Scenario 2. As in Scenario 1, the assumptions about organic price changes are the result of discussions with experts from the countries studied. Again, prices for goods sold conventionally will remain stable. Wages are assumed to grow more slowly than those of the baseline, that is to say by 50% less than the historical trend, as overall economic development falls behind. Other input prices are assumed to remain unchanged in comparison with the baseline which means that they increase at the same rate as inflation.

Table 5-5: Key indicators in Scenario 2 (2013) compared to the baseline (2013) for the new member states

	Development	Value / Assumption	Source
1st Pillar direct payments	→	No changes compared to baseline	
2nd Pillar a) Organic farming payments b) Other agri-environmental payments c) Payments for less favoured areas	 → → →	 No changes compared to baseline No changes compared to baseline No changes compared to baseline	
Yields in organic farming	→	No changes compared to baseline	
Organic product price	↘ ↘ ↗ ↘	Cereals: – 25% Feed grain: – 25% Beef: + 15% Fruit + Veg.: – 35%	Farm survey, expert assumptions
Share of domestic organic production sold as organic	→	No changes compared to baseline	
Factor prices a) Wages	 ↘	 a) Wages: annual increase starting from base year CZ: 2.8% EE: 3.4% HU: 2.7% PL: 2.3% SI: 1.9%	 a) EUROSTAT (2005)
b) Other inputs	→	b) Prices from 2005 extrapolated with inflation rate	b) Data from partners for 2004 and 2005 and CIA (2005)

→ as in baseline; ↗ (↘) moderate increase (decrease)

Source: Own illustration.

5.2 Farmers' reactions to changes in the market for organic products

The following paragraphs will look at the likely adjustment reactions of farmers to changed market conditions, based on the results of the farm survey and, in the case of the new member states, on the outcome of the workshops or 'panel process' which took place in these countries. The expected impacts on production are quantified using the modelling approaches described in Chapters 2.1.3 and 2.2.

5.2.1 In selected EU-15 countries and Switzerland

The farm survey confronted farmers with two hypothetical scenarios concerning the development of prices for the main product groups: Scenario 1, which foresees a ‘moderate’ decrease of farm gate prices of organic products, and Scenario 2, which looks at a drastic decrease in prices. For each product group and scenario, farmers were asked whether they would respond by making adjustments to the organisation of their farm and, if ‘yes’, what kind of changes they would implement. In addition, the EU-FARMIS model was used to examine the impacts on production and, in particular, on income for typical organic farm groups in the countries analysed.

Cereals

Tables 5-6 and 5-7 provide an overview of farmers’ reactions to a moderate decrease in organic cereal prices. Although less than half of the farmers (40%) saw the need for changes on their farm, significant differences exist between countries, with just a few farmers being concerned in Italy compared with a high proportion of farmers adjusting production in Austria and the UK. The predominant reaction to an assumed decrease in prices is the reduction of cereal area, with some farmers even ceasing to produce grain completely or contemplating re-conversion, especially in Denmark. On the other hand, a substantial proportion of farmers sees room for the rationalisation of production, intensification of marketing activities, the increased use of own home-grown grain for feed (especially on livestock farms) and an expansion of other activities or the introduction of new ones, all of which could compensate for price reductions.

Table 5-6: Farmers' assessment of the need for changes on the farm following a moderate decrease in the prices of organic cereals[1)]

		AT	DE	DK	IT	UK	CH	All
Number of farms	**N**	16	31	37	27	23	15	149
		Percentage of farmers						
Yes	**%**	56	39	41	15	61	47	41
No	**%**	44	58	57	74	39	53	56
I don't know	**%**	0	3	3	11	0	0	3

1) Question asked: Do you think that a long-lasting price drop for organic grains by 10-20 % could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-7: Farmers' reactions to a moderate decrease in the prices of organic cereals 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	10	12	14	2	14	6	58
		Percentage of farmers						
Reduction of grain production	%	49	33	36	0	43	34	38
Ending grain production	%	0	9	36	0	28	34	22
Increased use of own grain in feeding	%	10	0	7	50	50	34	22
Stronger rationalisation	%	30	51	14	0	0	34	23
Intensification of marketing activities	%	30	25	0	50	0	34	16
Expansion of other farm activities	%	21	18	14	0	35	16	22
Introduction of new farm activities	%	49	0	22	0	22	16	22
Closure of farm	%	0	0	7	0	0	0	2
Re-conversion to conventional farming	%	0	18	22	0	7	0	11
Other	%	0	25	14	0	0	0	9

1) Question asked: Do you think that a long-lasting price drop for organic grains by 10-20 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Reactions to a larger price decrease (30-40%) for cereals are correspondingly more pronounced, with most farmers acknowledging the need for changes (Table 5-8). Under this scenario, many of the farmers contemplating adjustments would discontinue grain production (33%), close their farm (14%) or re-convert to conventional farming (13%) (Table 5-9). The scope for compensatory measures, such as rationalisation or more intensive marketing, is reduced under these extreme price conditions.

Table 5-8: Farmers' assessment of the need for changes on the farm following a strong decrease in the prices of organic cereals 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	16	31	37	26	25	15	150
		Percentage of farmers						
Yes	%	100	74	68	23	68	67	65
No	%	0	23	30	4	24	27	19
I don't know	%	0	3	3	73	8	7	16

1) Question asked: Do you think that a long-lasting price drop for organic grains by 30-40 % could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-9: Farmers' reactions to a strong decrease in the prices of organic cereals 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	16	23	25	5	17	10	96
		Percentage of farmers						
Reduction of grain production	%	31	17	32	0	53	20	29
Ending grain production	%	25	43	20	20	29	70	33
Increased use of own grain in feeding	%	6	4	16	40	41	20	18
Stronger rationalisation in order to reduce production costs	%	19	4	0	40	0	0	6
Intensification of marketing activities	%	25	13	0	40	6	0	10
Expansion of other farm activities (crop production)	%	6	17	12	0	6	20	11
Expansion of other farm activities (livestock production)	%	0	0	0	0	18	10	4
Expansion of other farm activities (other)	%	0	4	0	0	6	0	2
Introduction of new farm activities (on-farm processing, direct marketing, agri-tourism)	%	19	4	0	0	12	0	6
Introduction of new farm activities (vegetables, herbs, fruits, berries)	%	38	0	0	0	12	0	8
Introduction of new farm activities (other)	%	6	0	20	0	12	10	9
Closure of farm	%	13	17	16	0	18	0	14
Re-conversion to conventional farming	%	0	17	24	0	12	0	13
Other measures	%	25	13	16	0	18	20	17

1) Question asked: Do you think that a long-lasting price drop for organic grains by 30-40 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Beef

The impact of a potential decrease of beef prices, following an enlarged market for organic products, is amplified by the decoupling of direct payments. The farmers were therefore asked explicitly for their reactions to reduced revenues from beef production as a consequence of reduced subsidies and prices. Even for the 'moderate' Scenario 1, two-thirds of farmers saw the need for changes on their farm (Table 5-10). There is a clear distinction by farm type, with dairy farms reporting less need for adjustment, and other grazing livestock farms being the most affected. While a third of these farmers (and nearly two-thirds of the German farmers) would continue, but reduce, beef production (Table 5-11), many farmers, especially in Denmark, Italy and the UK, would consider ceasing beef production altogether (32%), closing their farm (10%) or re-converting to conventional farming (5%). With regard to potential compensatory adjustment strategies, an intensification of marketing activities and the rationalisation of production were identified most often, particularly on farms not specialised in beef production.

Table 5-10: Farmers' assessment of the need for changes on the farm following the decoupling of payments and a moderate decrease in the prices for organic beef 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	25	35	27	8	35	34	164
		Percentage of farmers						
Yes	%	76	54	52	88	86	59	66
No	%	24	40	48	13	14	38	32
I don't know	%	0	6	0	0	0	3	2

1) Question asked: Do you think that a drop in revenues from organic beef meat of 20-30 % (due to reduced subsidies and prices) could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-11: Farmers' reactions to the decoupling of payments and a moderate decrease in the prices for organic beef 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	19	19	14	7	30	19	108
		Percentage of farmers						
Reduction of beef production	%	37	63	36	14	23	21	33
Ending beef production	%	16	16	57	57	37	32	32
Stronger rationalisation in order to reduce production costs	%	16	16	0	29	3	11	10
Intensification of marketing activities	%	26	16	0	43	20	26	20
Expansion of other farm activities (livestock production)	%	5	5	7	0	7	16	7
Expansion of other farm activities (other)	%	26	5	0	0	7	5	8
Introduction of new farm activities (direct marketing, agri-tourism)	%	26	5	0	0	3	0	6
Introduction of new farm activities (other)	%	21	5	14	0	7	0	8
Closure of farm	%	5	0	7	14	20	11	10
Re-conversion to conventional farming	%	0	0	7	0	13	0	5
Other measures	%	5	26	7	0	7	21	12

1) Question asked: Do you think that a drop in revenues from organic beef meat of 20-30 % (due to reduced subsidies and prices) could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

In response to a strong decrease in beef prices and decoupled payments, the proportion of farmers making some adjustment to farm organisation increases to 79% (Table 5-12). Only in Denmark would a large number of farmers continue production unchanged, mostly on arable and dairy farms. The most frequent reaction of farmers to this drastic scenario is to give up beef production, followed by farm closure (Table 5-13). Opportunities to compensate for financial losses are mainly identified by farmers in Austria and Switzerland and include the introduction of new activities such as direct marketing and agri-tourism (Austria), as well as a stronger reliance on off-farm work (Switzerland). These figures highlight the vulnerability of organic beef production to any further decline of profitability following the decoupling of payments.

Table 5-12: Farmers' assessment of the need for changes on the farm following the decoupling of payments and a strong decrease in the prices for organic beef 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	23	37	27	9	34	34	164
		Percentage of farmers						
Yes	%	91	76	52	78	94	82	79
No	%	4	22	48	11	3	12	17
I don't know	%	4	3	0	11	3	6	4

1) Question asked: Do you think that a drop in revenues from organic beef meat of 40-50 % (due to reduced subsidies and prices) could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-13: Farmers' reactions to the decoupling of payments and a strong decrease in the prices for organic beef 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	22	27	14	7	32	28	130
		Percentage of farmers						
Reduction of beef production	%	9	30	7	0	13	18	15
Ending beef production	%	50	41	71	86	53	43	52
Stronger rationalisation in order to reduce production costs	%	0	7	0	0	0	7	3
Intensification of marketing activities	%	5	0	7	0	9	18	8
Expansion of other farm activities (livestock production)	%	5	4	0	0	6	14	6
Expansion of other farm activities (other)	%	27	7	0	0	6	0	8
Introduction of new farm activities (direct marketing, agri-tourism)	%	36	4	0	0	6	0	8
Introduction of new farm activities (other)	%	23	7	14	0	3	4	8
Closure of farm	%	18	22	14	29	22	18	20
Re-conversion to conventional farming	%	5	0	7	0	13	0	5
Start or expansion of off-farm working (part-time farming)	%	0	4	0	0	3	29	8
Other measures	%	5	15	0	0	6	21	10

1) Question asked: Do you think that a drop in revenues from organic beef meat of 40-50 % (due to reduced subsidies and prices) could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Feed Grains

The effect of lower prices for organic feed grains is two-fold. Lower prices may reduce the incentive to produce feed grains for sale but, at the same time, decrease feed costs on farms that purchase concentrates. In this context, relatively few farmers in Austria and Switzerland saw a need for changes in farm organisation, due partly to the fact that grassland-based farming systems are widespread in these countries, whereas most farmers in Italy would react to falling feed grain prices (Table 5-14). The responses, however, show no clear differences in the need for adjustments by farm type. While falling grain prices would lead to a reduction in home-grown cereals for feed, responses also indicate that the currently high price level for organic feed grains is a major obstacle to organic livestock production. Many farmers would increase pork and poultry output in response to lower feed prices and, in addition, beef (mainly in the UK) and milk (Denmark) production would expand (Table 5-15). Farmers (especially in Germany) would also intensify production by increasing the share of grain in feed rations. Again, there are no clear differences in adjustment strategies with regard to farm type, with the exception of ceasing feed grain production entirely which was an option mainly for arable farms.

Table 5-14: Farmers' assessment of the need for changes on the farm following a decrease in the prices of organic feed grains 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	35	44	39	11	46	40	215
		Percentage of farmers						
Yes	%	11	41	31	82	20	15	27
No	%	89	57	69	9	74	80	70
I don't know	%	0	2	0	9	7	5	3

1) Question asked: It is possible that the prices for organic feed grains could drop by 20-30 %. Would such a development lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-15: Farmers' reactions to a decrease in the prices of organic feed grains[1)]

		AT	DE	DK	IT	UK	CH	All
Number of farms	**N**	4	17	12	8	10	5	56
		Percentage of farmers						
Reduction of own grain production	%	25	18	17	13	30	0	18
Ending grain production	%	0	6	17	0	10	0	7
Increase in pork production	%	0	6	0	0	10	40	7
Increase in beef production	%	0	12	8	0	20	20	11
Increase in milk production	%	25	6	33	0	0	0	11
Expansion of poultry production	%	50	18	8	0	10	0	13
Increasing the grain content in feed ration	%	0	18	0	0	0	40	9
Increasing yields (milk, meat) due to more grain feeding	%	0	18	0	13	0	20	9
Increasing cereal production for human consumption (no or less feed grains)	%	0	18	8	0	0	0	7
Introduction of livestock production	%	0	0	8	0	20	0	5
Other measures	%	0	29	17	38	10	0	20
Probable changes not yet clear	%	0	0	8	38	30	0	13

1) Question asked: It is possible that the prices for organic feed grains could drop by 20-30 %. Would such a development lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Fruit and vegetables

The sensitivity of fruit and vegetable production to price decreases is considerable. Even in the scenario where prices fall only moderately, it is clear that most farms would implement changes (Table 5-16), with a quarter of farmers reducing output and one-third contemplating a complete halt to production, especially of vegetables (Table 5-17). However, many farmers also see scope for further rationalisation of production and for an intensification of marketing activities to compensate for lower prices.

Table 5-16: Farmers' assessment of the need for changes on the farm following a moderate decrease in the prices of organic fruit and vegetables[1)]

		AT	DE	DK	IT	UK	CH	All
Number of farms	**N**	7	8	3	5	15	17	55
		Percentage of farmers						
Yes	%	71	75	67	80	53	65	65
No	%	29	25	33	0	47	35	33
I don't know	%	0	0	0	20	0	0	2

1) Question asked: Do you think that a price drop for vegetables and fruits by 10-20 % could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-17: Farmers' reactions to a moderate decrease in the prices of organic fruit and vegetables 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	5	6	2	4	8	11	36
		Percentage of farmers						
Reduction of vegetable / fruit production	%	40	33	0	0	25	27	25
Ending vegetable / fruit production	%	0	67	100	0	38	18	31
Stronger rationalisation in order to reduce production costs	%	80	67	0	75	25	0	36
Intensification of marketing activities	%	40	33	0	50	25	9	25
Expansion of other farm activities	%	0	33	0	25	13	0	11
Introduction of new farm activities	%	20	0	0	0	25	9	11
Closure of farm	%	0	0	0	0	13	0	3
Other measures	%	0	33	0	0	0	73	28

1) Question asked: Do you think that a price drop for vegetables and fruits by 10-20 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Faced with a strong price reduction in the case of fruit and vegetables, almost all farmers felt the need to make changes in farm organisation (Table 5-18). Ceasing production is the principal reaction to this scenario (45% of the farmers), with some farmers also thinking about the closure (12%) or re-conversion (6%) of their farm (Table 5-19). Rationalisation is no longer seen as an adequate solution to falling prices, and the scope for compensation through expanding other production activities or introducing new ones also appears to be regarded as relatively insignificant in most countries. Many farmers, especially in Switzerland, said that they would continue production for on-farm consumption only.

Table 5-18: Farmers' assessment of the need for changes on the farm following a strong decrease in the prices of organic fruit and vegetables 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	N	7	8	3	6	14	18	56
		Percentage of farmers						
Yes	%	71	100	100	67	86	94	88
No	%	14	0	0	17	14	6	9
I don't know	%	14	0	0	17	0	0	4

1) Question asked: Do you think that a price drop for vegetables and fruits by 30-40 % could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-19: Farmers' reactions to a strong decrease in the prices of organic fruit and vegetables 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	**N**	6	8	3	3	12	17	49
		Percentage of farmers						
Reduction of vegetable / fruit production	**%**	0	13	0	0	33	24	18
Ending vegetable / fruit production	**%**	50	50	100	0	50	35	45
Stronger rationalisation in order to reduce production costs	**%**	17	13	0	0	0	6	6
Intensification of marketing activities	**%**	33	25	0	0	17	24	20
Expansion of other farm activities	**%**	0	13	0	33	8	0	6
Introduction of new farm activities	**%**	50	0	0	0	8	12	12
Closure of farm	**%**	17	25	0	67	8	0	12
Re-conversion to conventional farming	**%**	0	25	0	0	8	0	6
Other measures	**%**	33	0	0	0	8	65	29

1) Question asked: Do you think that a price drop for vegetables and fruits by 30-40 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Seasonal labour

Following enlargement, it is conceivable that the availability of seasonal labour will increase which could benefit organic farms with a high seasonal workload. On average, 18% of farmers thought that this might have an impact on their farm (Table 5-20), the proportion being highest in the case of arable and mixed farms. The extra labour would be used to increase or initiate production, mainly of vegetables (Table 5-21). Additionally, direct marketing activities would be intensified in some countries.

Table 5-20: Farmers' assessment of the likelihood of changes on the farm following an increase in the availability of seasonal labour 1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	**N**	49	50	50	28	49	50	276
		Percentage of farmers						
Yes	**%**	29	24	12	14	16	12	18
No	**%**	65	74	84	64	78	84	76
I don't know	**%**	6	2	4	21	6	4	6

1) Question asked: Lets assume that the availability of seasonal labourers could increase. Can you imagine this having an effect on your production program?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-21: Farmers' reactions to an increase in the availability of seasonal labour1)

		AT	DE	DK	IT	UK	CH	All
Number of farms	**N**	14	9	6	3	7	2	41
		Percentage of farmers						
Increase or introduction of vegetable production	%	43	56	67	33	43	50	49
Increase or introduction of fruit production	%	14	11	0	0	0	0	7
Increase or introduction of potato production	%	0	0	33	33	0	0	7
Increase or introduction of production of other products	%	21	22	17	0	29	0	20
Increase or introduction of direct marketing activities	%	21	33	17	67	0	0	22
Increase or introduction of product processing	%	7	22	0	0	0	0	7
Probable changes not yet clear	%	29	0	0	0	43	50	20

1) Question asked: Lets assume that the availability of seasonal labourers could increase. Can you imagine this having an effect on your production program? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Modelling results

Whereas farmers in the survey were confronted with isolated price decreases for selected product groups, the combined effect of a simultaneous decrease in prices for all selected products, as well as for seasonal labour, was assessed using the EU-FARMIS model. It should be noted that the results should be interpreted with caution, especially with respect to Scenario 2, since the opportunities for alternative production activities are much more limited in the model compared with reality. Also, neither farm closure nor re-conversion were analysed, although an indication of the likelihood of such drastic impacts is given by an analysis of the development of farm profits (see Chapter 5.3.1).

The results of modelling the impact of the different market scenarios on cereal and beef production are provided in Table 5-22. The results indicate that the reduction in cereal output will be much stronger on those farms which are not specialised in growing cereals, while arable farms often have fewer alternatives to cereal-growing at least in the short run. The magnitude of the impact on cereal production is comparable between countries for the same farm types. When comparing these results with farmers' responses about their adjustments to decreasing cereal prices, the fact that the profitability of alternatives (such as vegetable-growing) is also lower in the scenarios, due to the decreasing prices for most products, must be taken into account.

The total decline in beef production appears to be quite limited, since a considerable share of beef output arises from dairy cull cows, the number of which is not affected in either scenario. The greater sensitivity of beef production to further price decreases in those countries which implemented a full decoupling in the beef sector, i.e., Germany and most of the UK, is clearly visible.

Table 5-22: Changes in cereal and beef production under different market scenarios on organic farms in selected EU-15 countries (2013)

	Cereals			Beef		
	CAP reform	Sc 1	Sc 2	CAP reform	Sc 1	Sc 2
	t	% change		t	% change	
			Austria			
Arable farms, valley+hills	72	-5%	-10%	1	-5%	-11%
Dairy farms, hills	4	-12%	-31%	4	-4%	-8%
Dairy farms, mountains	2	-13%	-32%	2	-3%	-8%
Other grazing livestock farms, mountains	2	-10%	-23%	3	-4%	-10%
			Denmark			
Arable farms	85	-4%	-12%	2	0%	-1%
Dairy farms, < 100 cows	45	-14%	-33%	9	1%	2%
Dairy farms, > 100 cows	99	-15%	-34%	17	0%	1%
			Germany			
Arable farms, North	203	-3%	-8%	3	-7%	-16%
Arable farms, South	77	-1%	-5%	2	-13%	-31%
Dairy Farms, South	5	-7%	-18%	3	-6%	-14%
			UK			
Dairy and grazing livestock farms	9	-10%	-25%	12	-12%	-30%

Sc 1: Scenario 1, Sc 2: Scenario 2

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

5.2.2 In selected new member states

Like the farmers in the Western European countries studied, Eastern European farmers were also confronted with the two different market scenarios (Chapter 5.1). For Eastern European farmers, Scenario 1 means a marked increase in prices for most products, in combination with wages rising more strongly than those of the baseline. Scenario 2 goes along with the decreasing prices for plant products. Prices for milk are assumed to remain constant and beef prices will increase slightly. Wages will experience lower growth rates in comparison with the baseline.

Similarly, the results from the farm survey and the two workshops conducted in each of the study countries in the course of typical farm modelling are also presented in this section, in order to assess farmers' reactions to changed organic market conditions in the new member states.

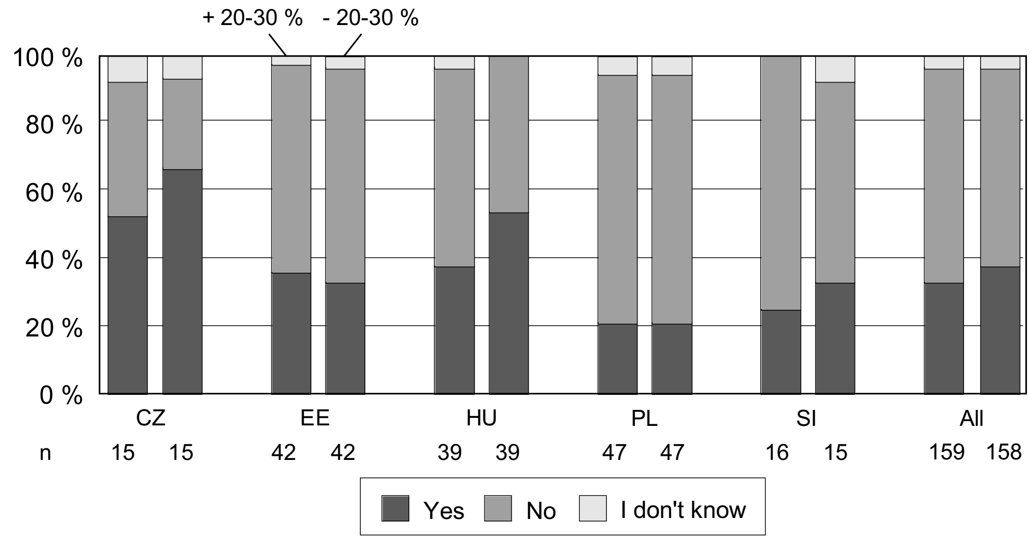
5.2.2.1 Farm survey results

Cereals

Figure 5-1 summarises the extent to which farmers would react to changes in the price of organic cereals (an increase or decrease, respectively, of 20-30%). It becomes clear that farmers respond to decreasing rather than to increasing prices in most countries. Polish farmers exhibit the greatest stability in terms of farm organisation, with the least number of farmers considering any changes at the farm level as the result of price changes. There were no pronounced differences between farm types within countries.

Reactions to a strong increase in the price of organic cereals are summarised in Table 5-23. On average, about 50% of all farmers plan to either increase farm size and/or to invest in production technology (multiple answers were possible), although there are large differences between countries. In Estonia and Hungary, the vast majority of farmers would invest in production technology, while Polish farmers mostly favour an increase of grain production, by reducing the area dedicated to other crops.

Figure 5-1: Farmers' assessment of the need for changes on the farm following (a) a strong increase and (b) a strong decrease in the prices of organic cereals 1)



n: number of farmers answering

1) Question asked: (a) Do you think that an increase in prices for organic grain by 20-30 % could lead to adjustments on your farm? (b) Do you think that a long-lasting price drop for organic grains by 20-30 % could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-23: Farmers' reactions to a strong increase in the prices of organic cereals 1)

	CZ	EE	HU	PL	SI	All
Number of farms	8	15	15	9	4	51
	Percentage of farmers					
Increase in grain production	50	40	33	78	75	49
Increase in farm size (to expand grain production)	25	20	40	22	0	25
Reduction of other crop production in favour of grain production	0	0	20	56	25	18
Introduction of new farm activities (crop production)	13	0	7	0	0	4
Reduced use of own grain in feeding	25	33	7	0	0	16
Reduction of other farm activities	0	0	7	11	0	4
Investment in production technology	50	80	60	0	0	49
Intensification of marketing activities	13	13	20	0	25	14
Other measures	0	33	0	11	0	12

1) Question asked: Do you think that an increase in prices for organic grain by 20-30 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

The principal reaction to falling prices is a reduction in cereal production, followed by the increased use of home-grown grain for feed (Table 5-24).

Table 5-24: Farmers' reactions to a strong decrease in the prices of organic cereals 1)

	CZ	EE	HU	PL	SI	All
Number of farms	10	14	21	10	5	60
	Percentage of farmers					
Reduction of grain production	70	7	29	80	80	43
Ending grain production	20	29	29	0	0	20
Increased use of own grain in feeding	20	50	14	30	20	27
Stronger rationalisation	10	0	0	20	20	7
Intensification of marketing activities	10	14	0	10	20	8
Expansion of other farm activities (other crops)	0	7	24	20	40	17
Introduction of new farm activities	0	7	5	10	0	5
Closure of farm	0	0	5	10	0	3
Re-conversion to conventional farming	10	7	0	0	0	3
Other	0	36	10	0	0	12

1) Question asked: Do you think that a long-lasting price drop for organic grains by 20-30 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

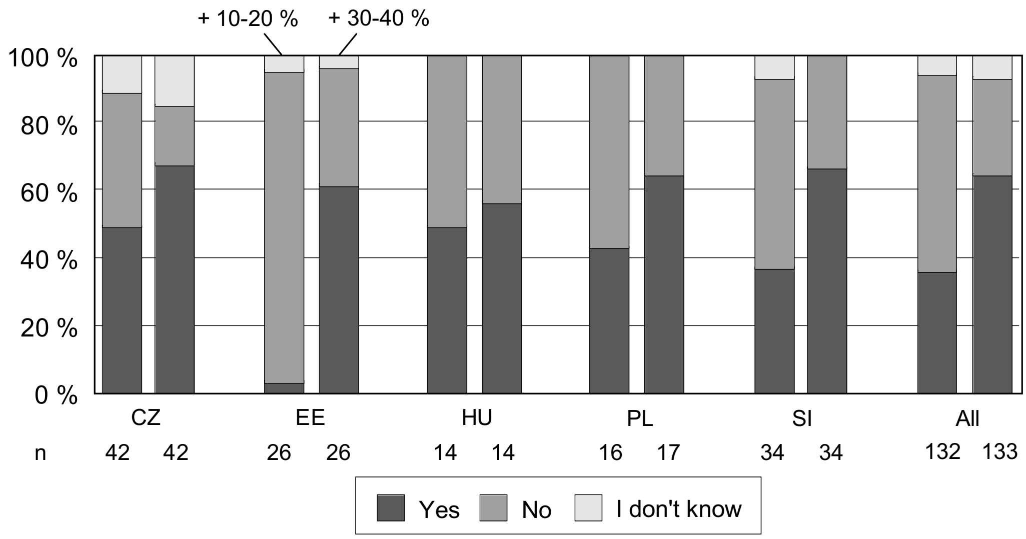
Source: Own calculations based on farm survey winter/spring 2004.

As was observed in the case of rising cereal prices, there are marked differences between countries. Whereas half of the Estonian farmers who answered this question would increase the share of home-grown cereals for feed in response to lower prices, only 36% would reduce or discontinue cereal production. However, in the other Eastern European countries, the proportion of farmers who consider these latter measures is approximately 60% or even higher. Virtually one-fifth of all farmers would opt for an expansion of other farm activities.

Beef

In the case of moderate increases in beef prices, just under 40% of farmers think adjustments will become likely (Figure 5-2). The exception is Estonia, where only about 10% of farmers appear to react to moderately increasing prices. When asking farmers for likely adjustments to a strong increase in beef prices, two-thirds of all farmers replied that they would react.

Figure 5-2: Farmers' assessment of the need for changes on the farm following (a) a moderate increase and (b) a strong increase in the prices of organic beef meat 1)



n: number of farmers answering

1) Question asked: Do you think that an increase in prices for organic beef meat of 10-20 % could lead to adjustments on your farm? Do you think that an increase in prices for organic beef meat of 30-40% could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Irrespective of the extent of the increase in beef prices, the foremost reaction of farmers is to consider an increase in beef production (Table 5-25 and 5-26). In both scenarios, farmers identified investment in production technology as the second most significant adjustment. This positioning of likely responses is reversed in the Czech Republic where most farmers see investment in production technology as their first choice.

Table 5-25: Farmers' reactions to a moderate increase in the prices of organic beef 1)

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		21	1	7	6	11	46
		Percentage of farmers					
Increase in beef production	%	52	100	57	100	73	65
Introduction of new animal husbandry activities	%	10	0	14	0	0	7
Expansion of other farm activities	%	14	0	0	0	0	7
Investment in production technology	%	62	0	43	0	18	39
Intensification of marketing activities	%	0	0	43	17	0	9
Other measures	%	0	100	0	0	27	9

1) Question asked: Do you think that an increase in prices for organic beef meat of 10-20 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Table 5-26: Farmers' reactions to a strong increase in the prices of organic beef 1)

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		29	16	8	11	17	81
		Percentage of farmers					
Increase in beef production	%	45	38	50	100	59	54
Introduction of new animal husbandry activities (suckler cows, bovine animals for meat prod.)	%	14	44	25	0	18	20
Reduction of other farm activities	%	3	6	0	18	0	5
Expansion of other farm activities	%	28	6	13	0	0	12
Investment in production technology	%	69	44	63	0	24	44
Intensification of marketing activities	%	3	13	25	9	12	10
Other measures	%	3	38	0	9	24	15

1) Question asked: Do you think that an increase in prices for organic beef meat of 30-40 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Feed grains

Irrespective of the direction of change, about 20% of farmers would react to increasing or decreasing prices for organic feed grain (Figure A-21, Annex), with only small differences between countries. The most widespread adjustment to a price rise is to increase the production of feed grains for on-farm consumption (Table A-26, Annex). On the other hand, a decrease in prices would cause an expansion of beef production or the substitution of home-grown feed grains by purchased supplies. Comparing results between countries, it appears that Polish and Slovenian farmers are most likely to increase livestock production, whereas a reduction in feed grains for on-farm use is more probable in other countries (Table A-27, Annex).

Fruit and vegetables

In all the Eastern countries studied, more farmers identified the need for adjustments in response to increasing rather than decreasing prices for fruit and vegetables (Figure A-22, Annex). Price increases of 20-30% for organic fruit and vegetables would be followed mainly by an expansion of fruit and/or vegetable production (70% of all answers). Across all countries, increases in farm size and a reduction of other crops in favour of fruit and vegetable production are the preferred options (each accounting for about 20% of all responses). There are important differences between countries (Table A-28, Annex), with the share of farmers planning to invest in production technology being by far the highest in Estonia. Results are similar for the question of rising cereal prices (Table 5-23). Conversely, most farmers (about two-thirds) would respond to a severe decline in prices for organic fruit and vegetables with either a reduction in area or even the cessation of production of these crops (Table A-29, Annex). Farmers would attempt to compensate for the income losses caused by a reduction of prices by introducing new farm activities, particularly processing. This is especially the case for Estonian and for Slovenian farmers.

Labour costs

With regard to the impact of increasing labour costs in the countries studied, more than 30% of farmers report that labour costs are not relevant, which indicates that they do not employ any labourers on their farm (Figure A-23, Annex). Similarly, the proportion of all farmers who think that rising labour costs may have an impact on their production programme is also 30%. Between countries, however, there are clear differences in the preferred reactions to such changes. Whereas in Poland, most farmers would reduce the labour-intensive production of vegetables and/or fruit, those in the Czech Republic would mainly reduce or discontinue livestock production. Estonian farmers would try to increase labour productivity at farm level through mechanisation or an increase in yields (Table A-30, Annex).

5.2.2.2 Modelling results

The modelling of the likely adjustment reactions of typical organic farms in the new member states is based on the outcome of two workshops conducted in each of the study countries. Firstly, the results of typical farm modelling were presented and discussed at length between farmers and advisors. Possible reactions to the different market scenarios were also debated for each typical farm during the workshops. Consequently, the adjustment strategies that were finally modelled arise from consensus among workshop participants. The same also holds true in those cases where no adjustments at farm level are described in response to market changes (see Chapter 2.2.1).

Unlike the farm survey, however, changes in all prices and indicators were modelled simultaneously for the typical organic farms, so that results cannot be compared easily. The increased share of products sold as organic under Scenario 1 translates into additional price increases (see Chapter 5.1).

In the Czech Republic, Poland and Slovenia, arable farmers generally judged Scenario 1, which assumes prices increasing strongly for important organic product groups, to be more probable. Grazing livestock farmers agreed that Scenario 2, which implies decreasing organic prices for plant products, constant prices for organic milk and only slightly increasing prices for beef, was more likely to become a reality. In Estonia and Hungary, all farmers participating in the workshops, independently of farm type, identified Scenario 2 as the more probable future development.

The adjustment reactions agreed by farmers in the selected new member states are presented by farm type in all of the Eastern countries studied – firstly, the results under Scenario 1, followed by those for Scenario 2. Farm size and organisation is compared with the situation under the baseline scenario in the year 2013 (see Chapter 4). The reactions, therefore, can be identified as pure responses to changes in the market environment and can be summarised as follows.[1]

Scenario 1

Arable farms benefit greatly from the improved organic market conditions under Scenario 1. Foremost reactions are increases in farm size and investments in existing, as well as new, farm activities. Additionally, arable farmers in Hungary would replace cereals with vegetable production and diversify their production structure by the introduction of on-farm processing. Typical arable farms in Poland remain unchanged with regard to production patterns and farm size, but additional financial resources would be used for investments in buildings and machinery. This is also the case for the Slovenian arable farm.

Typical dairy farmers will gain mainly through the rising share of milk sold as organic. Dairy farmers in the Czech Republic and Estonia and on the small, as well as on one of the medium-sized, farms in Poland react by increasing farm area and herd sizes and/or by investment in machinery and buildings. Typical dairy farmers in Hungary and the other medium-sized dairy farm in Poland would increase herd size and implement a diversification strategy with the introduction of suckler cows, fat cattle (Hungarian farms) or the processing of milk (Polish farm). No reaction is likely for the typical organic dairy farm in Slovenia (see also Chapter 4.3.1.2).

Typical cow-calf farms only exist in the Czech Republic and Slovenia. An increase in the share of beef which can be sold on organic markets is the most important aspect of this scenario for cow-calf farmers. While both the Czech medium-sized and the largest farm would increase farm size and herd size, the small cow-calf farm, with 100% direct marketing,

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[1] The adjustments at farm level are presented in detail for both scenarios on a country by country basis in Tables A-31 to A-35 in the Annex.

would not react, as it is not affected by the scenario at all. The other large cow-calf farm would remain the same as in the baseline.

Scenario 2

Under Scenario 2, which assumes much less favourable organic market development in new member states, the reactions of typical arable farms are to reduce area (Czech arable farm), replace cereals for human consumption with feed grains (Estonian farm) or embark on extensification in order to reduce costs (Hungarian farms). Investments would also be reduced and/or delayed. The large Hungarian arable farm would increase its livestock activities. The small, highly specialised fruit and vegetable farm in Poland, although affected heavily, makes no changes as it has no production alternatives. The large Polish farm, on the other hand, would cease both cereal and milk production and concentrate on suckler cows. The strategy of the small arable farm in Slovenia would be diversification of production, on-farm processing and direct marketing. There would be no changes for this farm type compared to the 2003 base year.

Dairy farms are affected much less than arable farms in this scenario since milk prices remain unchanged. Farms might even benefit from scenario conditions, as labour and feed grain prices are reduced compared with the baseline. Thus, most of the typical farms would not adjust their production patterns at all in comparison with the baseline. The Estonian farm would, however, follow its expansion strategy, albeit at a slower pace.

As in the case of typical dairy farms, cow-calf farms are also affected only slightly, so that adjustments are infrequent. The Czech, medium-sized cow-calf farm would remain unchanged compared with the 2003 base year, meaning a reduction of area and cow numbers in relation to the baseline. The typical cow-calf farm in Slovenia would cease its cattle fattening activities, increase the number of suckler cows slightly and produce only weaned calves for conventional fattening.

As explained earlier, it is difficult to compare the outcome of the workshops with the results of the farm survey, with regard to likely adjustment reactions. During the workshops, changes in prices and indicators were modelled and discussed simultaneously, whereas the survey asked for reactions to variations in individual factors. The case of typical arable farms may serve to illustrate the difficulties of comparison. In typical farm modelling, the most important reaction for arable farmers in Scenario 1 is investment in production technology, particularly in the case of Polish and Slovenian farmers. Asked for their reactions to increased cereal prices in the framework of the farm survey, however, farmers in these countries did not even mention this possibility (see Table 5-23). Obviously, these differences might be attributed to the fact that Scenario 1, as discussed during the workshops, not only implies an increase in cereal prices but also increased support payments and rising prices for other commodities as well.

5.3 Impacts of different market scenarios on income and on the importance of support payments

This section aims to assess the impacts of the two market scenarios on the profitability and policy dependency of organic farms in Western and Eastern European countries, taking into account the most likely adjustment reactions at farm level.

5.3.1 Impacts on income

In the **EU-15 countries** the impact of the market scenarios on farm income is dependent on farm type (Table 5-27).

Table 5-27: Development of FFI + W/AWU on organic farms for different market scenarios in selected EU-15 countries (2013)

	CAP reform	Sc 1	Sc 2
	EUR / AWU	% change	
	Austria		
Arable farms, valley+hills	28 316	-9	-20
Dairy farms, hills	23 972	-1	-3
Dairy farms, mountains	22 007	-1	-2
Other grazing livestock, mountains	19 516	-2	-5
	Denmark		
Arable farms	29 633	-12	-26
Dairy farms, < 100 cows	36 509	1	3
Dairy farms, > 100 cows	37 237	0	1
	Germany		
Arable farms, North	25 005	-16	-32
Arable farms, South	14 858	-27	-64
Dairy Farms, South	21 221	-2	-4
	The UK		
Dairy and grazing livestock farms	36 931	-5	-8

Sc 1: Scenario 1, Sc 2: Scenario 2

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Despite the decrease in beef prices, dairy farms are barely affected. Although this is due partly to the relatively low importance of beef revenues in total farm results, it is mainly due to the high share of beef sold at conventional prices, which effectively reduces the relevance of changes in organic beef prices for the average farm (see Chapter 5.1). In contrast, the return for labour (FFI + W/AWU) on arable farms is reduced significantly in all countries. In Scenario 2 (i.e. price reduction of 35% for selected product groups and seasonal labour), organic arable farms especially in Denmark (-26%) and Germany (-32% in the North and -64% in the South) face severe financial consequences which could endanger the viability of many farms (see also farmers' assessments, Chapter 5.2.1).

As prices for most organic products increase under Scenario 1, the economic situation on most typical organic farms in **the new member states** is expected to improve. The economic performance under Scenario 2 would depend on farm type. In comparison with the baseline, arable farms are most likely to demonstrate worse results under Scenario 2, due to falling crop prices. However, farms with predominantly direct sales are not affected, as it is assumed that these prices will not follow the general trend. Dairy farms (stable prices for organic milk) and cow-calf farms (prices for organic beef will increase slightly) might benefit under Scenario 2, as feed costs will decrease and labour costs will increase at lower rates compared with the baseline (see above).

With regard to the modelling results, it appears that the profitability of typical organic farms reacts as anticipated under different market scenarios (Table 5-28). Almost all the typical farms would benefit if the Scenario 1 market were to become a reality. However, no general conclusions can be drawn regarding either the country in which typical organic farms would benefit most or the farm type, since results vary widely. Some farms even perform worse under Scenario 1. The medium-sized cow-calf farm in the Czech Republic would start fattening beef as a consequence of positive price expectations. Herd size would be expanded through own replacements, so that the target number of bulls and heifers fattened per year would not be reached until 2013. Therefore, their market return would be lower than projected. However, this negative development for farm income would be a temporary phenomenon. In Poland, the larger typical dairy farm would benefit much less than the (other) medium-sized dairy farm, as the larger farm was already marketing a large share of its milk organically in 2003 and, therefore, experiences almost no price effect.

In the context of Scenario 2, development of the economic situation on typical organic farms is much less clear. With few exceptions, the increase of farm income per AWU compared to the baseline is negative or lower than that under Scenario 1. With respect to the income situation under Scenario 2, typical organic farms can be divided into three groups:

a) FFI + W/AWU in Scenario 2 is less than that of the baseline scenario: almost all arable farms belong to this group, as they are strongly affected by decreasing prices for all plant products. However, the results for the small arable farm in Slovenia are somewhat surprising, as income is rather low in comparison with the baseline. Since this farm is marketing directly for the most part, it should have been affected only slightly under Scenario 2, when compared with the baseline. Nevertheless, farm income per AWU under Scenario 2 in 2013 is about the same as that of the 2003 base year. This farm could raise its farm income per AWU significantly under baseline and Scenario 1 conditions, since labour productivity increases as a consequence of reduced farm diversity.

b) FFI + W/AWU in Scenario 2 is more than that of the baseline. This is the case for dairy and for cow-calf farms which benefit from lower wages and the lower prices of feed cereals. The small and the large Hungarian arable, and the medium-sized Hungarian dairy farms that reduce labour input as the scope of processing activities declines, also belong to this group.

c) FFI + W/AWU in Scenario 2 is almost the same as that of the baseline. This is the case for the farms that are hardly affected since they mainly market directly or conventionally, or for those dairy and cow-calf farms which do not profit from lower wages or lower feed costs.

Table 5-28: Farm income on typical organic farms (FFI + W/AWU) for different market scenarios compared to the baseline (2013)

	FFI+W / AWU		
	Baseline	Scenario 1	Scenario 2
	EUR / AWU	change in %	
	Czech Republic		
Arable (large, 200 ha)	41 183	14	-42
Dairy (small 58 t milk)	5 690	53	1
Cow-calf (small, 100 ha)	12 461	12	0
Cow-calf (medium, 140 ha)	48 316	-7	13
Cow-calf (large, 551 ha, 145 cows)	67 720	9	-2
Cow-calf (large, 500 ha, 160 cows)	22 257	33	1
	Estonia		
Arable (large, 89 ha)	9 352	48	-30
Dairy (large, 194 t milk)	5 978	56	-7
	Hungary		
Arable (small, 9 ha)	3 193	86	1 039
Arable (medium, 374 ha)	18 413	72	-22
Arable (large, 1 245 ha)	25 098	57	63
Dairy (medium, 335 t milk)	44 065	31	7
Dairy (large, 3 360 t milk)	24 389	20	1
	Poland		
Arable (small, 17 ha)	3 617	42	-29
Arable (large, 100 ha)	10 270	30	-25
Dairy (small, 34 t milk)	3 553	119	-2
Dairy (medium, 88 t milk)	5 933	130	-2
Dairy (medium, 100 t milk)	10 546	9	0
	Slovenia		
Arable (small, 13 ha)	12 266	45	-73
Dairy (small, 28 t milk)	3 198	62	8
Cow-calf (small, 9 ha, 9 cows)	926	177	52

Source: Own calculations based on typical farm modelling.

5.3.2 Importance of support payments

As an indicator, the share of payments in gross output is taken as the most appropriate measure of the dependency of organic farms on (organic farming) payments (see Chapter 2.4). This indicator reveals the relative significance of payments in comparison to other sources of farm revenue such as market returns. In the following analysis, the share of organic farming payments in profit, as shown by FFI + W, is additionally used to demonstrate the farms' vulnerability to changes in organic farming policy.

For most of the typical farm groups analysed in the **EU-15 countries**, the degree of (in-) dependency, in terms of the extra support payments for organic farming, is not greatly influenced by the market scenarios (Table 5-29). Exceptions are the arable farms in Denmark and Germany, and, more especially, the group of arable farms in Southern Germany. In this latter group, FFI + W is lower than the amount transferred through specific support for organic farming systems in Scenario 2. For all these farm groups, the importance of other direct payments (in particular the Single Farm Payment) for profitability, which is already high in the baseline, escalates correspondingly.

Table 5-29: Share of payments as a percentage of gross output and FFI + W for different market scenarios in selected EU-15 countries (2013)

	Total payments in gross output			Extra support for organic farming in gross output			in FFI+wages		
	bl	Sc 1	Sc 2	bl	Sc 1	Sc 2	bl	Sc 1	Sc 2
					Austria				
Arable farms, valley+hills	32	33	35	10	10	10	21	22	24
Dairy farms, hills	30	31	31	8	8	8	18	18	18
Dairy farms, mountains	33	33	33	5	5	5	9	9	10
Other grazing livestock, mountains	47	48	48	10	10	10	21	22	22
					Denmark				
Arable farms	40	41	43	7	8	8	38	43	50
Dairy farms, < 100 cows	22	22	22	3	3	3	16	16	15
Dairy farms, > 100 cows	22	22	23	3	3	3	16	16	16
					Germany				
Arable farms, North	39	41	44	10	10	11	31	36	44
Arable farms, South	29	31	34	9	10	10	45	62	123
Dairy Farms, South	29	29	30	7	7	7	25	26	26
					The UK				
Dairy and grazing livestock farms	34	35	38	5	6	6	16	18	19

bl: Baseline (=CAP reform), Sc 1: Scenario 1, Sc 2: Scenario 2

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

In the **new member states,** the different market scenarios have a greater impact on the significance of support payments for typical organic farms. Table 5-30 shows the range that the share of all payments and organic farming payments may have in gross output and FFI + W, according to possible economic and organic market developments. All types of payment rates (per hectare, per farm, per animal) are constant in the two defined market scenarios and for the baseline scenario (adoption of the CAP). At farm level, the total amount of payments would only change according to changes in farm size or in the production structure under different scenarios. However, to a great extent, the importance of payments in the overall economic success of the farm depends on other returns, particularly the market returns achieved by the farm, and these will vary according to each scenario.

Table 5-30: Share of payments as a percentage of gross output and FFI + W for the baseline (adoption of the CAP) and for the different market scenarios (2013)

	Total payments in gross output			Organic farming payments in gross output			Organic farming payments in FFI + W		
	bl	Sc 1	Sc 2	bl	Sc 1	Sc 2	bl	Sc 1	Sc 2
				Czech Republic					
Arable (large, 200 ha)	53	43	55	19	15	18	43	29	49
Dairy (small, 58 t milk)	49	42	48	14	10	14	37	29	37
Cow-calf (small, 100 ha)	60	56	60	4	3	4	7	6	7
Cow-calf (medium, 140 ha)	76	48	63	6	4	5	8	6	6
Cow-calf (large, 551 ha, 145 cows)	88	84	88	6	6	6	10	9	10
Cow-calf (large, 500 ha, 160 cows)	62	59	62	0	7	0	0	11	0
				Estonia					
Arable (large, 89 ha)	36	31	42	16	14	19	34	24	47
Dairy (large, 194 t milk)	33	29	35	13	12	14	63	40	68
				Hungary					
Arable (small, 9 ha)	23	12	54	8	5	15	17	11	58
Arable (medium, 374 ha)	33	24	41	11	8	14	21	13	30
Arable (large, 1 245 ha)	50	34	42	21	10	12	59	19	27
Dairy (medium, 335 t milk)	25	20	27	4	3	4	6	4	6
Dairy (large, 3 360 t milk)	28	24	28	6	5	6	11	9	11
				Poland					
Arable (small, 17 ha)	18	14	22	8	6	10	12	9	17
Arable (large, 100 ha)	33	28	42	14	12	19	27	21	37
Dairy (small, 34 t milk)	37	19	30	12	8	12	29	14	30
Dairy (medium, 88 t milk)	21	12	21	9	5	9	22	8	22
Dairy (medium, 100 t milk)	22	24	23	7	8	7	14	17	14
				Slovenia					
Arable (small, 13 ha)	32	25	30	20	16	18	37	25	53
Dairy (small, 28 t milk)	43	37	44	19	16	19	67	42	62
Cow-calf (small, 9 ha, 9 cows)	37	31	49	14	12	20	201	73	132

bl: Baseline (EU-accession), Sc 1: Scenario 1, Sc 2: Scenario 2

Source: Own calculations based on typical farm modelling.

Obviously, the share of payments in gross output is higher when gross output is lower, which is mainly the case under Scenario 2 compared with Scenario 1. The difference in the share of payments in gross output between the two market scenarios mostly reflects the impacts of each scenario on farm returns. If the prices that farmers obtain vary greatly between different scenarios, so does the share of payments in gross output.

Typical organic farms in the Czech Republic show the highest share of total payments in gross output. Total payments, therefore, are the most important source of return for typical Czech farmers, almost irrespective of possible future market developments. The share of total payments in gross output is lowest in Poland. However, it still amounts to approximately 20-30%, with large variations between farm types.

Whereas the share of organic farming payments in gross output is relatively low for Czech farms, particularly for typical cow-calf farms, organic farming payments play a major role for typical organic farms in Estonia and Slovenia. In most study countries, the share of organic farming payments in gross output is higher for arable farms compared with other farm types.

A examination of the share of organic farming payments in FFI + W shows that, although the share of organic farming payments in gross output in many cases seems to be low, the majority of typical organic farms in the new member countries studied is highly vulnerable to changes in organic farming policy, independent of the future development of organic markets. This holds true especially for typical arable farms in the Czech Republic and in Hungary, for all typical farms in Estonia and in Slovenia, and for most farms in Poland.

6 Concluding remarks

This study provides an insight into the challenges faced by organic farms in Europe as the result of changing policy and market conditions during the next decade. The related public debate and expectations of farmers are often dominated by emotive considerations and this research shows that some fears are exaggerated or unsubstantiated. Investigation of the facts and the development of insights based on scientific analyses are therefore essential for an appropriate formulation of farm strategies and policies.

With respect to farm income, analysis of the changing policy environment indicates that

- In the EU-15 countries, income effects will depend strongly on individual national implementation of the 2003 CAP reform and will often differ by farm type. In general, the impact will be more beneficial to organic farms in countries that have opted for full, rather than partial, decoupling, and in countries which have implemented the Single Farm Payment on the basis of regional payment rates rather than on the basis of historical, individual farm references.
- In all of the selected new member states, in many cases to a large degree, farm income increases. Before EU accession, the income of the typical farms analysed was generally lower than the average organic farm income in Western Europe. By 2013, some of the farms, particularly typical organic farms in the Czech Republic and typical Hungarian dairy farms, will have caught up with respect to financial performance. However, a large share of gross output is generated by support payments. Thus, the economic success of typical organic farms in selected new member states depends strongly on policy and is put at risk by policy changes. This holds true particularly for typical organic farms in the Czech Republic.

The differences between countries in the development of farm income are likely to affect the international competitiveness of organic farms. Organic market shares might therefore be distributed quite differently in the future in comparison with today, but the extent to which this is the case will depend strongly on any changes in competitiveness relative to that of conventional farming systems in different countries.

- In the EU-15, decoupling will increase the incentive to convert to organic farming. However, it is far from obvious whether this increase will be higher under the regional or the historical implementation scheme. A comprehensive analysis is required, taking into account the development of the relative profitability of options other than conversion, land prices and the value of payment entitlements.
- In the new member states, increasing organic payments have created additional incentives for farms to convert. As first pillar payments

were introduced at the same time however, the relative importance of organic farming payments has declined.

Depending on general economic developments, the enlarged European market for organic products and increased supply especially from farms in the new member states, could lead to reduced prices (particularly for products which can be stored and transported easily). The responses from the farm survey provide ample evidence of the resulting need for adjustments to the organisation of organic farms in the EU-15 countries. However, many farms could also benefit from lower prices for feed cereals and labour, providing an incentive for the increased production of pork and poultry meat, as well as for labour-intensive production activities, including direct marketing. Enlargement should thus, in any case, benefit consumers through an increased supply and variety of goods from their own countries, as well as from other EU member states. Consumers in the new member states are poised to benefit additionally, as organic production systems and product quality improve further through raised farm liquidity and enhanced processing facilities.

Support payments will continue to play an important role in the profitability of organic farms in Western Europe after implementation of the 2003 CAP reform. For organic farmers in Eastern European countries, the importance of support payments increases strongly, as first pillar payments are introduced and environmental payments are expanded significantly. The results, however, also put the level of specific support for organic farming into perspective, as other support payments and market returns contribute larger shares to total farm revenue in all the countries analysed. In this respect, a further important outcome of the study is confirmation that high organic payment levels do not, automatically, imply a strong preference for this farming system, since there are often attractive, competitive, non-organic schemes within agri-environmental programmes which reduce the incentive for conversion.

Nevertheless, there remain marked differences in the absolute levels of support – referring not only to organic farming payments – for organic farms in different countries and these may significantly influence the competitiveness of organic farms on international markets. As (organic farming) payments cover a part of production costs, ceteris paribus, farmers receiving relatively high payments can offer their products at lower prices. In addition, the payments may foster investments in production technology thus improving productivity and, possibly, also quality. Organic farms benefiting from more generous support will therefore be able to gain market shares at the international level.

However, it must be stressed that organic farming payments are granted to organic farmers because they offer environmental services to the community. These services are positive, external effects (e.g., protection of water quality, biodiversity; see Stolze et al. 2000). Different payment rates between countries may reflect different social priorities and, therefore, could be regarded as the consequence of variations in the value placed on environmental goods in different countries. Consequently, an argument exists for treating varying payments to organic farmers as the result of different socio-economic conditions and for accepting them in the same way as, for example, different wage levels.

Future support for organic farms is likely to be different from today, although the direction of change is far from certain. On the one hand, continuing CAP reform, intended to strengthen sustainability and the second pillar of the CAP, will offer a wider range of opportunities to support organic farming. On the other hand, whether these opportunities will be matched by corresponding funds or not, is an open question; despite modulation, cash-strapped public finances may prevent more widespread support of organic farming via the second pillar. With respect to possible changes to the measures currently in place, organic farmers themselves have clear, though diverse, ideas about what the future of organic farming payments should look like (Table 6-1).

Assuming they have the power to decide, when asked for their suggestions only two out of 547 farmers said that no changes where necessary. The majority of farmers would like to see an increase in organic payment levels, although there is a clear differentiation between Western and Eastern farmers. On the other hand, some farmers suggested that payments be reduced, with 12% of those in Austria and Denmark opting for the complete abolition of support, indicating a preference for stronger market orientation in the organic farm sector. While some farmers pleaded for unification of payments, especially between conversion and maintenance levels, or within a particular country (DE and DK), many farmers made suggestions for a stronger differentiation of payment levels. Proposed criteria include land use, soil quality or other measures of natural disadvantage, region and farm size. The acceptance of such specific criteria differs, however, between countries. Rather than increasing area payments, many farmers also stressed the need for strengthening other forms of support, e.g., support for marketing, processing and inspection. A large number of farmers would like to see bureaucratic barriers for receiving support payments reduced and the long-term orientation of support policies increased. Although these wishes were not detailed, they point to considerable challenges and scope for improvement for both administrators and policy makers.

Table 6-1: Farmers' suggestions for changes to the payments for organic farming

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	49	50	50	49	49	50	50	50	50	50	297	250	547
		Percentage of farmers													
Reduce area payments															
… no payments at all	%	12	6	12	0	2	0	0	0	2	6	0	5	2	4
… only support conversion	%	2	2	6	2	6	0	0	0	0	0	0	3	0	2
… lower payments	%	0	4	0	0	0	0	0	0	0	0	0	1	0	0
Increase area payments															
… higher payments	%	28	16	36	74	51	20	84	24	92	74	64	38	68	51
… higher distance to other agri-env. measures	%	0	2	0	0	0	2	0	0	0	0	2	1	0	1
Unify payment levels															
… same level in all countries	%	0	2	0	0	2	0	0	4	0	0	0	1	1	1
… same level nation-wide	%	0	18	30	6	4	8	6	8	6	8	4	11	6	9
… no differentiation between conversion and maintenance	%	2	27	10	44	27	2	22	32	16	10	6	19	17	18
… no differentiation by to land use	%	0	10	0	0	12	8	2	10	2	6	4	5	5	5
… no maximum level per farm	%	0	2	8	10	0	8	12	16	8	2	10	5	10	7
Stronger differentiate payment levels															
… by conversion and maintenance	%	2	6	20	4	31	6	36	2	12	10	8	11	14	12
… by land use	%	36	2	10	14	12	37	32	50	24	18	22	19	29	23
… by herd size (stocking rate)	%	6	10	14	6	2	10	6	4	4	4	4	8	4	6
… by number of workers	%	4	12	0	12	6	14	2	0	2	2	4	8	2	5
… by soil quality / degree of production difficulties	%	16	8	6	2	6	14	26	10	24	38	26	9	25	16
… by regions	%	4	8	0	6	4	16	24	10	4	16	16	6	14	10
… by farm size	%	16	12	8	4	24	22	12	6	4	8	2	14	6	11
… by performance / achievements	%	0	0	0	0	0	6	0	0	0	0	0	1	0	1
… add. support for nature conservation	%	0	4	0	0	0	0	0	0	0	0	2	1	0	1
… maximum level per farm	%	58	8	12	34	10	24	8	8	12	0	4	25	6	16
Increase efficiency and sustainabilty of support															
… reduce bureaucratic barriers	%	48	29	40	20	16	31	32	24	50	40	50	31	39	35
… increase long-term orientation for better planning	%	30	22	46	8	41	33	20	38	60	30	46	30	39	34

(continued on next page)

Table 6-1: Farmers' suggestions for changes to the payments for organic farming (continued)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	49	50	50	49	49	50	50	50	50	50	297	250	547
		Percentage of farmers													
Strengthen other forms of support															
··· marketing, processing, consumer information	%	46	31	36	26	27	51	24	40	26	30	38	36	32	34
... investments	%	0	2	0	0	0	0	0	2	0	0	0	0	0	0
··· additional animal welfare measures	%	20	20	18	4	2	22	12	20	4	6	8	14	10	12
··· control/inspection costs	%	8	8	4	10	24	12	12	0	16	10	42	11	16	13
··· education/training, advisory service	%	0	0	2	0	0	0	0	6	0	0	0	0	1	1
No change	%	0	4	0	0	0	0	0	0	0	0	0	1	0	0
Other	%	4	12	6	6	20	10	0	10	0	0	10	10	4	7

1) Question asked: If you could help to decide on the future form of organic farming payments, which suggestions would you make for policy ? (max. four answers)

Source: Own calculations based on farm survey winter/spring 2004.

Policy and market changes over the next ten years will be considerable and will develop dynamically, making the prescription of strategies for farmers and policy makers difficult, if not impossible. In addition, the survey indicates that farmers themselves, in many cases, have not yet fully assimilated even the most immediate changes resulting from policy reform and accession and that, therefore, adjustments will lag behind, and will be decided upon during the coming years.

- For policy makers, it is therefore important to monitor the developments and profitability of organic farming continuously, in order to be able to adjust policy conditions (e.g. second pillar measures) according to unwanted effects.
- For research, this presents the challenge of improving the ex-ante forecast of policy and market impacts on organic farming, a task rendered even more difficult by the fact that little is known about the behavioural and cyclical performance of small, but complex, sectors like that of organic production.

This report has analysed different scenarios for the year 2013, always assuming that second pillar measures would continue to be offered in a manner which is largely unchanged from today. However, three years after a CAP reform that aimed at strengthening the second pillar, it emerges that budget constraints will severely constrain the possibilities of maintaining current support levels in many countries. In addition, in view of the changes to first pillar support under CAP reform, there is already intensive discussion as to whether the level of second pillar measures needs to be lowered in order to account for the changes in relative profitability, especially in countries which have implemented payments on a regional basis. The respective consequences for the profitability of organic farming in different countries could be substantial and should be monitored closely.

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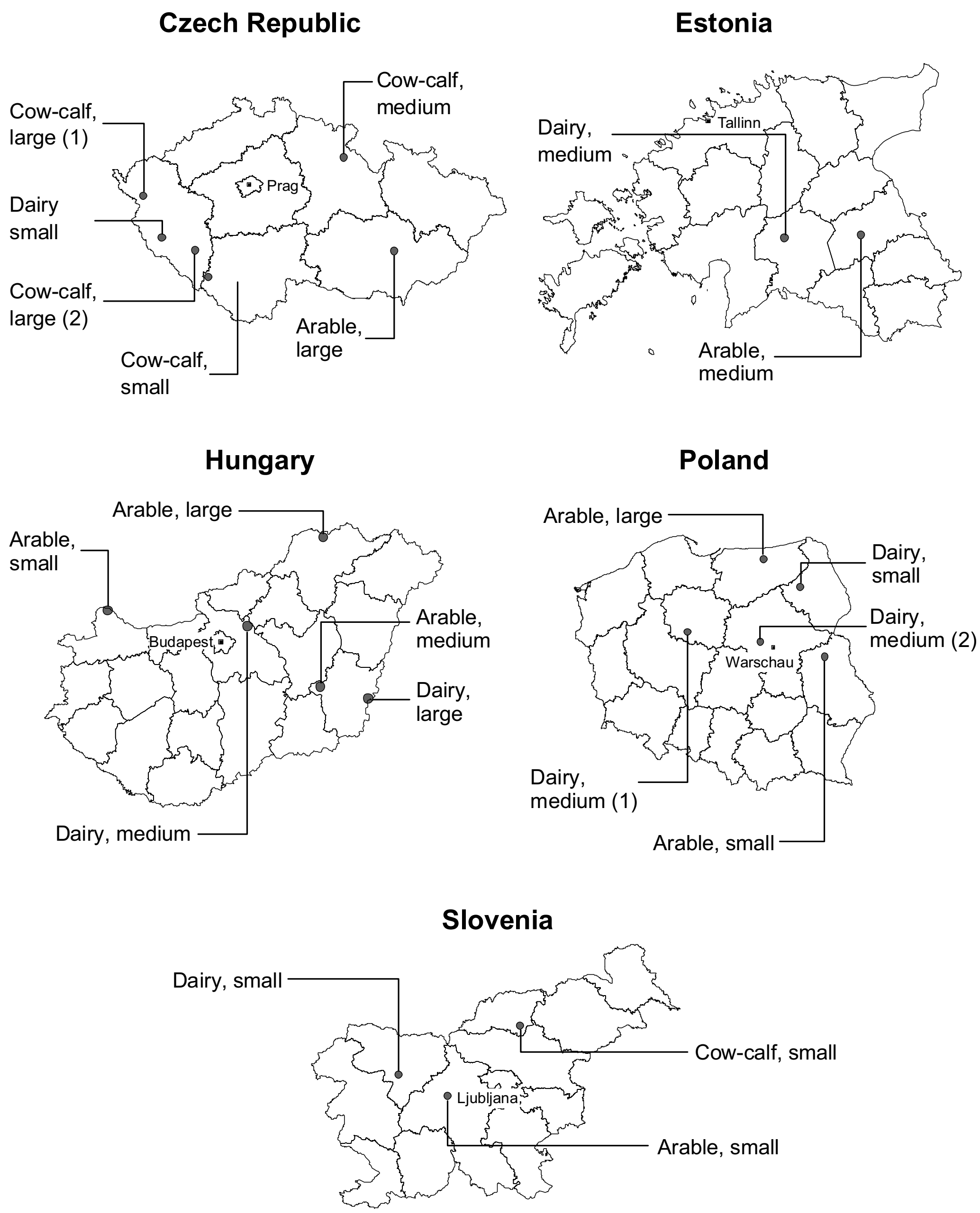
Annex

Figure A-1: Typical farms in Eastern European countries



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Austria

The choice of farms took place in cooperation with 'Bio-Ernte', the organic farmers' organisation. There are 12 000 farmers in this association, accounting for about 65% of all organic farms in Austria.

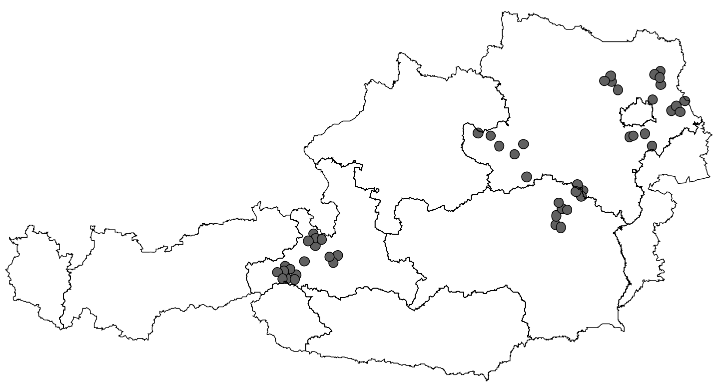
Austria was divided into the following three regions: Northeast Austria (Upper Austria, Lower Austria, Vienna and Burgenland), Southeast Austria (Kärnten, Steiermark and East Tyrol) and West Austria (Vorarlberg, Tyrol without East Tyrol and Salzburg). The number of farmers to be interviewed in each region was determined on the basis of the guidelines specified (chapter 2.3.2).

Due to shortage of time and financial means, it was decided not to carry out the survey in all of Austria as previously planned, but rather to set regional emphases. These were chosen so that all relevant farm types and sizes were included in the survey. The choice of farms was carried out by three regional offices of Bio-Ernte. Farms with the desired farm focus were chosen on the basis of the likelihood that they would indeed participate.

Ultimately, the survey was carried out with the following regional and associated farm focus:

1. Northeast Austria: 18 farms in the vicinity of greater Vienna (arable crop farms)
2. Southeast Austria: 15 farms in the Mürzzuschlag and the Bruck an der Mur area as well as the southern Most Quarter (mixed farms and beef production)
3. West Austria: 17 farms in the Mittersill and Zell am See area, and Saalfelden (dairy and beef production)

Location of the farms surveyed in Austria



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Germany

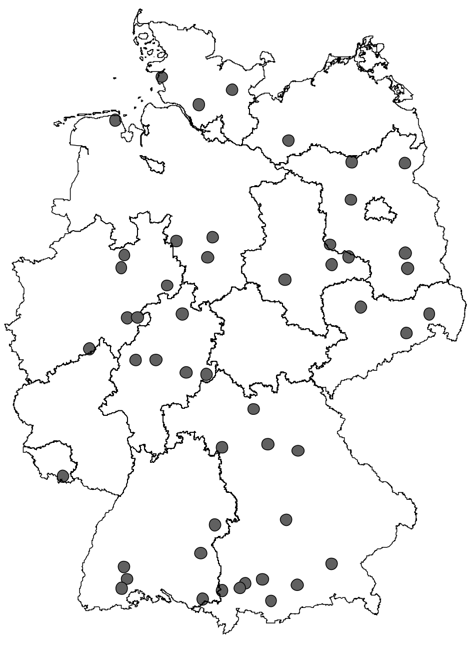
The Institute of Farm Economics has a database (including structural data) of 218 organic farms throughout all of Germany. This information was gathered – according to the agreed guidelines – in 2002, as part of another project (see Rahmann et al. 2004).

For the creation of this sample of 218 farms, data from 17 organic certification bodies and one Länder ministry responsible for agriculture were available, covering more than 90% of German organic farms. The farms to be surveyed were selected at random from this database. Firstly, in order to take the regional specifications into account, farms from the sample were divided into five regions, according to location. This sample is therefore a regionally-stratified random sample.

From this 218-farm sample, the 50 farms necessary for this project were chosen at random according to the guideline requirements.

1. Northern Germany: Schleswig-Holstein, Hamburg, Bremen, Niedersachsen: 7 farms
2. Western Germany: Nordrhein-Westfalen, Hessen, Rheinland-Pfalz, Saarland: 12 farms
3. Southern Germany: Baden-Württemberg, Bayern: 19 farms
4. Eastern Germany – North: Mecklenburg-Vorpommern, Brandenburg, Berlin: 7 farms
5. Eastern Germany – South: Sachsen, Sachsen-Anhalt, Thüringen: 5 farms

Location of the farms surveyed in Germany

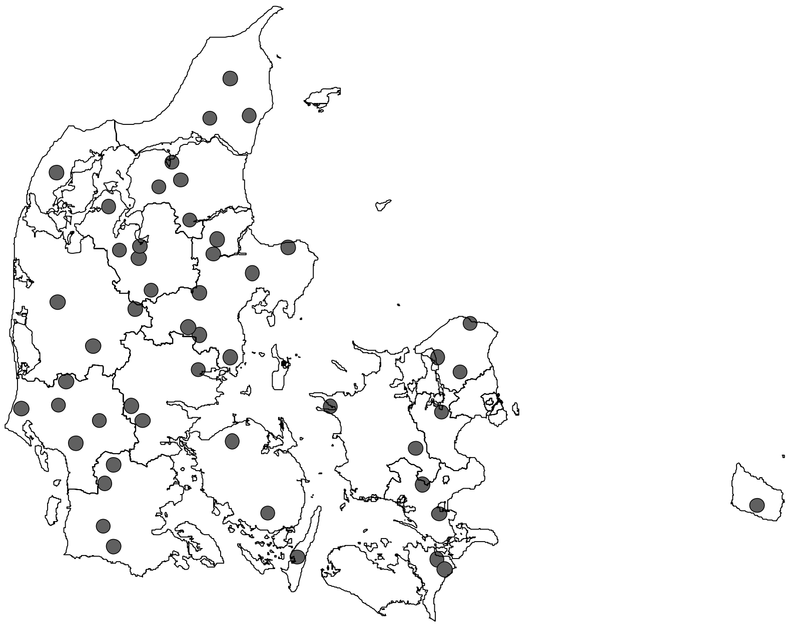


Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Denmark

In Denmark, an address list of all Danish organic farms is available. Distribution by region was not considered necessary and a random sample was drawn from this address list. Farms on very small islands were replaced with other farms chosen at random.

Location of the farms surveyed in Denmark



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Italy

Due to shortages of time and finance, it was decided not to carry out the survey in all of Italy, but to set regional emphases.

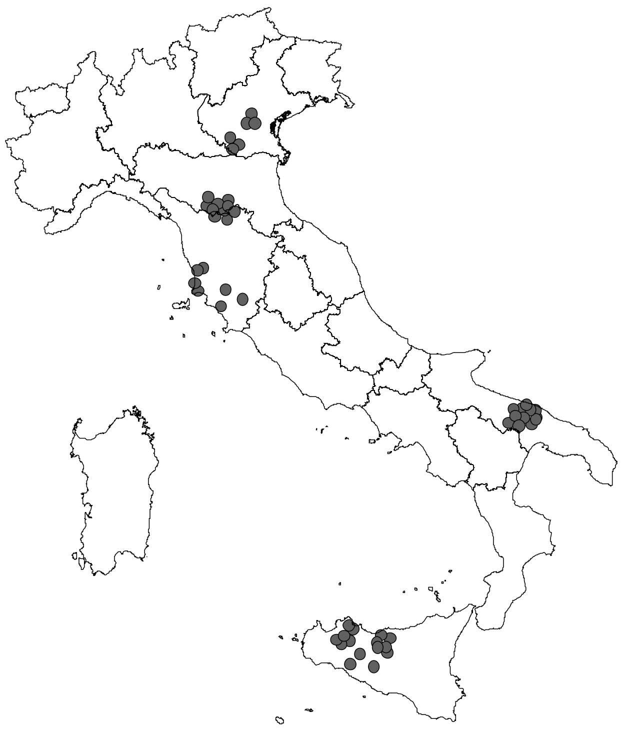
Farm selection was made in two steps according to the number of organic farms in each Italian region. In the first step, two regions were extracted in the north; one region in the centre; one in the south and one of the islands. The number of regions in each geographic area was chosen in order to represent diverse agricultural conditions and not on the basis of numerical representation. The regions in each area were extracted using a Probability Proportional to Sample (PPS) sampling method: the probability of extracting a region in each area was proportional to the ratio of organic farmers to total farmers. The regions extracted are representative of different conditions for organic farming in Italy and are: Emilia and Veneto in the north, Tuscany in the centre, Puglia in southern Italy and the island of Sicily.

In the second step, the number of farmers to be interviewed in each region was then calculated by applying the project methodology as described previously (chapter 2.3.2).

1. Veneto: 6 farms
2. Emilia: 10 farms
3. Tuscany: 7 farms
4. Puglia: 12 farms
5. Sicily: 15 farms

For these regions, a complete data set of organic farms was available. Within the regions, a cluster analysis was used to carry out further regional concentrations. The selection and contacting of farms took place in collaboration with and through private control bodies and certification organisations. The final choice of farms to be included in the survey was left to the interviewers, who were inspectors from the organic control bodies.

Location of the farms surveyed in Italy



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in the UK

In the UK, the focus was on holdings in England and Wales as extending coverage to Scotland and Northern Ireland entailed logistical problems as well as problems relating to the devolved policy and data collection regimes in those countries. In England and Wales, four regions were identified to segregate differences in structural and location characteristics. These were Northern England, Central and Eastern England, South Western England and Wales. These regions were based on the statistical regions used for differentiating FADN data collection.

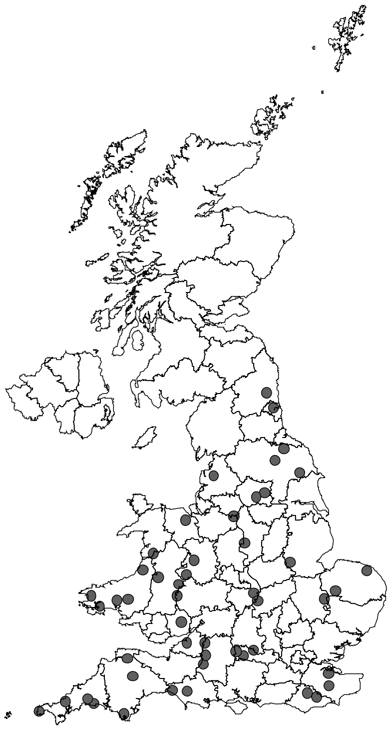
The method of proportional division by square root was used to determine the number of farms to be interviewed per region, as outlined in the farm selection guidelines for the survey:

1. Northern England: 9 farms
2. Eastern England: 16 farms
3. South Western England: 14 farms
4. Wales: 11 farms

The farms were selected utilising two strategies; these were via the Farm Business Survey unit at Aberystwyth and via independent random sampling by the survey co-ordinator for UK:

- *Farm Business Survey organic holdings*: The Institute of Rural Sciences at Aberystwyth is currently contracted by DEFRA to collect organic farm income data for eight main farm types throughout England and Wales. Random sampling techniques were employed during the recruitment phase for this project. Consequently, it was decided to ask farmers participating in the economics research work to participate in the organic farming policy survey. Of the participants in the economics research work, 32 agreed to participate in the policy survey, an approximate response rate of 40%.
- *Separate interviews:* An additional 18 farmers were recruited utilising the prescribed methodology set out in the guidelines for selecting farms for farm survey. This involved the sending of an introductory letter from one interviewer/co-ordinator, followed by a telephone conversation to ask for farmer participation. In total, 42 letters were sent out to farms in order to recruit the additional 18 participants for the survey, giving a response rate of 42%. The address lists for identifying farmers on a regional basis were supplied by two organic certification bodies: the Soil Association and Organic Farmers and Growers.

Location of the farms surveyed in the UK



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Switzerland

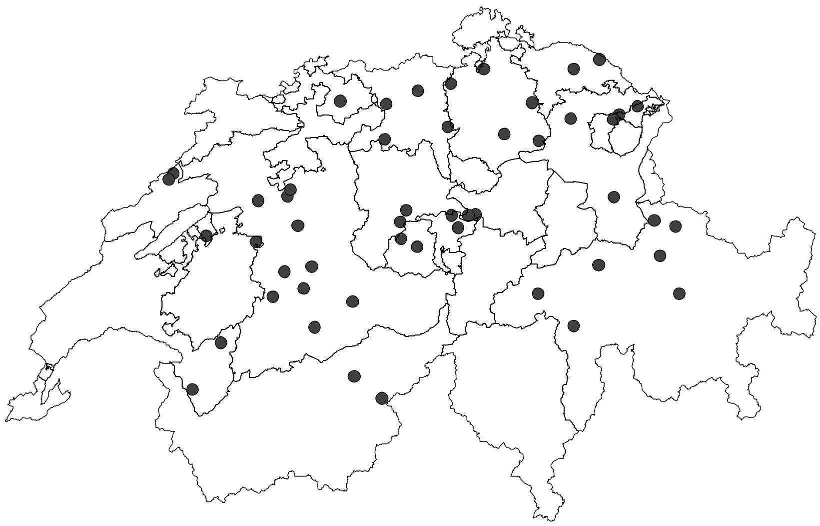
An address file including about 97% of all organic farms in Switzerland was available from the organic inspection service, 'Bio-Inspecta'. The country was divided into four main regions, with further division of the regions Mittelland, West Switzerland and East Switzerland into mountain and valley sub-regions.

The calculation of the number of farms in each region took place according to the farm selection guidelines for the survey:

1. Mittelland, Western Switzerland, Tessin: 18 farms
2. Northwest Switzerland: 5 farms
3. Eastern Switzerland: 14 farms
4. Central Switzerland and Zurich: 13 farms

The farms to be interviewed were selected randomly.

Location of the farms surveyed in Switzerland

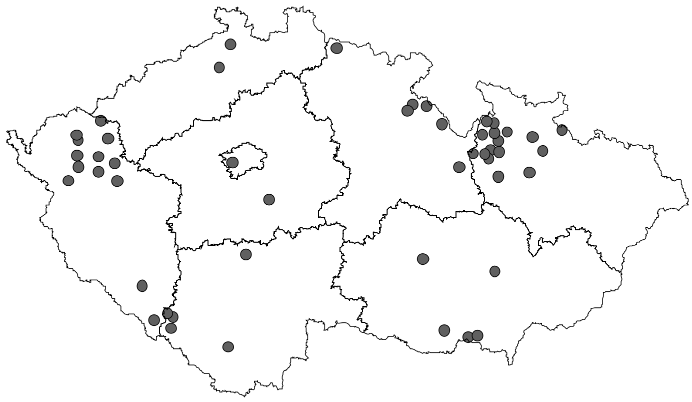


Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in the Czech Republic

The selection of organic farms was made on the basis of a database from the inspection and certification body 'KEZ, o.p.s'[1], containing all organic farms in the Czech Republic. The farms included in the database were then divided on the basis of two regional characteristics: highland and lowland. The distribution of Czech regions (NUTS2) between lowland and highland was made on the basis of expert estimates and geographical characteristics. In a meeting with the PRO-BIO farm association, the relative proportions of low and highland farms in the sample were discussed. According to their expert recommendation, a ratio of 10 (lowland) to 40 (highland) farms was chosen. The final choice of farms to be included in the survey was left to the regional representatives of PRO-BIO.

Location of the farms surveyed in the Czech Republic



Source: Own compilation.

1 o.p.s. = public benefit company

Type of farm selection and the spatial distribution of the farms surveyed in Estonia

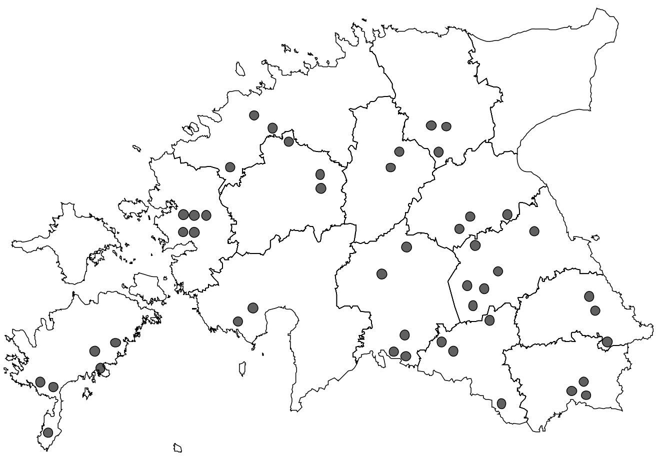
In Estonia, data on organic farms were made available by the Organic Agriculture Department of the Estonian Plant Production Inspectorate (PPI), which is the inspection and certification body for organic farming in Estonia.

For the survey, the territory of Estonia was divided into four regions. The determination of the number of farms to be interviewed per region was undertaken according to the farm selection guidelines for the survey (with some minor adjustments):

1. North and North Eastern Estonia (counties: Harju, Lääne-Viru, Ida-Viru): 6 farms
2. Central Estonia (Rapla, Järva, Jõgeva, Viljandi): 13 farms
3. West Estonia and islands (Pärnu, Lääne, Saare, Hiiu): 13 farms
4. South Estonia (Tartu, Valga, Põlva, Võru): 18 farms

For the farm selection, a two-way sampling process was chosen. In the first step, the farms to be interviewed in every region were selected randomly. In a second step, some of the selected farms were replaced by further farms also chosen at random, in order that the different farm types were represented in the sample.

Location of the farms surveyed in Estonia



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Hungary

For Hungary, only an address list of organic farms that received organic area payments in 2001 and 2002 was available.

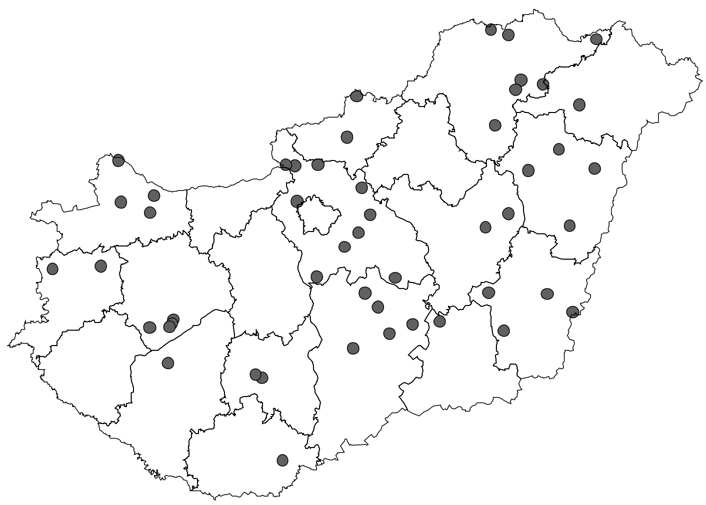
On the basis of a survey of organic farms carried out in the summer of 2001 and expert assessment, the following regional divisions for the surveyed farms were established:

1. Dél-Alföld Region (Bács-Kiskun, Békés, Csongrád): 10 farms (20%)
2. Dél-Dunántúl Region (Baranya, Somogy, Tolna): 4 farms (8%)
3. Észak-Alföld Region (Hajdú, Jász-Nagykun, Szabolcs): 7 farms (14%)
4. Észak-Magyarország Region (Borsod, Heves, Nógrád): 9 farms (18%)
5. Közép-Dunántúl Region (Fejér, Komárom, Veszprém): 5 farms (10%)
6. Közép-Magyarország Region (Pest, Budapest): 10 farms (20%)
7. Nyugat-Dunántúl Region (Győr, Vas, Zala): 5 farms (10%)

In order to best consider the production structure of Hungarian farms, main farm activities were taken into account: 20-25 farms producing mainly cereals and oilseeds, 10-15 farms producing vegetables, fruits and grapes, 5-10 livestock rearing farms and 5-10 miscellaneous farms.

For the farm selection, a two-way sampling process was chosen. Regional representation was the primary selection factor and production was the second. Firstly, the farms to be interviewed in each region were selected at random. In a second step, some of the selected farms were replaced by further (randomly chosen) farms in order that the different farm types were represented in the sample.

Location of the farms surveyed in Hungary



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Poland

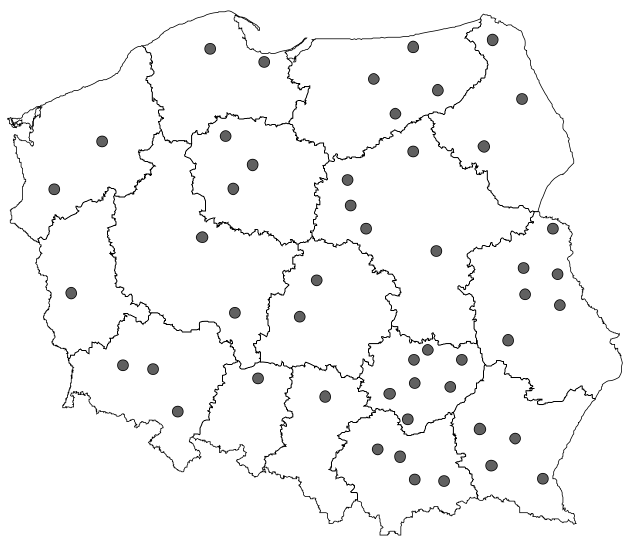
An address list of all organic farms from the inspection bodies in Poland was available.

Poland was divided into three main regions. Calculation of the number of farms in each region took place as described in the farm selection guidelines for the survey.

1. Region 1 (West Poland): 11 farms
2. Region 2 (North-East Poland): 13 farms
3. Region 3 (South-East Poland): 26 farms

Farm selection was undertaken by the regional inspection bodies according to the guidelines for the survey. Farmers who were not willing to participate in the survey were replaced by other organic farms nearby.

Location of the farms surveyed in Poland



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Slovenia

Data in Slovenia were made available from the Union of Slovenian Organic Farmers' Association (USOFA). This database includes more than 50% of all certified farms in Slovenia.

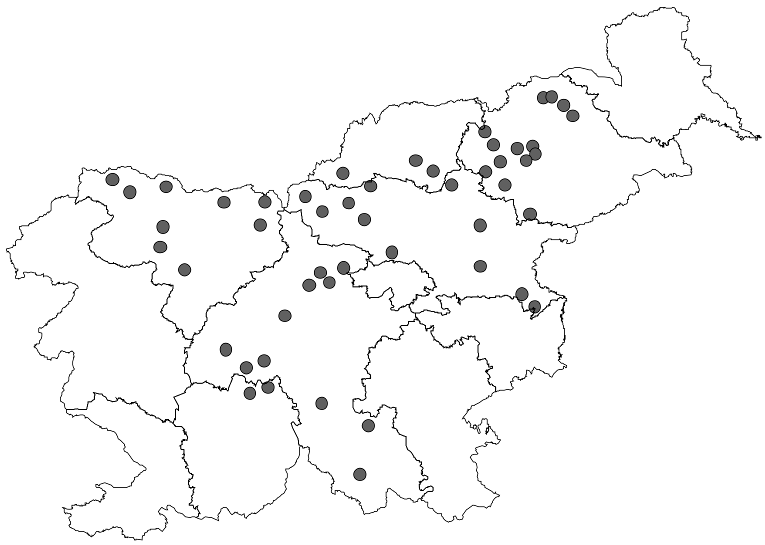
Out of the 12 statistical regions (specific Slovenian state divisions for national statistical purposes), five survey regions were formed by combining a number of statistical regions into one survey region, and by excluding two statistical regions (the coastal area of South West Slovenia, and Pomurje in North East Slovenia, as few organic farms are located in these two regions). The final interview area thus covered approximately 85% of the country. During the procedure, structural and locational factors were taken into account: climate, geographical characteristics and, therefore, the prevailing type of agricultural production.

The number of farms to be interviewed per region was determined according to the farm selection guidelines for the survey:

1. Ljubljana - SV okolica: 8 farms
2. Notranjsko-kočevska: 5 farms
3. Podravje, Pohorje, Koroška: 17 farms
4. Celjsko-savinjska: 11 farms
5. Gorenjska: 9 farms

A random sample of farms was drawn from each region, consistent with the calculated number of farms required.

Location of the farms surveyed in Slovenia



Source: Own compilation.

Table A-1: Distribution of the surveyed farms according to farm size categories

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	49	50	50	50	50	50	50	299	250	549
		Percentage of farms													
ha UAA															
> 0 - 5	%	4	0	2	4	0	6	0	2	8	10	14	3	7	5
> 5 - 10	%	18	0	10	8	2	16	0	4	4	32	28	9	14	11
> 10 - 30	%	42	18	20	46	14	62	18	18	26	34	42	34	28	31
> 30 - 50	%	18	16	18	22	6	14	8	16	10	16	4	16	11	13
> 50 - 100	%	16	28	20	12	39	2	12	28	14	4	12	19	14	17
> 100 - 200	%	2	20	20	6	31	0	16	16	10	2	0	13	9	11
> 200 - 500	%	0	10	10	0	4	0	18	12	8	2	0	4	8	6
> 500 - 1000	%	0	2	0	2	4	0	14	4	6	0	0	1	5	3
> 1000	%	0	6	0	0	0	0	14	0	14	0	0	1	6	3

Source: Own calculations based on farm survey winter/spring 2004.

Table A-2: Farm types of surveyed farms[1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Mixed farm	**%**	**2**	**18**	**4**	**28**	**20**	**2**	**4**	**30**	**18**	**42**	**10**	**12**	**21**	**16**
Arable farm - all	**%**	**28**	**22**	**40**	**12**	**14**	**8**	**14**	**14**	**50**	**20**	**10**	**21**	**22**	**21**
... mainly cereal, oilseed, pulses	**%**	*4*	*4*	*32*	*12*	*2*	*0*	*8*	*6*	*26*	*10*	*2*	*9*	*10*	*10*
... mainly potatoes, sugar beet, vegetables	**%**	*6*	*6*	*2*	*0*	*4*	*2*	*2*	*0*	*12*	*6*	*4*	*3*	*5*	*4*
... mixed	**%**	*18*	*12*	*6*	*0*	*8*	*6*	*4*	*8*	*12*	*4*	*4*	*8*	*6*	*7*
Grazing livestock farm - all	**%**	**56**	**56**	**52**	**24**	**52**	**80**	**80**	**46**	**12**	**24**	**72**	**53**	**47**	**50**
... mainly dairy	**%**	*26*	*22*	*34*	*8*	*14*	*54*	*4*	*28*	*4*	*16*	*4*	*26*	*11*	*19*
... mainly suckler cows	**%**	*12*	*28*	*4*	*0*	*8*	*10*	*48*	*6*	*0*	*0*	*40*	*10*	*19*	*14*
... mainly cattle for fattening	**%**	*4*	*0*	*10*	*14*	*6*	*6*	*4*	*0*	*0*	*0*	*8*	*7*	*2*	*5*
... mainly sheep and goats	**%**	*2*	*6*	*2*	*2*	*2*	*6*	*2*	*10*	*4*	*6*	*16*	*3*	*8*	*5*
... mixed	**%**	*12*	*0*	*2*	*0*	*22*	*4*	*22*	*2*	*4*	*2*	*4*	*7*	*7*	*7*
Intensive livestock farm - all	**%**	**8**	**2**	**4**	**0**	**10**	**2**	**0**	**4**	**2**	**0**	**0**	**4**	**1**	**3**
... mainly pig production	**%**	*2*	*0*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*
... mainly poultry production	**%**	*0*	*2*	*4*	*0*	*6*	*2*	*0*	*0*	*0*	*0*	*0*	*2*	*0*	*1*
... mixed	**%**	*6*	*0*	*0*	*0*	*2*	*0*	*0*	*4*	*2*	*0*	*0*	*1*	*1*	*1*
Permanent crops farm - all	**%**	**6**	**0**	**0**	**34**	**2**	**6**	**2**	**0**	**14**	**6**	**4**	**8**	**5**	**7**
... mainly vineyards	**%**	*4*	*0*	*0*	*6*	*0*	*4*	*2*	*0*	*6*	*0*	*0*	*2*	*2*	*2*
... mainly fruits and citrus	**%**	*0*	*0*	*0*	*4*	*2*	*0*	*0*	*0*	*8*	*2*	*2*	*1*	*2*	*2*
... others	**%**	*2*	*0*	*0*	*24*	*0*	*2*	*0*	*0*	*0*	*4*	*2*	*5*	*1*	*3*
Horticultural farm	**%**	**0**	**2**	**0**	**2**	**2**	**2**	**0**	**6**	**4**	**8**	**4**	**1**	**4**	**3**

1) Question asked: What is the main focus of your farm? (The focus is defined by the main source of income, if there is no main source of income, the farm is classified as mixed farm.)

Source: Own calculations based on farm survey winter/spring 2004.

Table A-3: Labour force and structure of the surveyed farms (AWU/farm, average of all farms)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		AWU / farm													
AWU family workers	Mean	1.8	1.3	0.7	2.0	1.7	1.7	1.2	1.7	1.9	2.4	2.1	1.5	1.8	1.7
AWU permanent employees	Mean	0.0	1.4	0.3	0.7	0.5	0.1	6.3	1.6	16.0	0.4	0.0	0.5	4.9	2.5
AWU trainees and apprentices	Mean	0.1	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1
AWU total	**Mean**	**1.9**	**3.0**	**1.2**	**2.8**	**2.2**	**1.8**	**7.5**	**3.3**	**18.0**	**2.9**	**2.1**	**2.1**	**6.8**	**4.2**
AWU seasonal workers	Mean	0.9	0.5	0.0	0.8	0.1	0.0	0.2	0.1	1.7	1.1	0.1	0.4	0.6	0.5
AWU total incl. seasonal labour	**Mean**	**2.8**	**3.5**	**1.2**	**3.6**	**2.4**	**1.9**	**7.7**	**3.4**	**19.7**	**4.0**	**2.1**	**2.5**	**7.4**	**4.7**

AWU= Annual Working Unit; 1 AWU = 2200 hours per year. One person working more than 2200 hours/year is counted as 1 AWU. Family members count as from the age of 15/16 years.

Source: Own calculations based on farm survey winter/spring 2004.

Table A-4: Percentage of surveyed farms with permanent employees, trainees/apprentices and seasonal/casual labour and the respective AWUs of these farms

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
Permanent employees															
% of farms		4	42	22	28	30	6	56	26	44	18	2	22	29	25
AWU		1	3.3	1.5	2.6	1.6	0.9	11	6.1	36	2.1	1	2.3	16.6	9.8
Trainees / apprentices															
% of farms		2	22	8	2	2	14	10	0	14	12	2	8	8	8
AWU		4	1.4	2	1	1	0.7	0.4	0	1	1	1	1.4	0.8	1.2
Seasonal workers															
% of farms		66	42	12	70	34	34	48	28	66	76	24	43	48	45
AWU		1.4	1.2	0.2	1.1	0.4	0.1	0.4	0.3	2.6	1.5	0.2	1	1.3	1.1

AWU= Annual Working Unit; 1 AWU = 2200 hours per year. One person working more than 2200 hours/year is counted as 1 AWU. Family members count as from the age of 15/16 years.

Source: Own calculations based on farm survey winter/spring 2004.

Table A-5: Legal status of the surveyed farms/enterprises

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Private / Family Farm	%	100	88	96	92	96	96	70	86	70	100	100	95	85	90
Joint stock company	%	0	6	2	0	2	4	4	6	2	0	0	2	2	2
Limited.	%	0	2	2	8	2	0	24	4	14	0	0	2	8	5
Co-operative	%	0	0	0	0	0	0	0	2	8	0	0	0	2	1
Other	%	0	4	0	0	0	0	2	2	6	0	0	1	2	1

Source: Own calculations based on farm survey winter/spring 2004.

Table A-6: Percentage of fully and partially converted surveyed farms[1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Fully converted	%	100	100	94	84	86	100	94	70	62	100	100	94	85	90
Partially converted	%	0	0	6	16	14	0	6	30	38	0	0	6	15	10

1) Question asked: Is the farm fully or partially converted?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-7: Surveyed farms with exclusively arable land, permanent pasture or permanent crops

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	49	50	50	50	50	50	50	299	250	549
		Percentage of farms													
Exclusively arable land	%	22	2	22	22	10	0	6	4	26	0	2	13	8	11
Exclusively permanent pasture	%	50	28	2	0	20	60	54	0	0	2	14	27	14	21
Exclusively permanent crops	%	2	0	0	24	0	0	0	0	8	0	0	4	2	3

Source: Own calculations based on farm survey winter/spring 2004.

Table A-8: ***Utilisation of arable land - average share of different crops in the respective farm samples*** [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms with arable land	**N**	24	35	49	37	37	20	21	50	42	49	38	202	200	402
		Average share (as % of arable land)													
Cereals (without maize)	**%**	43	49	41	34	30	34	69	32	35	55	32	42	40	41
Grain maize	**%**	7	2	0	0	0	6	0	0	9	0	6	1	5	4
Dried pulses	**%**	8	8	5	3	6	2	1	2	2	5	2	6	2	4
Potatoes	**%**	7	2	0	0	2	4	1	1	0	4	8	2	1	1
Industrial crops (Rape, sunflower, soya etc.)	**%**	2	2	1	7	1	1	9	1	21	1	11	2	14	9
Outdoor fresh vegetables, melons, strawberries	**%**	10	6	0	0	3	8	0	0	3	8	10	4	2	3
Forage plants	**%**	7	13	37	49	35	40	19	56	23	28	31	27	29	28
Fallow land / set aside (total)	**%**	13	17	12	5	22	3	0	7	1	0	0	14	2	8
… Fallow land used for fodder prod.	***%***	*3*	*9*	*9*	*3*	*20*	*0*	*0*	*0*	*0*	*0*	*0*	*9*	*0*	*4*

1) Question asked: How many hectares are devoted to the different crops grown organically on your farm (last harvest)?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-9: ***Utilisation of permanent crop land - percentage of surveyed farms growing the respective crops*** [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms with permanent crops	**N**	7	5	1	31	3	6	5	44	17	38	27	53	131	184
		Percentage of farms													
Fruit and berry plantations	**%**	29	80	100	29	100	67	80	100	65	97	48	43	83	72
… Berry plantations	***%***	*14*	*0*	*0*	*0*	*67*	*17*	*20*	*25*	*12*	*39*	*0*	*8*	*22*	*18*
Citrus plantations	**%**	0	0	0	3	0	0	0	0	0	0	0	2	0	1
Olive plantations	**%**	0	0	0	65	0	0	0	0	0	0	0	38	0	11
Vineyards	**%**	71	0	0	42	0	50	20	0	24	0	7	40	5	15

1) Question asked: How many hectares are devoted to the different crops grown organically on your farm (last harvest)?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-10: Utilisation of permanent crop land - average share of different crops in the respective farm samples 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms with permanent crops	**N**	7	5	1	31	3	6	5	44	17	38	27	53	131	184
		Average share (as % of permanent crop land)													
Fruit and berry plantations	**%**	11	98	100	6	100	26	59	100	50	97	23	13	64	37
... Berry plantations	**%**	*10*	*0*	*0*	*0*	*2*	*0*	*0*	*12*	*3*	*21*	*0*	*1*	*6*	*3*
Citrus plantations	**%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Olive plantations	**%**	0	0	0	54	0	0	0	0	0	0	0	46	0	25
Vineyards	**%**	89	0	0	20	0	74	4	0	23	0	7	23	12	17

1) Question asked: How many hectares are devoted to the different crops grown organically on your farm (last harvest)?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-11: Organic animal production - herd size and yearly production (number of heads) of the surveyed farms 1) 2)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
		Dairy cows													
No. of farms	N	*18*	*17*	*19*	*3*	*9*	*30*	*7*	*17*	*3*	*37*	*3*	*96*	*67*	*163*
Herd size	Mean	**15**	**37**	**83**	**97**	**117**	**18**	**60**	**38**	**194**	**9**	**4**	**45**	**30**	**39**
	Min	2	8	4	15	49	7	2	1	1	1	3	2	1	1
	Max	55	70	200	230	300	50	180	242	520	80	5	300	520	520
		Suckler cows													
No. of farms	N	*20*	*23*	*10*	*2*	*34*	*12*	*37*	*11*	*8*	*2*	*31*	*101*	*89*	*190*
Herd size	Mean	**7**	**72**	**6**		**28**	**19**	**92**	**13**	**407**		**7**	**30**	**79**	**53**
	Min	1	3	1		2	3	5	1	1		1	1	1	1
	Max	20	523	15		115	50	560	38	3000		23	523	3000	3000
		Bovine animals for meat production													
No. of farms	N	*8*	*24*	*16*	*9*	*35*	*18*	*32*	*21*	*6*	*15*	*15*	*110*	*89*	*199*
Yearly	Mean	**7**	**46**	**32**	**18**	**26**	**10**	**37**	**10**	**36**	**8**	**3**	**27**	**20**	**24**
production	Min	1	4	1	9	1	1	2	1	1	1	1	1	1	1
	Max	15	481	100	68	92	25	250	90	90	50	6	481	250	481
		Sheep: milking and breeding females													
No. of farms	N	*2*	*6*	*12*	*5*	*24*	*6*	*7*	*12*	*3*	*3*	*10*	*55*	*35*	*90*
Herd size	Mean		**251**	**24**	**174**	**254**	**17**	**128**	**78**	**587**	**113**	**65**	**162**	**131**	**150**
	Min		35	4	100	12	4	10	4	50	3	2	4	2	2
	Max		755	95	220	900	43	450	300	1500	210	160	900	1500	1500
		Sows													
No. of farms	N	*3*	*4*	*0*	*1*	*2*	*2*	*3*	*3*	*4*	*13*	*5*	*12*	*28*	*40*
Herd size	Mean	**25**	**23**					**5**	**7**	**23**	**3**	**1**	**18**	**6**	**10**
	Min	2	1					2	3	1	1	1	1	1	1
	Max	50	80					8	15	60	10	1	80	60	80
		Fattening pigs													
No. of farms	N	*6*	*13*	*1*	*0*	*3*	*10*	*2*	*7*	*5*	*19*	*12*	*33*	*45*	*78*
Yearly	Mean	**47**	**121**			**171**	**106**		**11**	**54**	**15**	**6**	**105**	**16**	**54**
production	Min	4	2			73	2		4	4	1	2	2	1	1
	Max	200	1050			355	700		20	100	80	12	1050	100	1050
		Laying hens													
No. of farms	N	*8*	*13*	*5*	*0*	*7*	*21*	*5*	*15*	*4*	*34*	*32*	*54*	*90*	*144*
Herd size	Mean	**46**	**736**	**2211**		**369**	**181**	**35**	**35**	**73**	**44**	**15**	**507**	**33**	**211**
	Min	10	5	4		7	2	20	2	17	2	5	2	2	2
	Max	120	5000	5000		2000	1500	74	256	200	220	100	5000	256	5000
		Poultry: Broilers, pullets, turkeys, ducks etc.													
No. of farms	N	*4*	*0*	*3*	*0*	*3*	*3*	*1*	*2*	*6*	*21*	*7*	*13*	*37*	*50*
Yearly	Mean	**71**		**101**		**2673**	**619**			**1898**	**27**	**14**	**805**	**326**	**451**
production	Min	3		2		18	7			9	2	2	2	1	1
	Max	250		200		7000	1800			11000	80	60	7000	11000	11000

1) Question asked: Do you keep any organic livestock? What is the extent of organic animal husbandry on your farm? Please indicate the current stock and the numbers kept/produced in the last year.

2) Numbers recorded only if at least 3 farms of a country keep the respective animal.

Source: Own calculations based on farm survey winter/spring 2004.

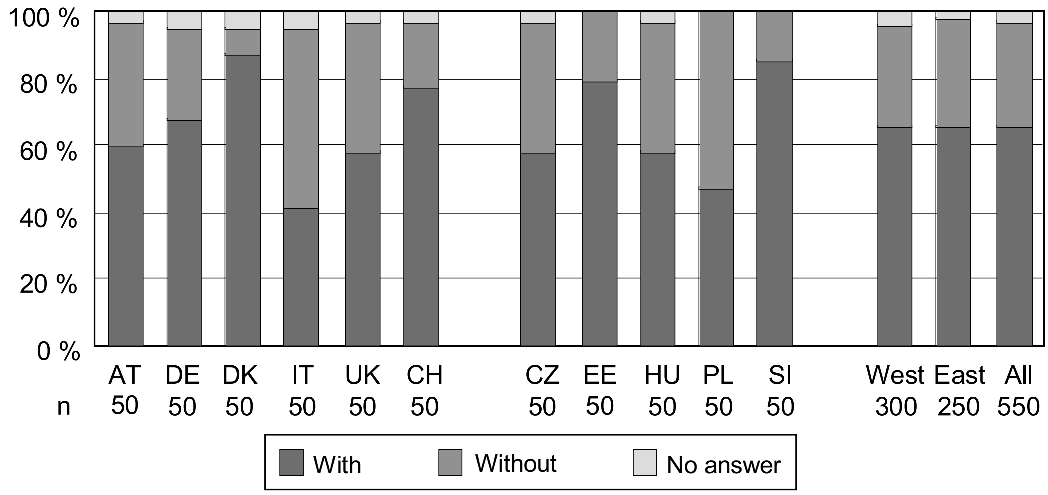
Table A-12: Location of the surveyed farms - driving distances in minutes [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
Minutes driving		**Distance to nearest town (> 5.000 Inhabitants) % of farms**													
< 15		38	52	60	50	40	42	34	10	44	30	16	47	27	38
15 - <30		42	42	36	46	46	32	50	44	50	56	52	41	50	45
30 - >60		18	6	2	4	14	18	14	42	6	14	28	10	21	15
>= 60		2	0	2	0	0	8	2	4	0	0	4	2	2	2
		Distance to nearest larger city (> 100.000 Inhabitants) [1)] % of farms													
< 30		16	22	20	34	28	32	4	6	32	8	24	25	15	21
30 - <60		58	40	34	34	50	36	28	22	46	40	30	42	33	38
60 - <90		8	32	22	30	12	16	56	26	18	32	32	20	33	26
>= 90		18	6	24	2	10	16	12	46	4	20	14	13	19	16

1) or densely populated area

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-2: Percentage of farms with other forms of income (additional to their farm income) [1)]



1) Question asked: Do you have other forms of income (additional to your farm income)?

Source: Own calculations based on farm survey winter/spring 2004.

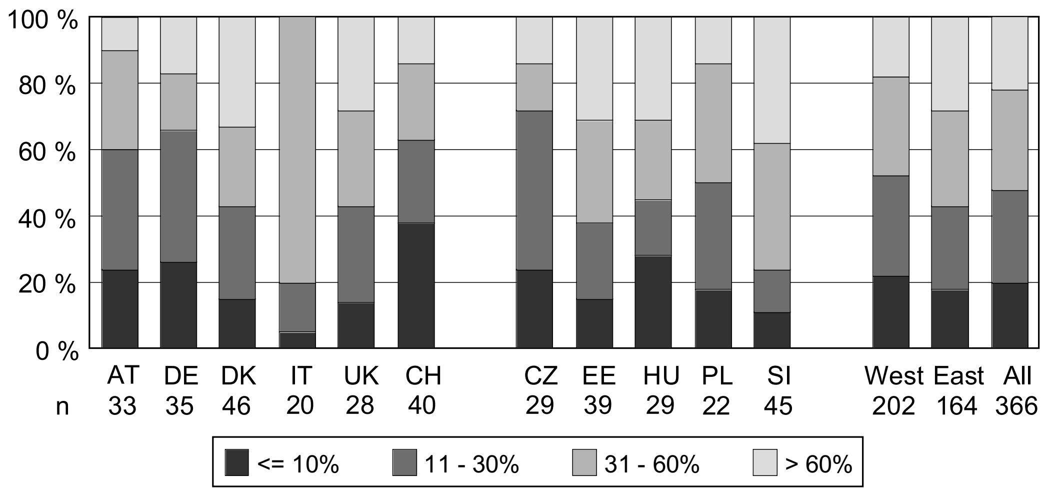
Table A-13: Type of other forms of income (additional to farm income) 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of answers	**N**	34	49	62	22	37	63	51	70	46	43	69	267	279	546
		Percentage of answers													
Accommodation (agrotourism, hotel, apartments etc.)	**%**	12	10	2	41	14	2	31	3	9	26	6	9	13	11
Catering (restaurant, other on farm catering)	**%**	6	2	2	0	3	2	8	1	7	7	3	2	5	3
Contracting of labour/ machinery on other farms	**%**	9	6	10	5	14	13	12	19	9	9	1	10	10	10
On-farm forestry	**%**	12	12	0	0	3	5	8	24	9	5	30	5	17	11
Renting out land	**%**	0	2	5	5	3	3	0	0	7	0	1	3	1	2
Training / consultancy	**%**	0	4	3	0	11	2	4	4	13	7	1	3	5	4
Off-farm job (incl. family (household) members)	**%**	47	33	65	18	38	44	24	24	20	21	45	44	28	36
Others	**%**	15	31	15	32	16	30	14	24	28	26	12	23	20	21

1) Question asked: Do you have other forms of income (additional to your farm income)? If yes, please specify.

Source: Own calculations based on farm survey winter/spring 2004.

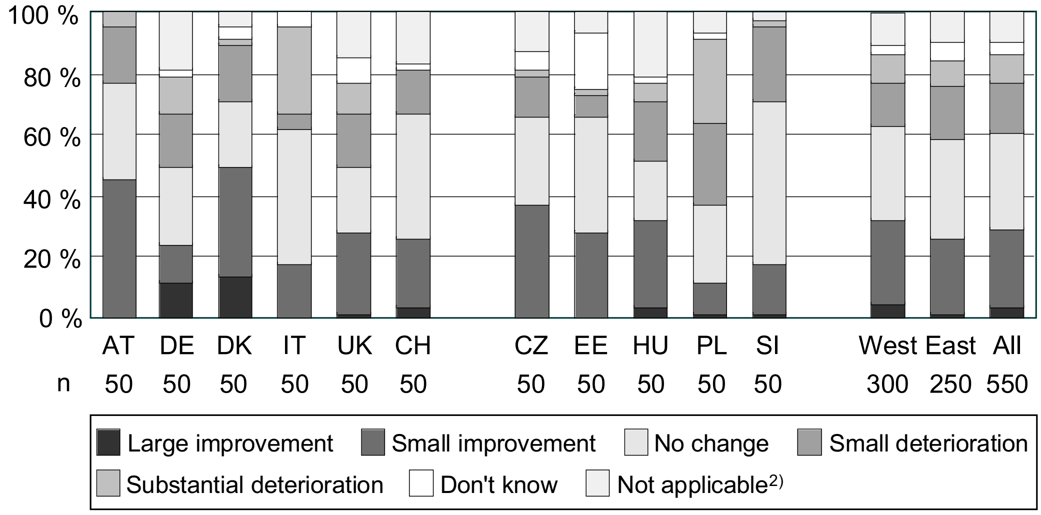
Figure A-3: Farmers' perception of the share of non-farm income in total income (only farms with non-farm income) 1)



1) Question asked: Do you have other forms of income (additional to your farm income)? If yes, please assess the share of your off-farm income in your total income.

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-4: Farmers' estimation of the effects of conversion to organic farming on the economic situation of their business - during the conversion period 1)

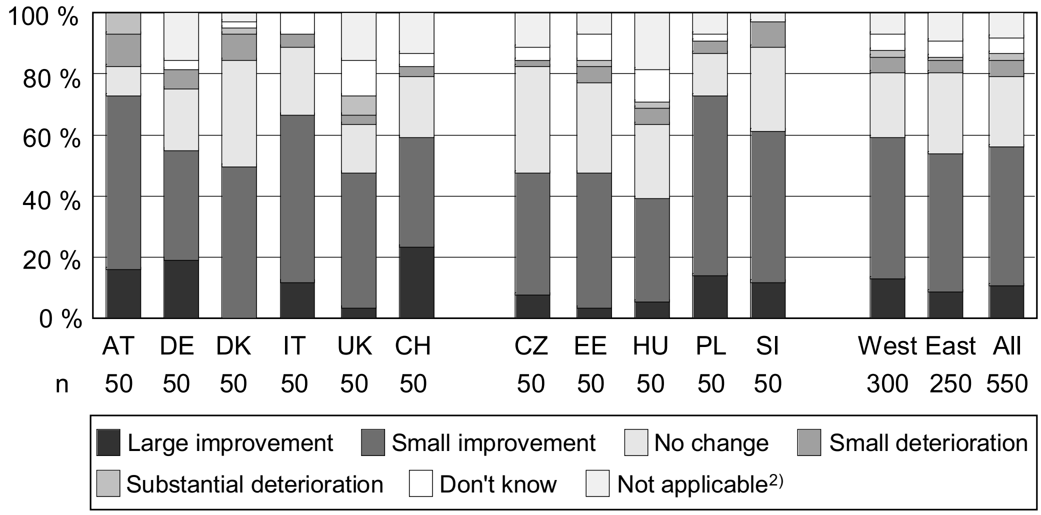


1) Question asked: How has conversion to organic farming affected the economic situation of your business? A) During conversion period? B) After conversion period?

2) Farm started organically or converted too many years ago.

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-5: Farmers' estimation of the effects of conversion to organic farming on the economic situation of their business - after the conversion period 1)



1) Question asked: How has conversion to organic farming affected the economic situation of your business? A) During conversion period? B) After conversion period?

2) Farm started organically or converted too many years ago.

Source: Own calculations based on farm survey winter/spring 2004.

Table A-14: Farmers' perception of the effects of conversion to organic farming on the economic situation of their business - development during and after the conversion period 1)

			AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms		**N**	50	39	46	47	37	39	41	38	35	46	49	258	209	467
			Percentage of farms													
Economic development																
During conv.	**After conv.**															
Improvement	**Improvement**	**%**	42	31	33	11	24	33	34	37	37	13	18	29	27	28
No change	**Improvement**	**%**	16	15	9	32	16	28	10	8	9	15	22	19	13	17
Improvement	**No change**	**%**	2	0	20	9	8	0	12	0	0	0	0	7	2	5
No change	**No change**	**%**	6	15	11	13	8	26	24	39	17	13	27	13	24	18
Deterioration	**Improvement**	**%**	16	21	9	30	24	8	15	5	11	52	22	18	22	20
Improvement	**Deterioration**	**%**	2	0	2	0	5	0	0	0	6	0	0	2	1	1
Deterioration	**No change**	**%**	2	10	9	2	5	0	5	0	14	2	2	5	4	4
No change	**Deterioration**	**%**	10	3	4	2	3	0	0	3	0	0	6	4	2	3
Deterioration	**Deterioration**	**%**	4	5	4	2	5	5	0	8	6	4	2	4	4	4

1) Question asked: How has conversion to organic farming affected the economic situation of your business? A) During conversion period? B) After conversion period?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-15: Income on organic farms in Western European countries, 2001

Farm type and size	FNVA/AWU	FFI+W/AWU
	EUR / AWU	
	Austria	
All farms (average)	18 742	16 919
Arable (average)	29 110	24 725
Dairy* (average)	17 393	15 509
Dairy* (< 15 cows)	13 515	12 141
Dairy* (15 and more cows)	21 583	19 148
Mixed (average)	20 006	17 526
Permanent crops (average)	24 511	23 626
Combi (average)	16 924	15 949
	Denmark	
All farms (average)	39 228	13 389
Arable (average)	18 293	-6 013
Dairy (average)	41 067	15 009
Dairy (<80 cows)	28 310	7 909
Dairy (80 and more cows)	45 555	17 508
Pigs (average)	33 179	14 414
	Germany	
All farms (average)	26 861	20 444
Arable (average)	31 910	23 448
Arable (< 30 ha)	14 277	10 326
Arable (30-50 ha)	28 367	20 698
Arable (> 50 ha)	40 020	29 575
Dairy (average)	24 299	18 862
Dairy (< 100 t)	15 860	13 648
Dairy (100-150 t)	25 056	20 460
Dairy (> 150 t)	30 127	21 554
Oher grazing livestock (average)	20 994	16 021
	Italy	
All farms (average)	34 857	14 774
Arable (average)	25 351	7 722
Grazing livestock* (average)	44 028	13 285
Permanent crops (average)	34 860	20 910
	Switzerland	
All farms (average)	32 249	27 842
Dairy (valley)	38 386	32 613
Dairy (hill)	34 125	28 876
Dairy (mountain)	28 333	24 575
Suckler copws (mountain)	29 190	25 686
Other cattle (mountain)	20 899	18 800
Mixed (arable-dairy, valley)	50 517	44 429
Mixed (pig+poultry, valley)	50 347	45 264
Mixed (other, valley)	40 508	34 352
	The UK	
All farms (average)	31 876	20 433
Arable (average)	37 208	20 923
Dairy (average)	38 217	25 597
Dairy (< 80 cows)	24 609	18 804
Dairy (80 and more cows)	47 302	30 132
Grazing livestock (lowland)	17 408	10 356
Grazing livestock (upland)	19 964	14 240
Mixed (average)	33 750	20 645

AT*:Dairy farms and other grazing livestock farms.
IT*:Grazing livestock farms including dairy farms.
Combi = farms with more than 25 % of total Standardised Gross Margin from forestry.

Source: Own calculations based on national FADNs.

Table A-16: Income (FNVA/AWU and FFI+W/AWU) on typical organic farms in Eastern European countries, 2003

Farm type and size	FNVA/AWU	FFI+W/AWU
	EUR / AWU	
	Czech Republic	
Arable (large, 200 ha)	10 334	8 476
Dairy (small, 58 t milk)	1 596	1 324
Cow-calf (small, 100 ha)	2 959	2 867
Cow-calf (medium, 140 ha)	28 291	27 491
Cow-calf (large, 551 ha, 145 cows)	23 220	17 813
Cow-calf (large, 500 ha, 160 cows)	10 756	10 425
	Estonia	
Arable (large, 89 ha)	2 980	2 891
Dairy (large, 194 t milk)	2 615	2 519
	Hungary	
Arable (small, 9 ha)	2 136	2 136
Arable (medium, 374 ha)	12 435	9 433
Arable (large, 1 245 ha)	2 975	173
Dairy (medium, 335 t milk)	14 634	12 980
Dairy (large, 3 360 t milk)	12 432	10 167
	Poland	
Arable (small, 17 ha)	2 642	2 553
Arable (large, 100 ha)	6 733	6 557
Dairy (small, 34 t milk)	2 565	2 400
Dairy (medium, 88 t milk)	4 618	4 490
Dairy (medium, 100 t milk)	5 945	5 717
	Slovenia	
Arable (small, 13 ha)	5 373	4 867
Dairy (small, 28 t milk)	2 466	2 280
Cow-calf (small, 9 ha, 9 cows)	956	956

Source: Own calculations based on typical farm modelling.

Table A-17: ***FNVA/AWU by farm size, altitude and share of income from farming in total income on organic and comparable conventional farms in selected Western European countries, 2001***

			Sample size	Organic farms	Comparable conventional farms	Relative income	% OF > CCF
			N	FNVA/AWU (€)		1)	2)
					By size		
AT	dairy farms	small	108	13 515	10 541	128%	67%
		large	76	21 583	17 070	126%	71%
DK		small	54	28 310	26 190	108%	65%
		large	84	45 555	40 138	113%	64%
UK		small	20	24 609	21 182	116%	55%
		large	20	47 302	42 200	112%	60%
DE		small	24	15 860	15 122	105%	59%
		medium	24	25 056	21 230	118%	79%
		large	25	30 127	32 648	92%	48%
DE	arable farms	small	26	14 277	14 489	99%	62%
		medium	44	28 367	30 060	94%	32%
		large	17	40 020	39 081	102%	53%
IT	all farms	small	234	22 402	20 646	109%	n.a.
		medium	400	33 647	31 951	105%	n.a.
		large	117	53 392	45 778	117%	n.a.
					By altitude		
AT	valley and hills		37	23 481	20 505	115%	57%
	mountain		157	19 728	15 057	131%	64%
	alpine regions		123	16 036	13 623	118%	63%
CH	valley		48	40 959	31 867	129%	71%
	hill		71	33 832	27 923	121%	72%
	mountain		125	27 984	22 293	126%	72%
IT	plain		516	38 992	34 122	114%	n.a.
	hill		123	32 504	30 022	108%	n.a.
	mountain		112	39 152	35 987	109%	n.a.
					By full-time/part-time		
DE	full-time		196	26 841	27 020	99%	51%
	part-time		27	15 618	13 147	119%	63%
DK	full-time		129	41 690	37 081	112%	62%
	part-time		70	16 458	6 352	259%	64%

1) FNVA/AWU in organic farms relative to comparable conventinal farms

2) Share of organic farms in the sample with a higher FNVA/AWU than the respective comparable conventional farm group

Source: Own calculations based on national FADNs.

Table A-18: Percentage of farms with land without organic farming payments and share of land for which organic payments are not received 1)

a) Percentage of farms with land for which organic payments are not received

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	38	49	50	50	50	50	50	50	287	250	537
		Percentage of farms													
Farms with land without organic payments	%	32	78	86	34	24	8	26	32	36	30	56	44	36	40

b) Average percentage of land without organic payments (referring only to farms with land without organic payments); arithmetic farm average

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	14	36	43	9	11	1	13	13	15	15	28	114	84	198
		Percentage of land without organic payments													
	Mean	12	18	21	62	37	100	8	39	34	16	25	24	25	24

c) Average percentage of land without organic payments (referring to all farms; weighted average)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	38	49	50	50	50	49	50	50	287	249	536
		Percentage of land without organic payments													
	Mean	7	23	21	7	7	0	1	8	46	17	15	15	24	22

1) *Question asked: Are there some areas for which organic payments are not made? If yes, please specify (Number of ha).*

Source: Own calculations based on farm survey winter/spring 2004.

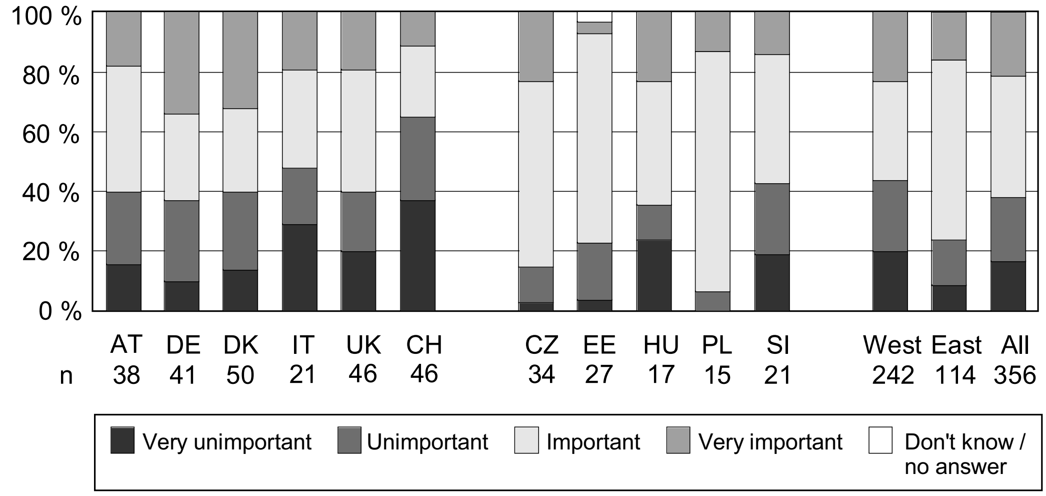
Table A-19: Farmers' reasons for exclusion of land from organic payments 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of answers	**N**	18	46	60	14	9	5	16	16	20	16	34	152	102	254
		Percentage of answers													
Set-aside land	**%**	89	54	63	7	0	0	0	38	0	25	18	53	16	38
Permanent pasture is not eligible for payments	**%**	6	2	5	14	0	0	19	6	25	0	3	5	10	7
Areas get agri-environmental payments higher than organic payments	**%**	0	17	5	7	0	0	0	0	0	0	0	8	0	5
Combination with another scheme, no dual funding	**%**	0	11	0	7	0	0	6	0	5	0	0	4	2	3
Areas rented less than 5 years	**%**	0	2	3	0	11	0	19	0	15	13	6	3	10	6
Lack of funding / too many applications	**%**	0	2	0	21	22	0	0	0	30	0	0	4	6	5
No acceptance of applications (incomplete application or other reasons)	**%**	0	0	0	0	33	0	6	19	5	0	24	2	13	6
Plot size/sum of crop area is too small	**%**	0	0	0	0	11	40	6	0	5	0	35	2	14	7
Other (administrative reasons etc.)	**%**	6	11	23	43	22	60	44	38	15	63	15	20	30	24

1) Question asked: Are there some areas for which organic payments are not made? Reasons for exclusion from payment?

Source: Own calculations based on farm survey winter/spring 2004.

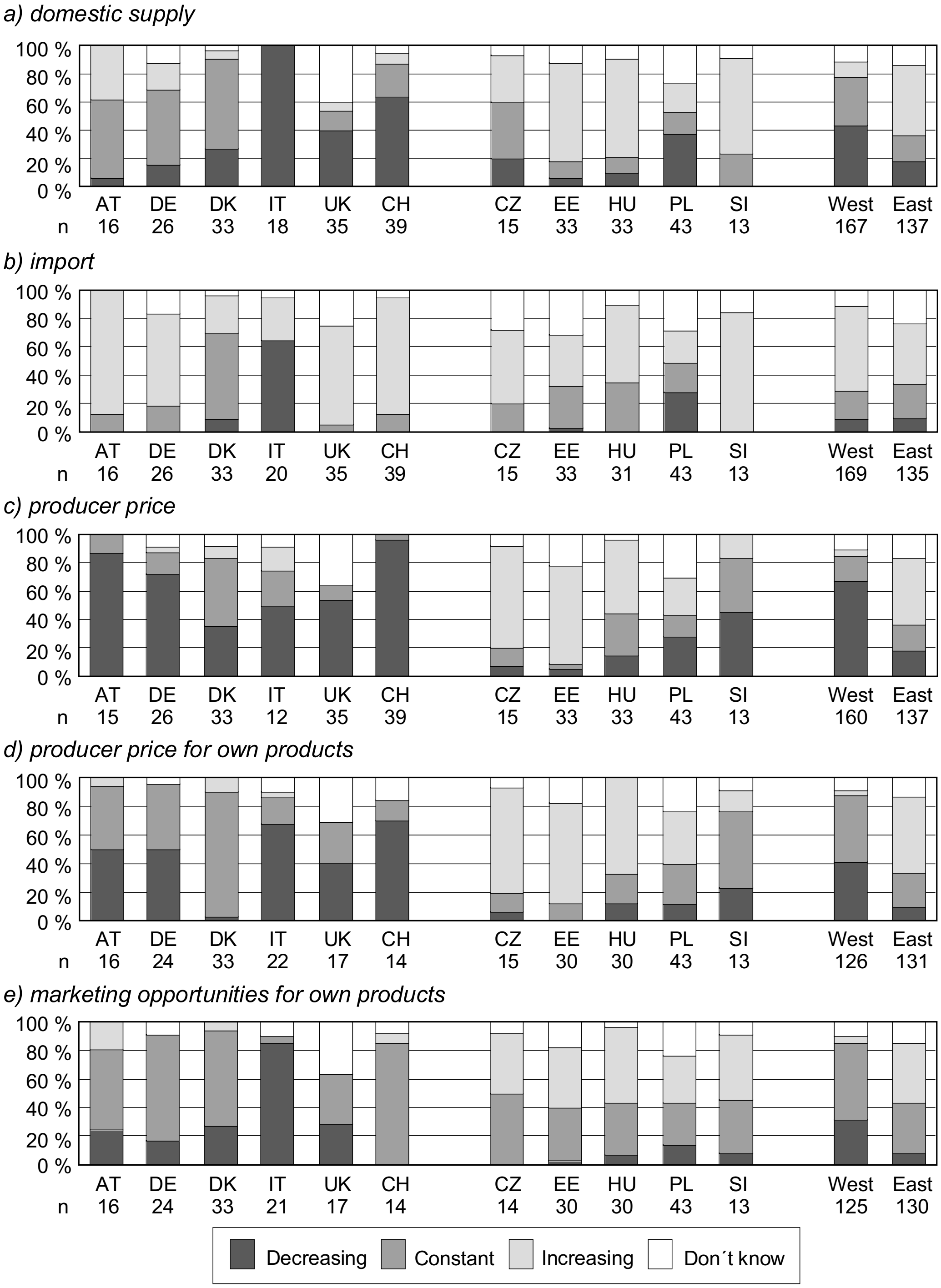
Figure A-6: ***Farmers' statements on the importance of the availability of organic payments in their decision to convert*** 1)



1) Question asked: How important was the availability of organic payments in your decision to convert?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-7: Farmers' expectations of the impact of EU enlargement on domestic organic cereal markets[1)]

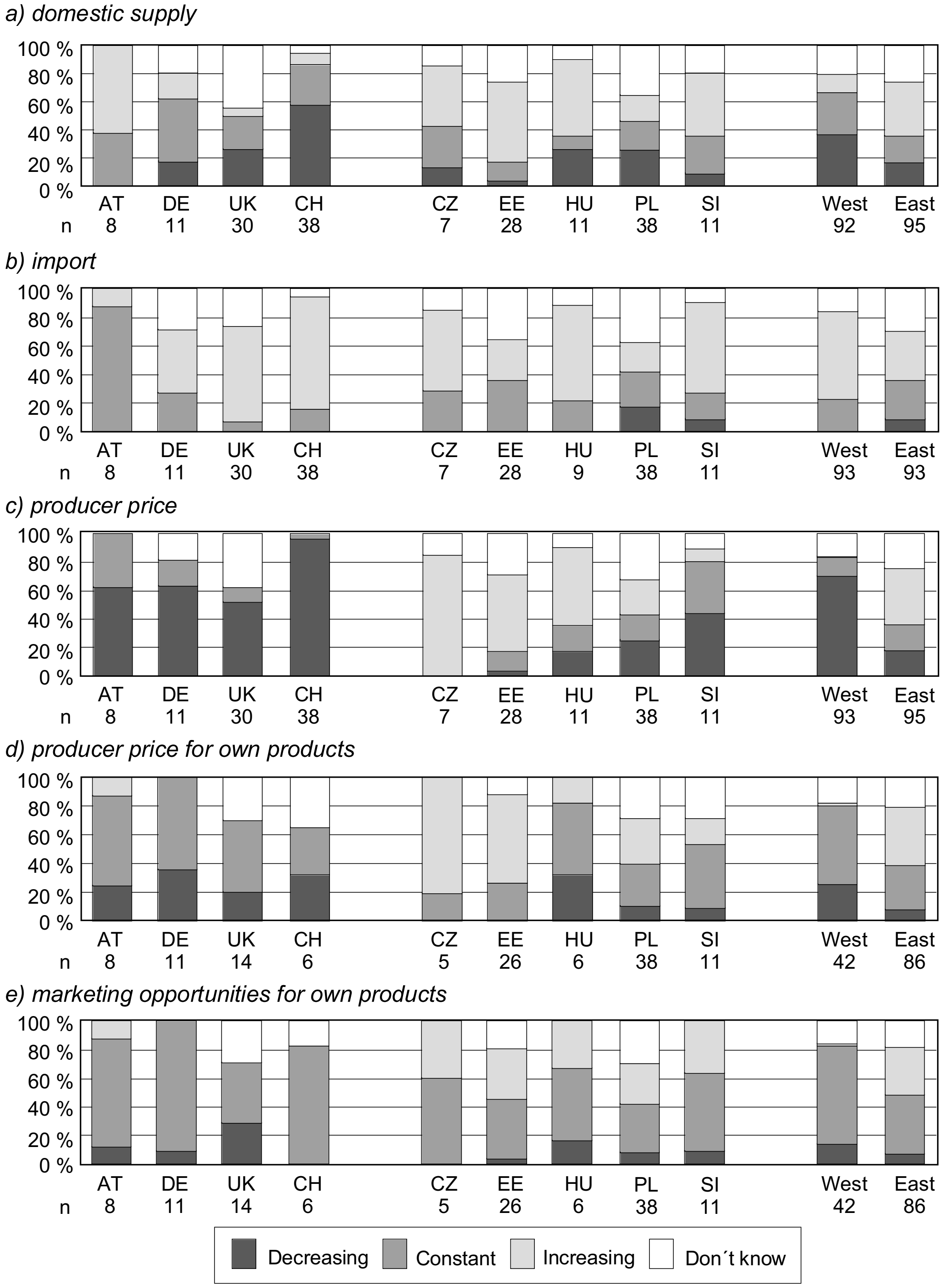


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-8: Farmers' expectations of the impact of EU enlargement on domestic organic potato markets[1)]

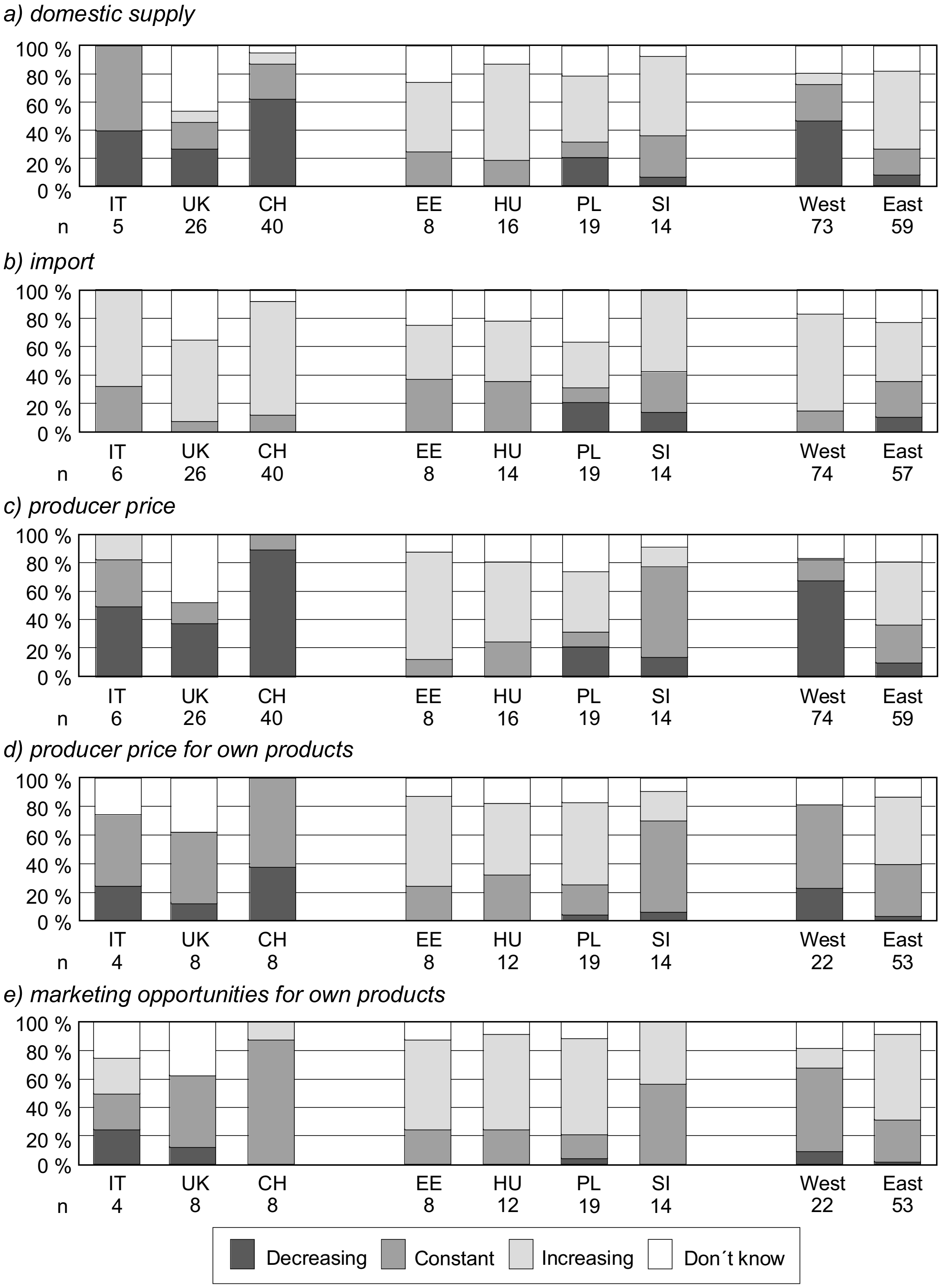


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-9: Farmers' expectations of the impact of EU enlargement on domestic organic fruit markets[1)]

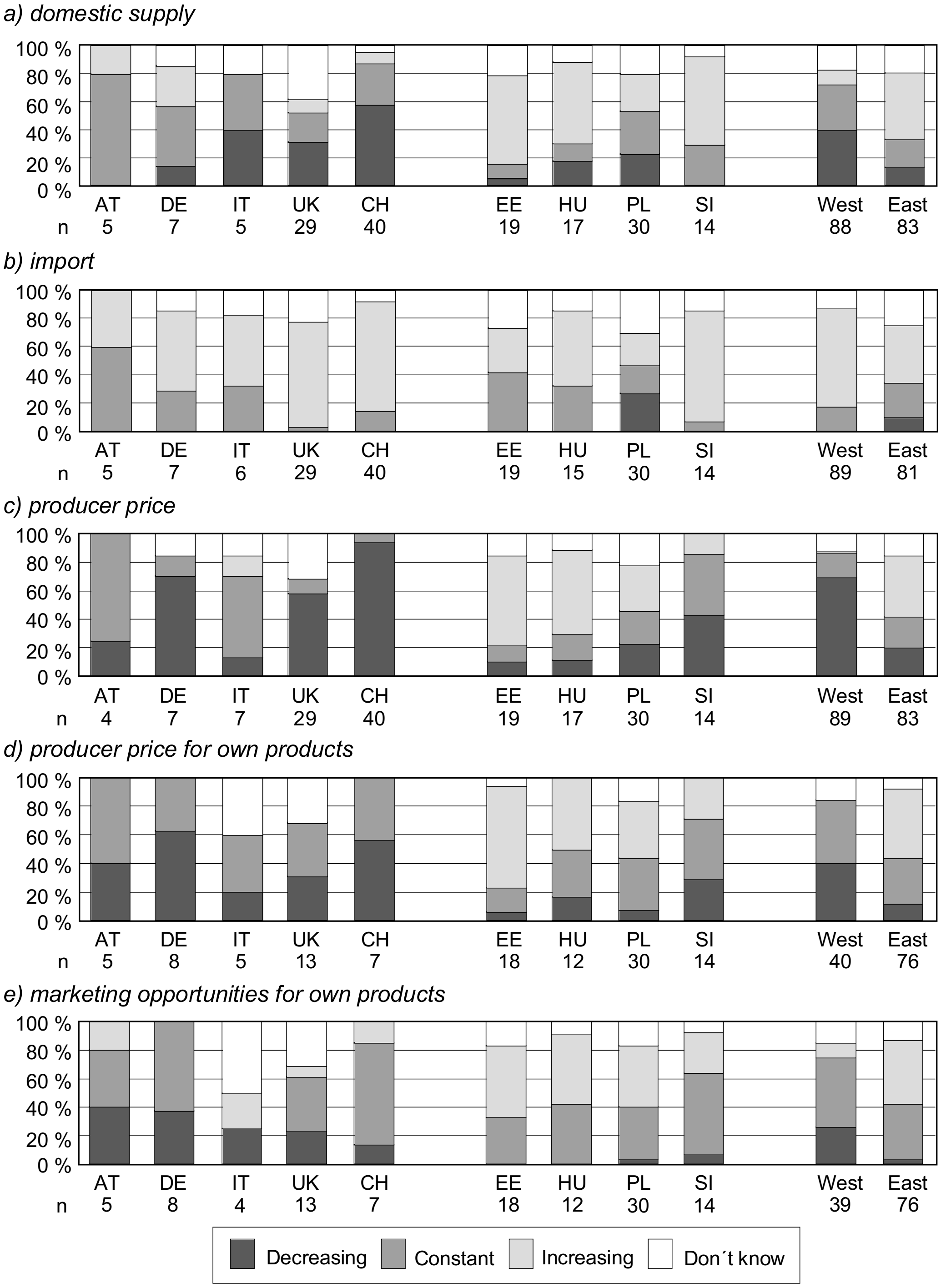


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-10: Farmers' expectations of the impact of EU enlargement on domestic organic vegetable markets[1)]

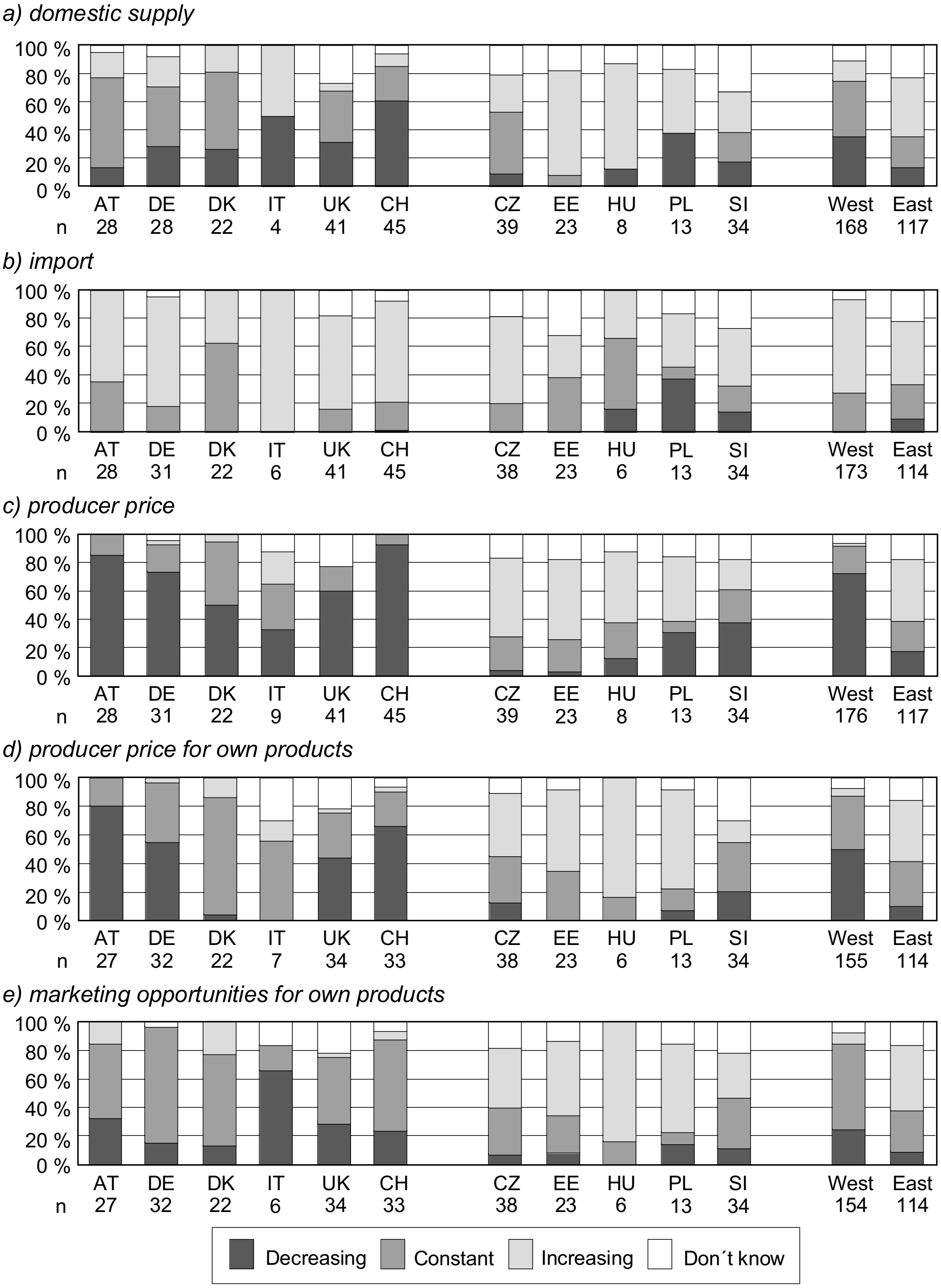


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-11: Farmers' expectations of the impact of EU enlargement on domestic organic beef markets[1)]

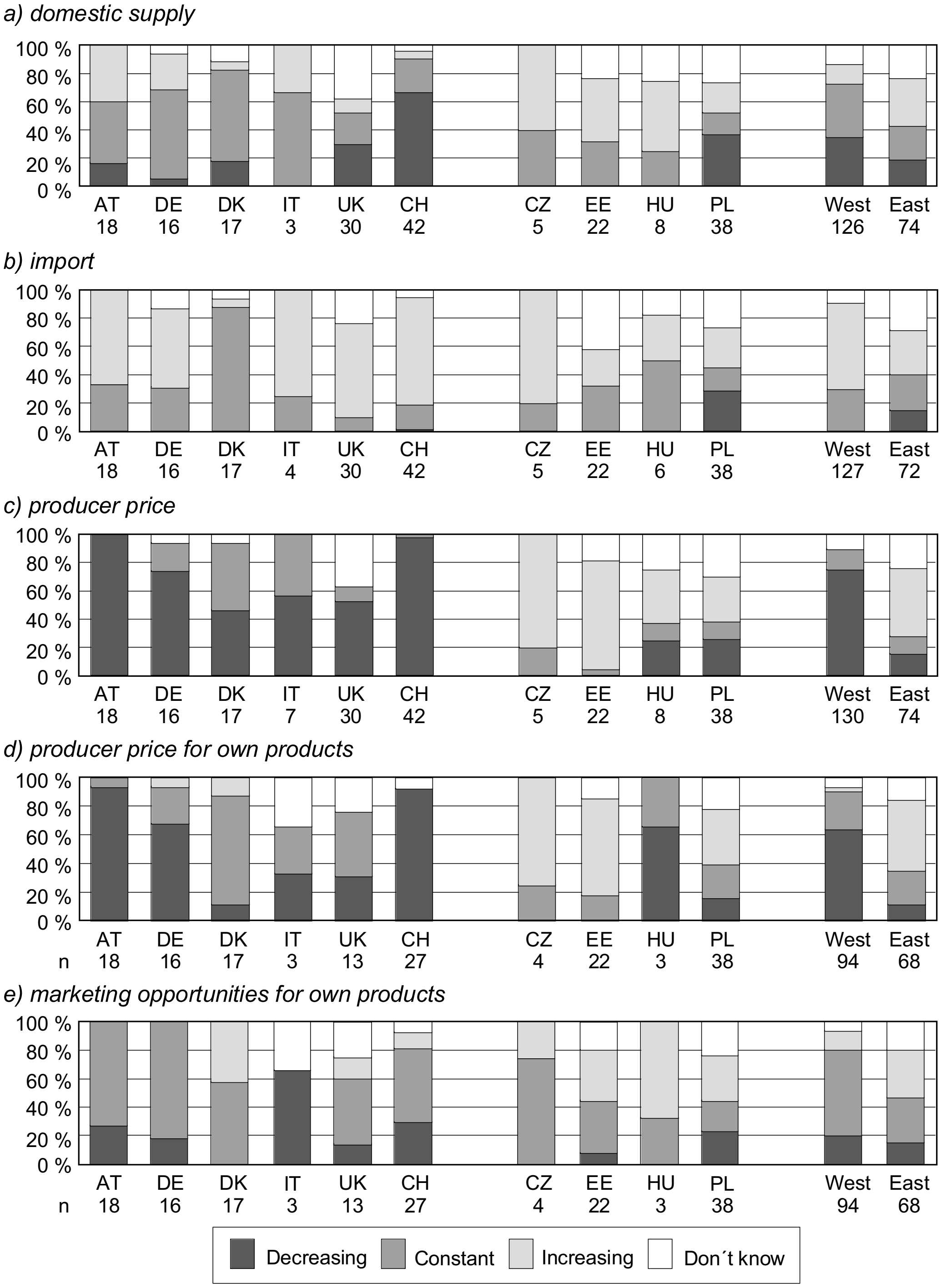


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-12: Farmers' expectations of the impact of EU enlargement on domestic organic milk markets[1)]

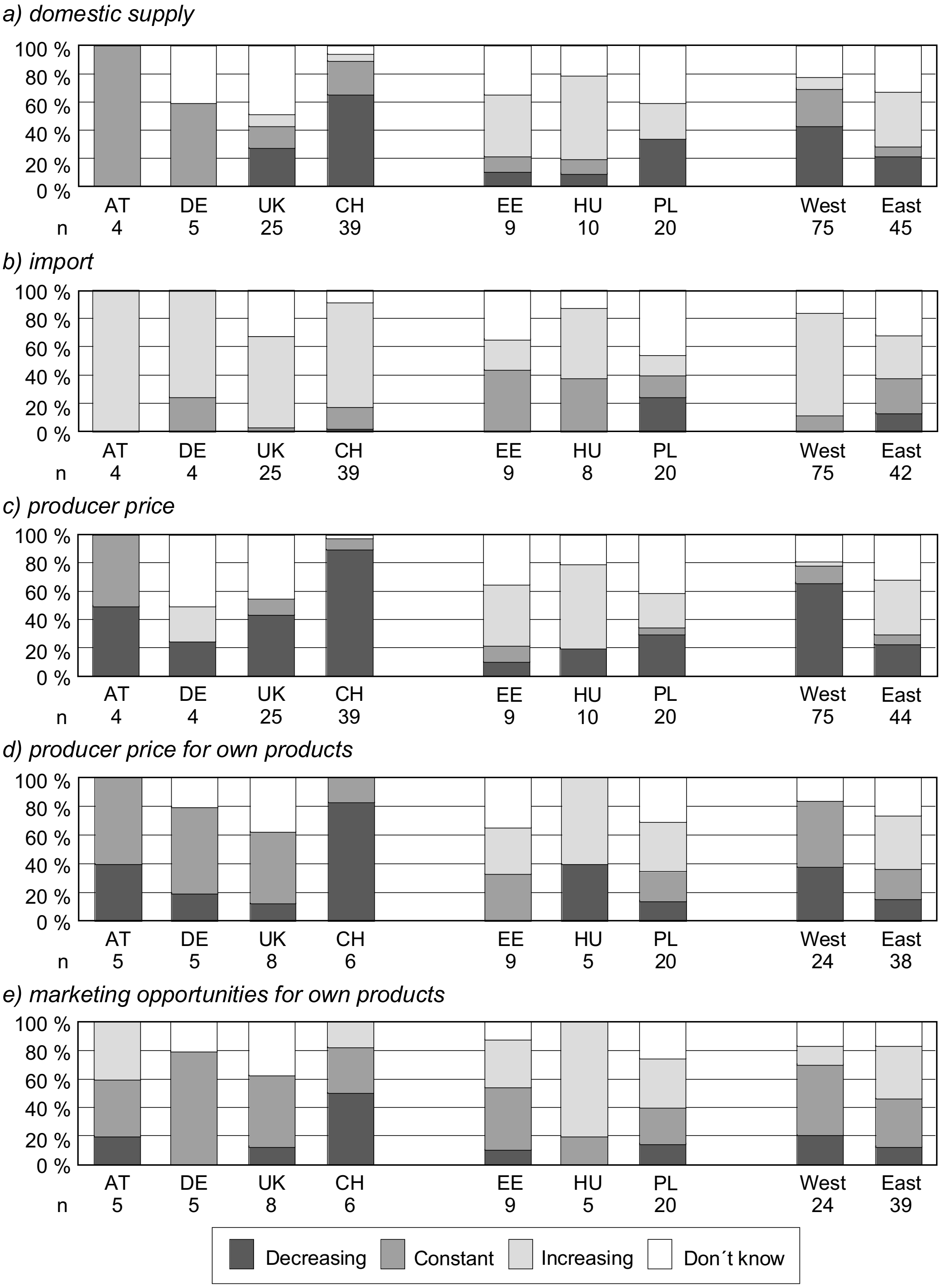


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-13: Farmers' expectations of the impact of EU enlargement on domestic organic pork markets[1)]

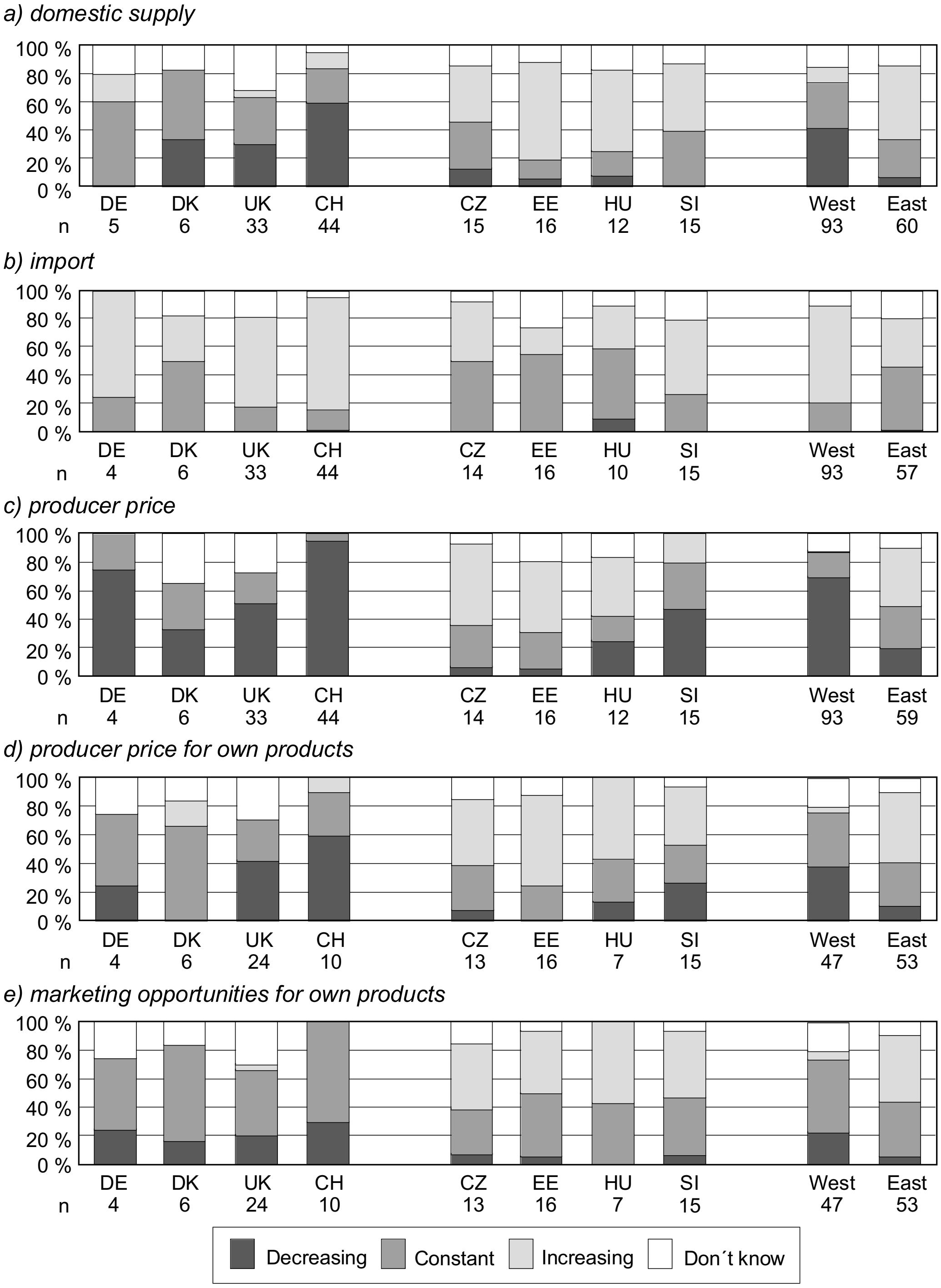


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-14: Farmers' expectations of the impact of EU enlargement on domestic organic sheep markets [1)]

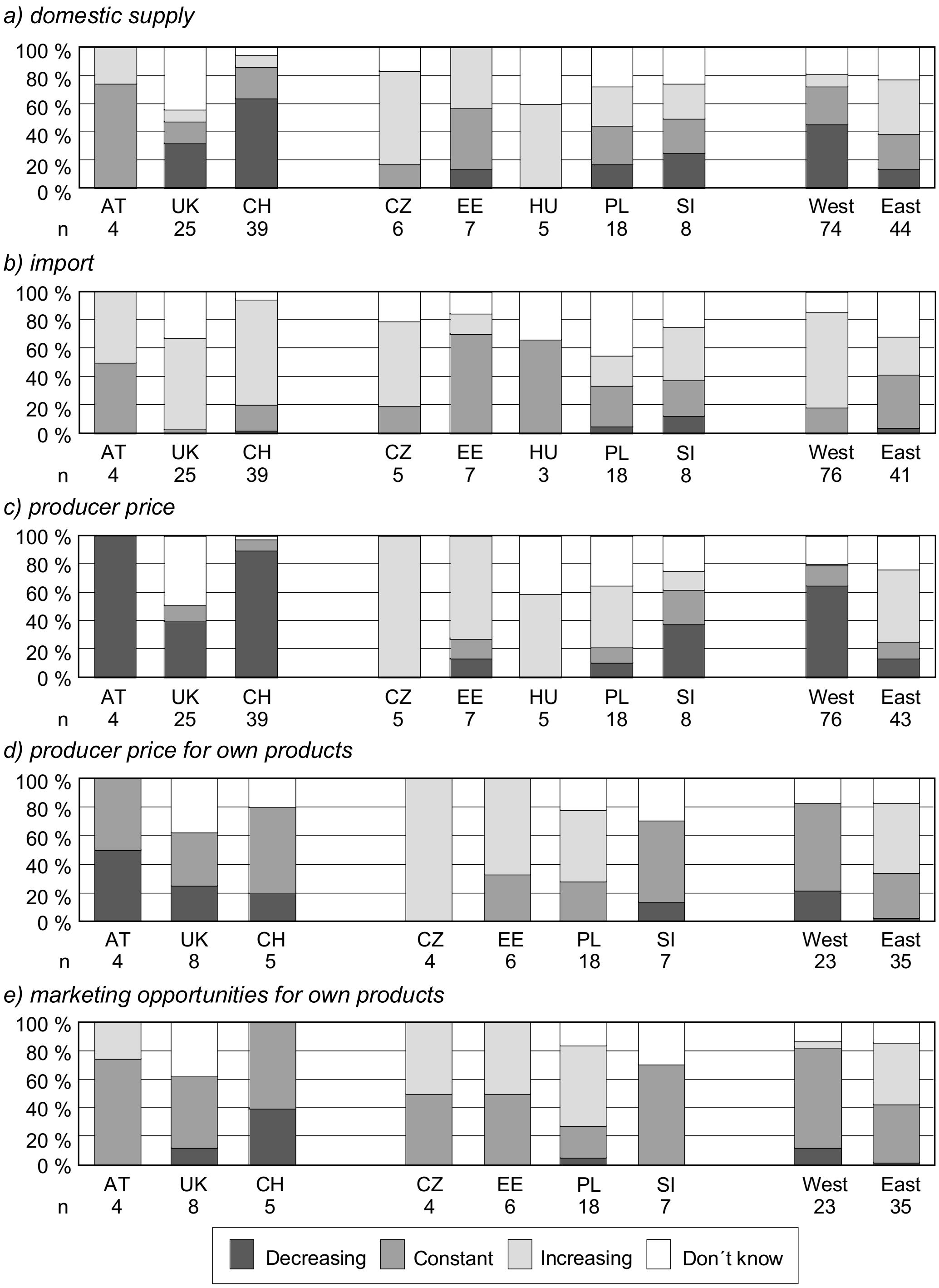


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-15: Farmers' expectations of the impact of EU enlargement on domestic organic eggs markets[1)]

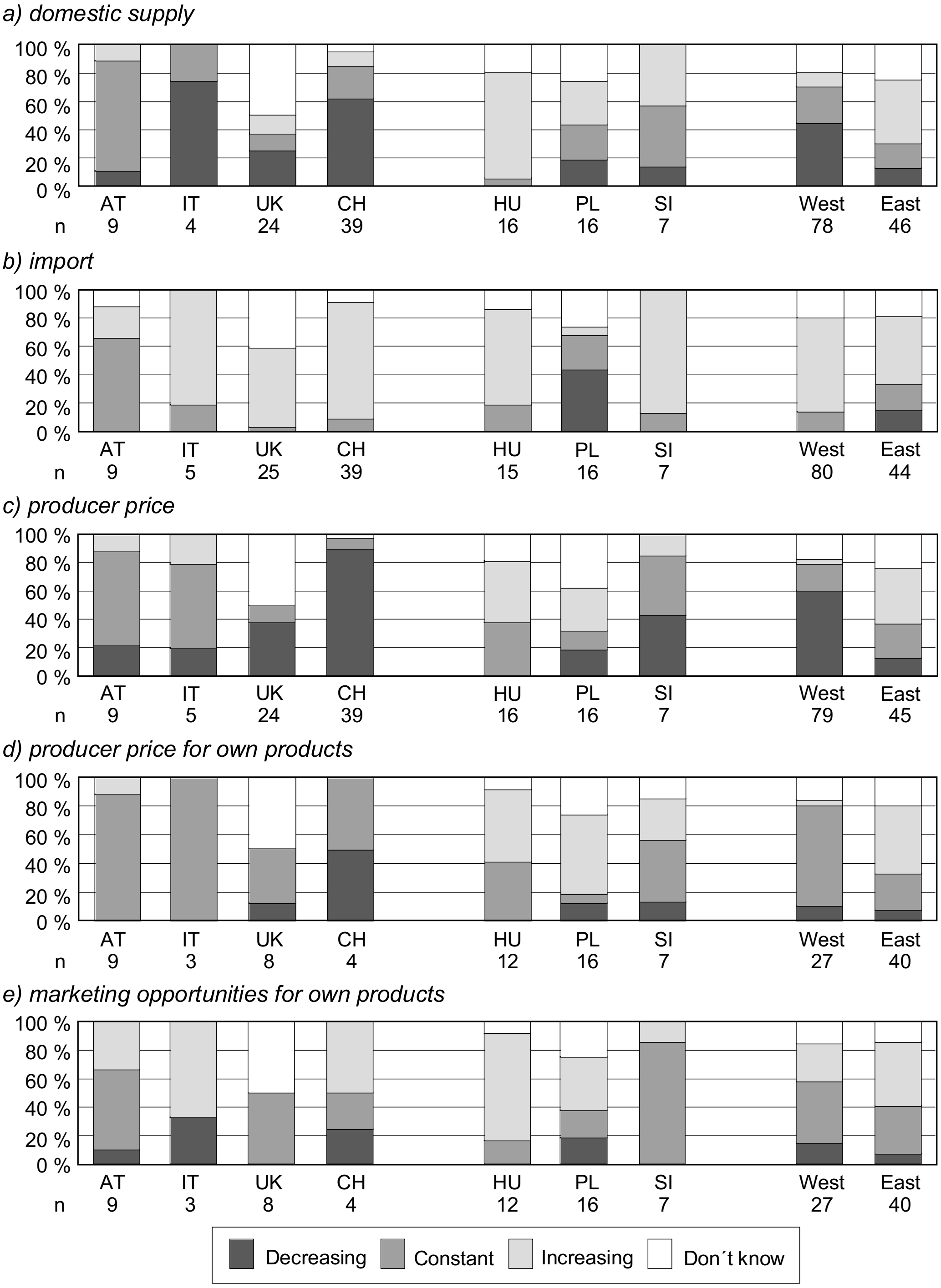


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-16: Farmers' expectations of the impact of EU enlargement on domestic organic processed product markets[1)]



n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

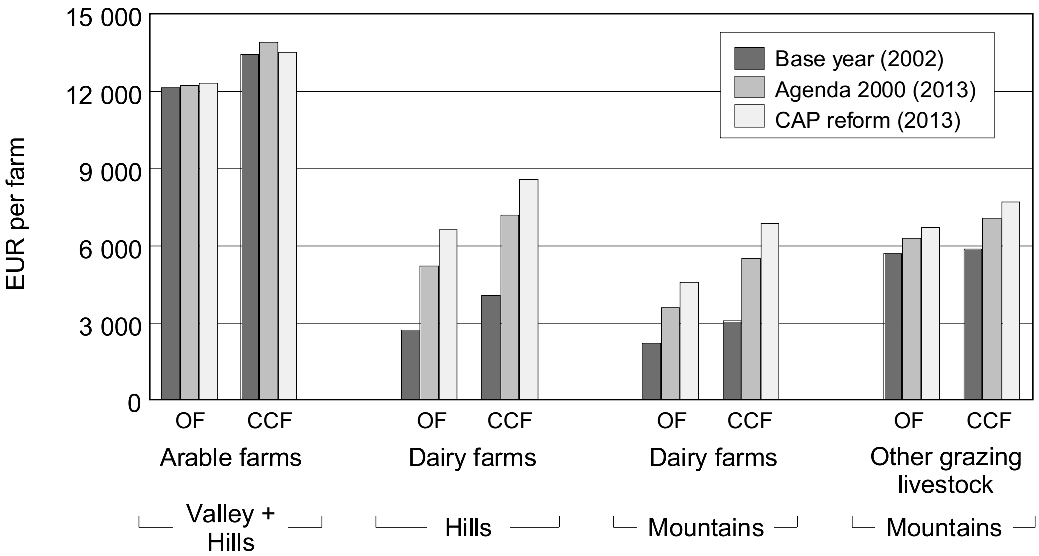
Table A-20: Farmers' investment plans in the next five years[1)]

		Country											Region		All
		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	
Number of farms planning bigger investments		13	25	15	6	26	20	45	44	38	37	43	105	207	312
		Percentage of farms													
Machinery, other equipment (incl. for on-farm processing)	%	23	28	20	33	42	35	84	77	55	65	49	31	67	55
Storing capacities (incl. manure storage etc.)	%	8	32	27	33	15	20	33	39	53	51	23	22	39	33
Investment in animal husbandry, animal welfare (compliance with standards for animal husbandry)	%	15	28	7	17	12	0	27	20	26	27	19	13	24	20
Stable for pigs/hens/poultry	%	0	20	20	0	8	0	0	0	5	3	5	10	2	5
Stable for dairy cows/suckler cows/sheep	%	31	12	33	33	19	25	20	27	3	16	12	23	16	18
Investments in off-farm activities (tourism, catering, energy etc.)	%	8	36	7	50	23	10	22	7	13	27	37	21	21	21
Buying additional/new stock	%	0	0	13	0	8	15	4	11	16	14	14	7	12	10
Buying land	%	0	4	47	17	12	30	53	7	26	27	21	17	27	24
Room/building for on-farm processing/direct marketing	%	8	0	7	17	4	0	7	7	0	5	5	4	5	4
Renovation/rebuilding	%	0	4	7	0	4	35	9	5	0	3	5	10	4	6
Other	%	31	0	0	17	12	0	2	7	0	5	9	8	5	6

1) Question asked: Are you considering some bigger investments in the next 5 years? If yes, please specify (max. 3 answers).

Source: Own calculations based on farm survey winter/spring 2004.

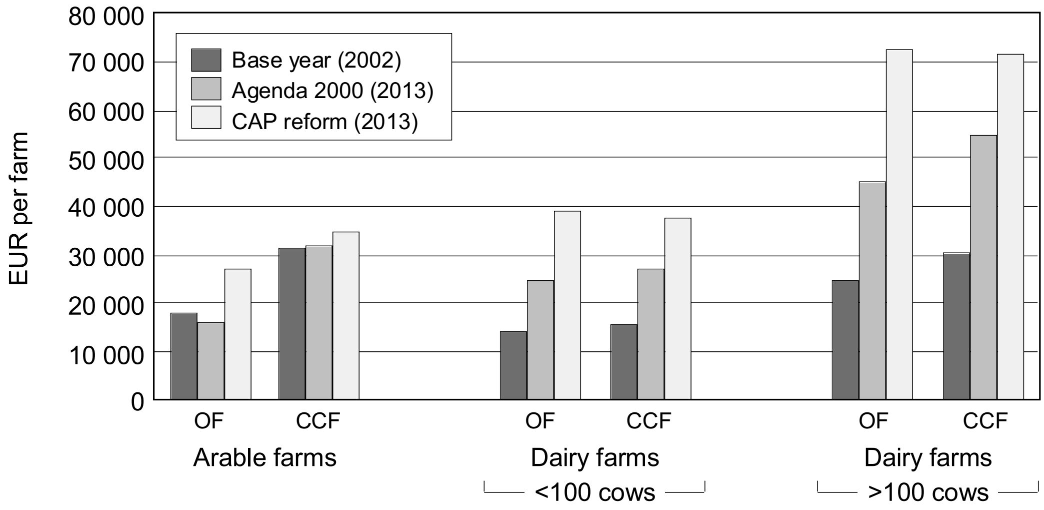
Figure A-17: First pillar direct payments on organic and comparable conventional farms in Austria for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

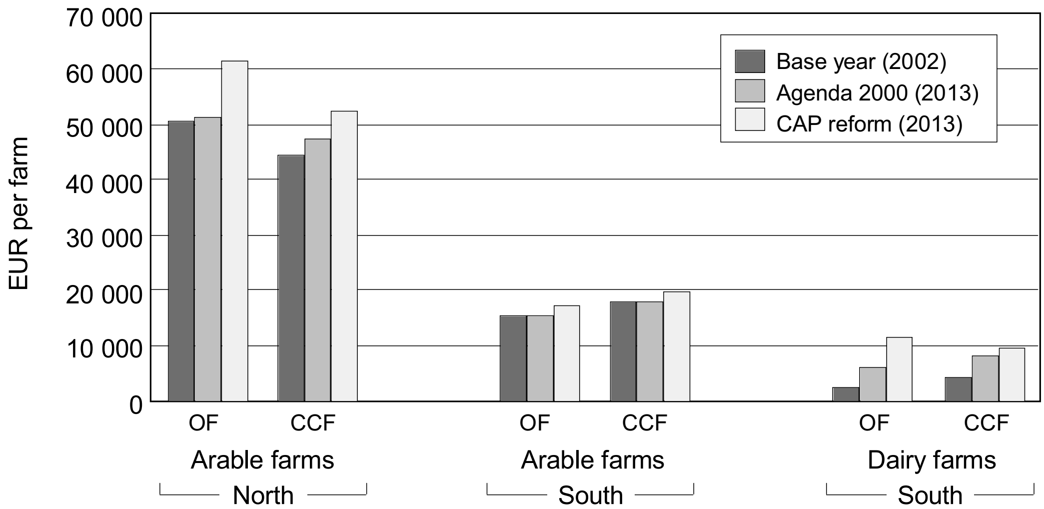
Figure A-18: First pillar direct payments on organic and comparable conventional farms in Denmark for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

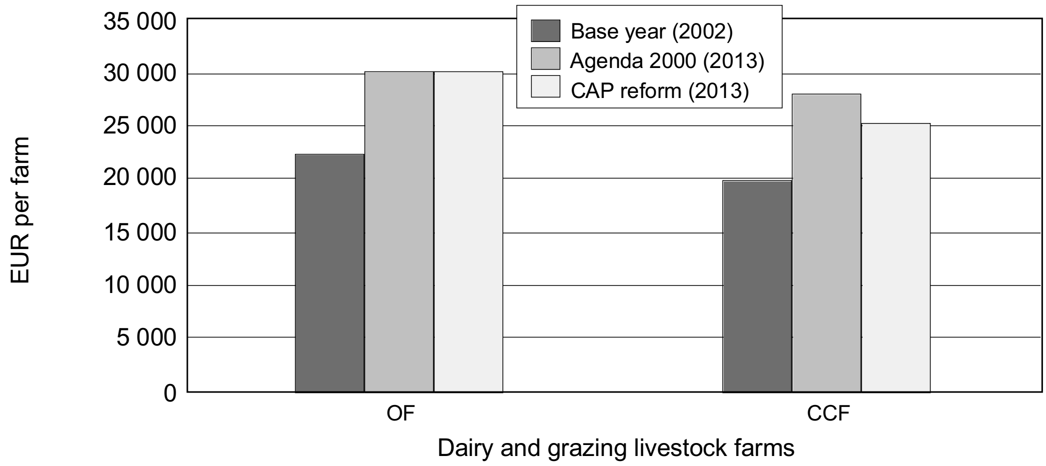
Figure A-19: First pillar direct payments on organic and comparable conventional farms in Germany for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Figure A-20: ***First pillar direct payments on organic and comparable conventional farms in the UK for different policy scenarios***



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Table A-21: Adjustments of the production structure as reaction to policy changes on typical organic farms in the Czech Republic, baseline (2013) compared to base year (2003)

		Arable farm (large, 200 ha)		Dairy farm (small, 58 t milk)		Cow-calf farm (small, 100 ha)	
		2003	2013	2003	2013	2003	2013
UAA (total)	**ha**	186	+44%	62	0%	100	-30%
Permanent grassland	**ha**	32	0%	12	0%	100	-30%
Arable land	**ha**	154	+53%	50	0%	0	0%
including							
Cereals	**ha**	106	+56%	29	0%	0	0%
Oilseeds	**ha**	0	0%	0	0%	0	0%
Vegetables	**ha**	0	0%	0	0%	0	0%
Ley/ fodder mixtures	**ha**	48	+46%	21	0%	0	0%
Dairy cows	**heads**	0	0%	16	0%	0	0%
Suckler cows	**heads**	0	0%	0	0%	11	-36%
Cattle for fattening	**heads**	0	0%	10	0%	0	introd.
Processing activity	**yes / no**	no	no	no	no	no	no
Agrotourism	**yes / no**	no	no	no	no	no	yes
Other farm activities	**yes / no**	no	no	no	no	yes	yes
		Cow-calf farm (medium, 140 ha)		**Cow-calf farm (large, 551 ha, 145 cows)**		**Cow-calf farm (large, 500 ha, 160 cows)**	
		2003	**2013**	**2003**	**2013**	**2003**	**2013**
UAA (total)	**ha**	141	+155%	536	0%	500	-13%
Permanent grassland	**ha**	141	+155%	536	0%	430	-7%
Arable land	**ha**	0	0%	0	0%	70	-50%
including							
Cereals	**ha**	0	0%	0	0%	65	-69%
Oilseeds	**ha**	0	0%	0	0%	0	0%
Vegetables	**ha**	0	0%	0	0%	0	0%
Ley/ fodder mixtures	**ha**	0	0%	0	0%	0	introd.
Dairy cows	**heads**	0	0%	0	0%	0	0%
Suckler cows	**heads**	70	+71%	145	0%	160	0%
Cattle for fattening	**heads**	0	0%	0	0%	62	0%
Processing activity	**yes / no**	no	no	no	no	no	no
Agrotourism	**yes / no**	no	no	no	no	no	yes
Other farm activities	**yes / no**	yes	no	no	no	no	no

introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-22: Adjustments of the production structure as reaction to policy changes on typical organic farms in Estonia, baseline (2013) compared to base year (2003)

		Arable farm (large, 89 ha)		Dairy farm (large, 194 t milk)	
		2003	2013	2003	2013
UAA (total)	ha	89	0%	230	0%
Permanent grassland	ha	4	0%	171	0%
Arable land	ha	85	0%	59	0%
including					
Cereals	ha	40	0%	30	0%
Oilseeds	ha	0	0%	0	0%
Vegetables	ha	5	0%	0	0%
Ley/ fodder mixtures	ha	36	0%	200	0%
Dairy cows	heads	0	0%	56	+54%
Suckler cows	heads	0	0%	0	0%
Cattle for fattening	heads	0	0%	0	0%
Sheep	heads	42	+48%	0	0%
Processing activity	yes / no	no	no	no	no
Agrotourism	yes / no	no	no	no	no
Other farm activities	yes / no	yes	yes	no	no

Source: Own calculations based on typical farm modelling.

Table A-23: Adjustments of the production structure as reaction to policy changes on typical organic farms in Hungary, baseline (2013) compared to base year (2003)

		Arable farm (small, 9 ha)		Arable farm (medium, 374 ha)		Arable farm (large, 1 245 ha)	
		2003	2013	2003	2013	2003	2013
UAA (total)	ha	9	0%	374	0%	1 245	0%
Permanent grassland	ha	0	0%	0	0%	0	0%
Arable land	ha	9	0%	374	0%	1 245	0%
including							
Cereals	ha	3	0%	288	0%	330	0%
Oilseeds	ha	0	0%	42	0%	570	0%
Vegetables	ha	3	0%	44	0%	0	0%
Ley/ fodder mixtures	ha	3	0%	0	0%	0	0%
Dairy cows	heads	0	0%	0	0%	0	0%
Suckler cows	heads	0	0%	0	0%	0	0%
Cattle for fattening	heads	0	0%	0	0%	0	0%
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no
Other farm activities	yes / no	no	no	no	no	no	no
		Dairy farm (medium, 335 t milk)				Dairy farm (large, 3 360 t milk)	
		2003	2013			2003	2013
UAA (total)	ha	290	0%			1 850	0%
Permanent grassland	ha	45	0%			500	0%
Arable land	ha	245	0%			1 350	0%
including							
Cereals	ha	91	0%			850	0%
Oilseeds	ha	0	0%			0	0%
Vegetables	ha	0	0%			0	0%
Ley/ fodder mixtures	ha	105	0%			350	0%
Dairy cows	heads	60	0%			500	+16%
Suckler cows	heads	0	0%			0	0%
Cattle for fattening	heads	6	0%			250	0%
Processing activity	yes / no	yes	yes			no	no
Agrotourism	yes / no	no	no			yes	yes
Other farm activities	yes / no	yes	yes			yes	yes

Source: Own calculations based on typical farm modelling.

Table A-24: ***Adjustments of the production structure as reaction to policy changes on typical organic farms in Poland, baseline (2013) compared to base year (2003)***

		Arable farm (small, 17 ha)		Arable farm (large, 100 ha)		Dairy farm (small, 34 t milk)	
		2003	2013	2003	2013	2003	2013
UAA (total)	ha	17	+18%	100	0%	17	0%
Permanent grassland	ha	3	+120%	12	0%	4	0%
Arable land	ha	15	0%	88	0%	13	0%
including							
Cereals	ha	2	0%	47	0%	3	0%
Oilseeds	ha	0	0%	0	0%	0	0%
Vegetables	ha	3	0%	4	0%	1	0%
Ley/ fodder mixtures	ha	4	-24%	37	0%	8	0%
Permanent crops / fruits	ha	4	0%	0	0%	1	0%
Dairy cows	heads	2	0%	14	0%	7	0%
Suckler cows	heads	0	0%	0	0%	0	0%
Cattle for fattening	heads	3	+100%	6	0%	0	0%
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	yes	yes
Other farm activities	yes / no	no	no	yes	yes	yes	yes

		Dairy farm (medium, 88 t milk)		Dairy farm (medium, 100 t milk)	
		2003	2013	2003	2013
UAA (total)	ha	18	0%	48	0%
Permanent grassland	ha	5	0%	35	0%
Arable land	ha	13	0%	13	0%
including					
Cereals	ha	0	0%	5	0%
Oilseeds	ha	0	0%	0	0%
Vegetables	ha	0	0%	2	0%
Ley/ fodder mixtures	ha	13	0%	7	0%
Permanent crops / fruits	ha	1	0%	0	0%
Dairy cows	heads	18	0%	30	0%
Suckler cows	heads	0	0%	0	0%
Cattle for fattening	heads	0	0%	0	0%
Processing	yes / no	no	no	yes	yes
Processing activity	yes / no	no	no	no	no
Other farm activities	yes / no	no	no	no	no

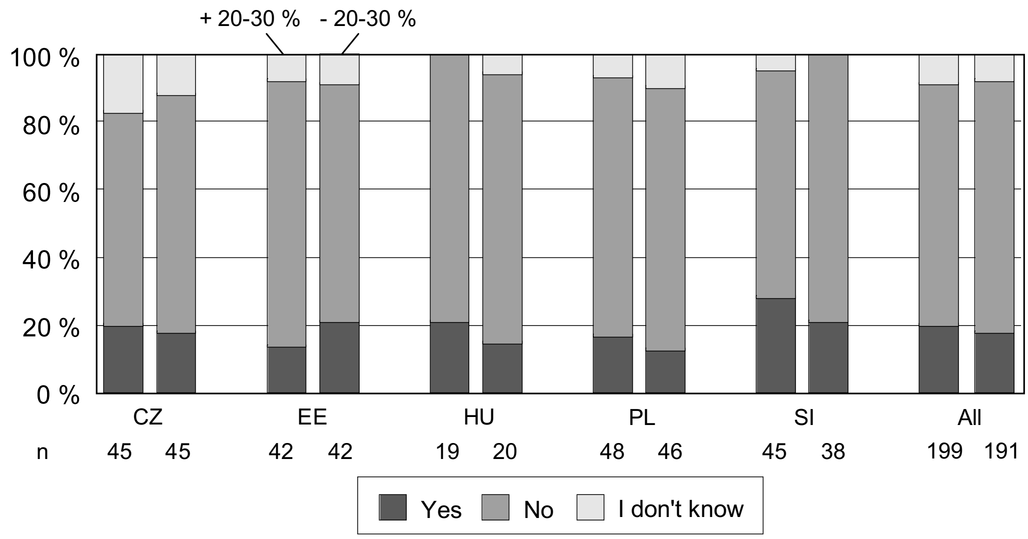
Source: Own calculations based on typical farm modelling.

Table A-25: Adjustments of the production structure as reaction to policy changes on typical organic farms in Slovenia, baseline (2013) compared to base year (2003)

		Arable farm (small, 13 ha)		Dairy farm (small, 28 t milk)		Cow-calf farm (small, 9 ha, 9 cows)	
		2003	2013	2003	2013	2003	2013
UAA (total)	ha	13	+54%	13	0%	9	0%
Permanent grassland	ha	3	-40%	13	0%	9	0%
Arable land	ha	10	+82%	0	0%	0	0%
including							
Cereals	ha	5	+140%	0	0%	0	0%
Oilseeds	ha	0	0%	0	0%	0	0%
Vegetables	ha	1	+74%	0	0%	0	0%
Ley/ fodder mixtures	ha	2	-29%	0	0%	0	0%
Dairy cows	heads	0	0%	7	0%	0	0%
Suckler cows	heads	2	-100%	0	0%	6	0%
Cattle for fattening	heads	1	-100%	0	0%	3	0%
Processing activity	yes / no	yes	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no
Other farm activities	yes / no	no	no	no	no	no	no

Source: own calculations based on typical farm modelling

Figure A-21: Farmers' assessment of the need for changes on the farm following (a) a strong increase and (b) a strong decrease in the prices of organic feed grains[1)]



n: number of farmers answering

1) Question asked: (a) It is possible that the prices for organic feed grains increase by 20-30 %. Could such a development lead to adjustments on your farm? (b) It is possible that the prices for organic feed grains could drop by 20-30 %. Would such a development lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-26: Farmers' reactions to an increase in the prices of organic feed grains[1)]

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		9	6	4	7	13	39
		Percentage of farmers					
Increase in own grain production	%	56	83	25	29	15	38
Reduction of pork production due to higher production costs	%	22	17	25	14	15	18
Reduction of beef production due to higher production costs	%	0	0	25	14	23	13
Reduction of milk production due to higher production costs	%	11	0	0	0	15	8
Reduction of poultry production due to higher production costs	%	0	0	0	14	0	3
Probable changes not clear yet	%	11	17	25	29	31	23

1) Question asked: It is possible that the prices for organic feed grains increase by 20-30 %. Could such a development lead to adjustments on your farm? If yes, please specify (max. 3 answers).

Source: Own calculations based on farm survey winter/spring 2004.

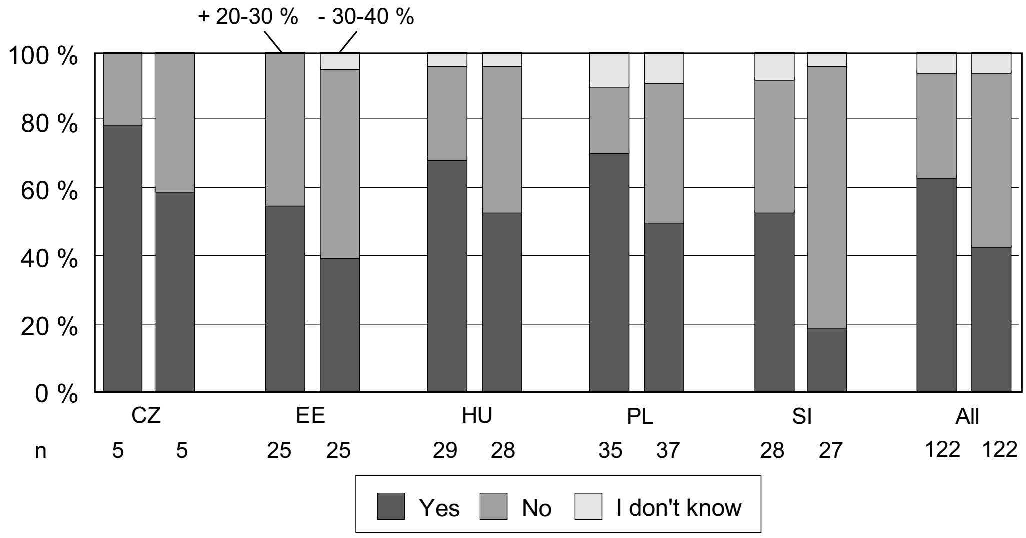
Table A-27: Farmers' reactions to a decrease in the prices of organic feed grains[1)]

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		8	9	3	7	7	34
		Percentage of farmers					
Reduction of own grain production	%	38	22	33	0	0	18
Ending of grain production	%	13	33	0	0	0	12
Increase in pork production	%	25	0	0	14	14	12
Increase in beef production	%	0	0	33	29	57	21
Increase in milk production	%	13	11	0	14	0	9
Expansion of poultry production	%	0	0	0	29	0	6
Increasing the grain content in feed ration	%	13	22	0	0	14	12
Other measures	%	0	44	0	0	0	12
Probable changes not clear yet	%	0	11	33	29	14	15

1) Question asked: It is possible that the prices for organic feed grains could drop by 20-30 %. such a development lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-22: Farmers' assessment of the need for changes on the farm following (a) a strong increase and (b) a strong decrease in the prices of organic vegetables and fruits[1)]



n: number of farmers answering

1) Question asked: (a) Do you think that an increase in prices for organic vegetables and fruits by 20-30 % could lead to adjustments on your farm? (b) Do you think that a price drop for vegetables and fruits by 30-40 % could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-28: Farmers' reactions to an increase in the prices of organic fruits and vegetables[1)]

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		4	15	19	22	14	74
		Percentage of farmers					
Increase in vegetable and/or fruit production	%	100	60	68	64	86	70
Increase in farm size (to expand vegetable and/or fruit production)	%	0	20	5	36	0	16
Introduction of vegetable/ fruit production	%	25	0	21	0	7	8
Reduction of other farm activities (cereals, fodder prod. etc.) in favour of vegetable and/or fruit production	%	0	13	5	41	21	20
Introduction of new farm activities	%	0	27	5	27	21	19
Investment in production technology	%	25	60	37	18	7	30
Intensification of marketing activities	%	0	40	26	5	0	16
Other measures	%	0	20	16	14	7	14

1) Question asked: Do you think that an increase in prices for organic vegetables and fruits by 20-30 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

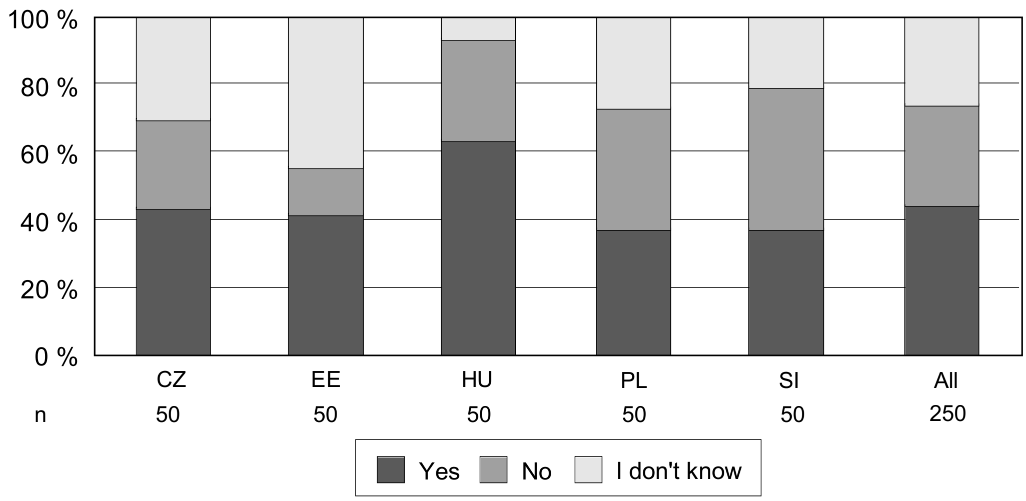
Table A-29: Farmers' reactions to a strong decrease in the prices of organic fruits and vegetables[1)]

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		3	10	15	17	5	50
		Percentage of farmers					
Reduction of vegetables / fruit production	%	67	20	27	71	40	44
Ending vegetables / fruit production	%	33	20	27	12	0	18
Drop in production costs through stronger rationalisation	%	0	0	13	24	20	14
Intensification of marketing activities	%	0	20	13	6	0	10
Expansion of other farm activities (crop production)	%	0	0	20	12	0	10
Introduction of new farm activities (e.g. processing etc.)	%	0	50	20	18	60	28
Closure of farm	%	0	0	7	0	0	2
Re-conversion to conventional farming	%	0	0	7	0	0	2
Other measures	%	0	20	0	12	0	8

1) Question asked: Do you think that a price drop for vegetables and fruits by 30-40 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-23: Farmers' assessment of the need for changes on the farm following increase in costs for labour[1)]



n: number of farmers answering

1) Question asked: It is conceivable, that the costs for labour might increase. Can you imagine this having an effect on your production program?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-30: Farmers' reactions to an increase in labour costs[1)]

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		18	14	23	15	5	75
		Percentage of farmers					
Decrease or ending of production of vegetables and/or fruits	%	6	0	30	87	20	29
Decrease or ending of production of other crops	%	22	0	4	13	20	11
Decrease or ending of animal husbandry	%	28	0	0	7	0	8
Decrease or ending of direct marketing activities and/or product processing	%	11	7	0	0	20	5
Increase mechanisation / rationalisation of production	%	0	43	13	0	0	12
Increase product prices / try to get higher prices	%	6	0	4	0	40	5
Increase the output/production quantity to reduce the costs per unit	%	0	29	9	7	20	11
Other adjustments	%	6	0	26	7	20	12
Probable changes not clear yet	%	39	29	13	7	0	20

1) Question asked: It is conceivable, that the costs for labour might increase. Can you imagine this having an effect on your production program? If yes, please specify (max. 3 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Table A-31: Adjustments of the production structure on typical organic farms in the Czech Republic in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (large, 200 ha)			Dairy farm (small, 58 t milk)			Cow-calf farm (small, 100 ha)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	267	+125%	-26%	62	+52%	0%	70	0%	0%
Permanent grassland	ha	32	0%	0%	12	+67%	0%	70	0%	0%
Arable land	ha	235	+142%	-30%	50	+48%	0%	0	0%	0%
including										
Cereals	ha	165	+124%	-36%	29	+24%	0%	0	0%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	ha	0	0%	0%	0	0%	0%	0	0%	0%
Ley/ fodder mixtures	ha	70	+139%	-31%	21	+76%	0%	0	0%	0%
Dairy cows	heads	0	0%	0%	16	+56%	0%	0	0%	0%
Suckler cows	heads	0	0%	0%	0	0%	0%	7	0%	0%
Cattle for fattening	heads	0	0%	0%	10	+50%	0%	5	0%	0%
Processing activity	yes / no	no	no	no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no	yes	yes	yes
Other farm activities	yes / no	no	no	no	no	no	no	yes	yes	yes
		Cow-calf farm (medium, 140 ha)			**Cow-calf farm (large, 551 ha, 145 cows)**			**Cow-calf farm (large, 500 ha, 160 cows)**		
		bl	**Sc1**	**Sc2**	**bl**	**Sc1**	**Sc2**	**bl**	**Sc1**	**Sc2**
UAA (total)	ha	360	+10%	-61%	536	0%	0%	435	+38%	0%
Permanent grassland	ha	360	+10%	-61%	536	0%	0%	400	+29%	0%
Arable land	ha	0	0%	0%	0	0%	0%	35	+143%	0%
including										
Cereals	ha	0	0%	0%	0	introd.	0%	20	+300%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	ha	0	0%	0%	0	0%	0%	5	-100%	0%
Ley/ fodder mixtures	ha	0	0%	0%	0	0%	0%	10	-100%	0%
Dairy cows	heads	0	0%	0%	0	0%	0%	0	0%	0%
Suckler cows	heads	120	+67%	-42%	145	0%	0%	160	+19%	0%
Cattle for fattening	heads	0	introd.	0%	0	0%	0%	62	+16%	0%
Processing activity	yes / no	no	no	no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no	yes	no	yes
Other farm activities	yes / no	no	no	yes	no	no	no	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-32: Adjustments of the production structure on typical organic farms in Estonia in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (large, 89 ha)			Dairy farm (large, 194 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	89	+8%	0%	230	0%	0%
Permanent grassland	ha	4	0%	0%	171	0%	0%
Arable land	ha	85	0%	0%	59	0%	0%
including							
Cereals	ha	40	0%	-37%	30	0%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%
Vegetables	ha	5	0%	0%	0	0%	0%
Ley/ fodder mixtures	ha	36	+19%	+41%	200	0%	0%
Dairy cows	heads	0	0%	0%	86	+35%	+35%
Suckler cows	heads	0	0%	0%	0	0%	0%
Cattle for fattening	heads	0	0%	0%	0	0%	0%
Sheep	heads	62	+96%	0%	0	0%	0%
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no
Other farm activities	yes / no	yes	yes	yes	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2

Source: Own calculations based on typical farm modelling.

Table A-33: Adjustments of the production structure on typical organic farms in Hungary in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (small, 9 ha)			Arable farm (medium, 374 ha)			Arable farm (large, 1 245 ha)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	9	+33%	0%	374	0%	0%	1 245	-24%	-24%
Permanent grassland	ha	0	0%	0%	0	0%	0%	0	0%	0%
Arable land	ha	9	+33%	0%	374	0%	0%	1 245	0%	0%
including										
Cereals	ha	3	0%	+100%	288	-10%	+21%	330	-71%	-85%
Oilseeds	ha	0	0%	0%	42	0%	-100%	570	-23%	-22%
Vegetables	ha	3	+100%	-100%	44	+68%	-41%	0	introd.	0%
Ley/ fodder mixtures	ha	3	0%	0%	0	0%	0%	0	introd.	introd.
Dairy cows	heads	0	0%	0%	0	0%	0%	0	0%	0%
Suckler cows	heads	0	0%	0%	0	0%	0%	0	0%	0%
Cattle for fattening	heads	0	0%	0%	0	0%	0%	0	introd.	introd.
Sheep	heads	0	0%	0%	0	0%	0%	0	introd.	introd.
Processing activity	yes / no	no	yes	no	no	no	no	no	yes	yes
Agrotourism	yes / no	no	no	no	no	no	no	no	no	no
Other farm activities	yes / no	no	no	no	no	no	no	no	yes	yes

		Dairy farm (medium, 335 t milk)			Dairy farm (large, 3 360 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	290	0%	0%	1 850	0%	0%
Permanent grassland	ha	45	0%	0%	500	0%	0%
Arable land	ha	245	0%	0%	1 350	0%	0%
including							
Cereals	ha	91	0%	0%	850	0%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%
Vegetables	ha	0	0%	0%	0	0%	0%
Ley/ fodder mixtures	ha	105	0%	0%	350	0%	0%
Dairy cows	heads	60	0%	0%	580	0%	0%
Suckler cows	heads	0	introd.	0%	0	0%	0%
Cattle for fattening	heads	12	0%	0%	250	+40%	0%
Processing activity	yes / no	yes	yes	yes	no	no	no
Agrotourism	yes / no	no	no	no	yes	yes	yes
Other farm activities	yes / no	yes	yes	yes	yes	yes	yes

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-34: *Adjustments of the production structure on typical organic farms in Poland in 2013, changes in different market scenarios compared with the baseline in %*

		Arable farm (small, 17 ha)			Arable farm (large, 100 ha)			Dairy farm (small, 34 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	20	0%	0%	100	0%	0%	17	0%	0%
Permanent grassland	ha	6	0%	0%	12	0%	0%	4	0%	0%
Arable land	ha	15	0%	0%	88	0%	0%	13	0%	0%
including										
Cereals	ha	2	0%	0%	47	0%	-85%	3	-11%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	ha	3	0%	0%	4	0%	-100%	1	+60%	0%
Ley/ fodder mixtures	ha	3	0%	0%	37	0%	+119%	8	-3%	0%
Permanent crops / fruits	ha	4	0%	0%	0	0%	0%	1	0%	0%
Dairy cows	heads	2	0%	0%	14	0%	-100%	7	+29%	0%
Suckler cows	heads	0	0%	0%	0	0%	introd.	0	0%	0%
Cattle for fattening	heads	6	0%	0%	6	0%	0%	0	0%	0%
Processing activity	yes / no	no	no	no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no	yes	yes	yes
Other farm activities	yes / no	no	no	no	yes	yes	no	yes	yes	yes

		Dairy farm (medium, 88 t milk)			Dairy farm (medium, 100 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	18	0%	0%	48	+73%	0%
Permanent grassland	ha	5	0%	0%	35	+66%	0%
Arable land	ha	13	0%	0%	13	+92%	0%
including							
Cereals	ha	0	0%	0%	5	+122%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%
Vegetables	ha	0	0%	0%	2	0%	0%
Ley/ fodder mixtures	ha	13	0%	0%	7	+93%	0%
Permanent crops / fruits	ha	1	0%	0%	0	0%	0%
Dairy cows	heads	18	0%	0%	30	+100%	0%
Suckler cows	heads	0	0%	0%	0	0%	0%
Cattle for fattening	heads	0	0%	0%	0	0%	0%
Processing activity	yes / no	no	yes	no	yes	yes	yes
Agrotourism	yes / no	no	no	no	no	no	no
Other farm activities	yes / no	no	no	no	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-35: Adjustments of the production structure on typical organic farms in Slovenia in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (small, 13 ha)			Dairy farm (small, 28 t milk)			Cow-calf farm (small, 9 ha, 9 cows)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	20	0%	-35%	13	0%	0%	9	0%	0%
Permanent grassland	ha	2	0%	+67%	13	0%	0%	9	0%	0%
Arable land	ha	18	0%	-45%	0	0%	0%	0	0%	0%
including										
Cereals	ha	12	0%	-58%	0	0%	0%	0	0%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	ha	2	0%	-43%	0	0%	0%	0	0%	0%
Ley/ fodder mixtures	ha	1	0%	+42%	0	0%	0%	0	0%	0%
Dairy cows	heads	0	0%	0%	7	0%	0%	0	0%	0%
Suckler cows	heads	0	0%	introd.	0	0%	0%	6	0%	+17%
Cattle for fattening	heads	0	0%	introd.	0	0%	0%	3	0%	-100%
Processing activity	yes / no	no	no	yes	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no	no	no	no
Other farm activities	yes / no	no	no	no	no	no	no	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

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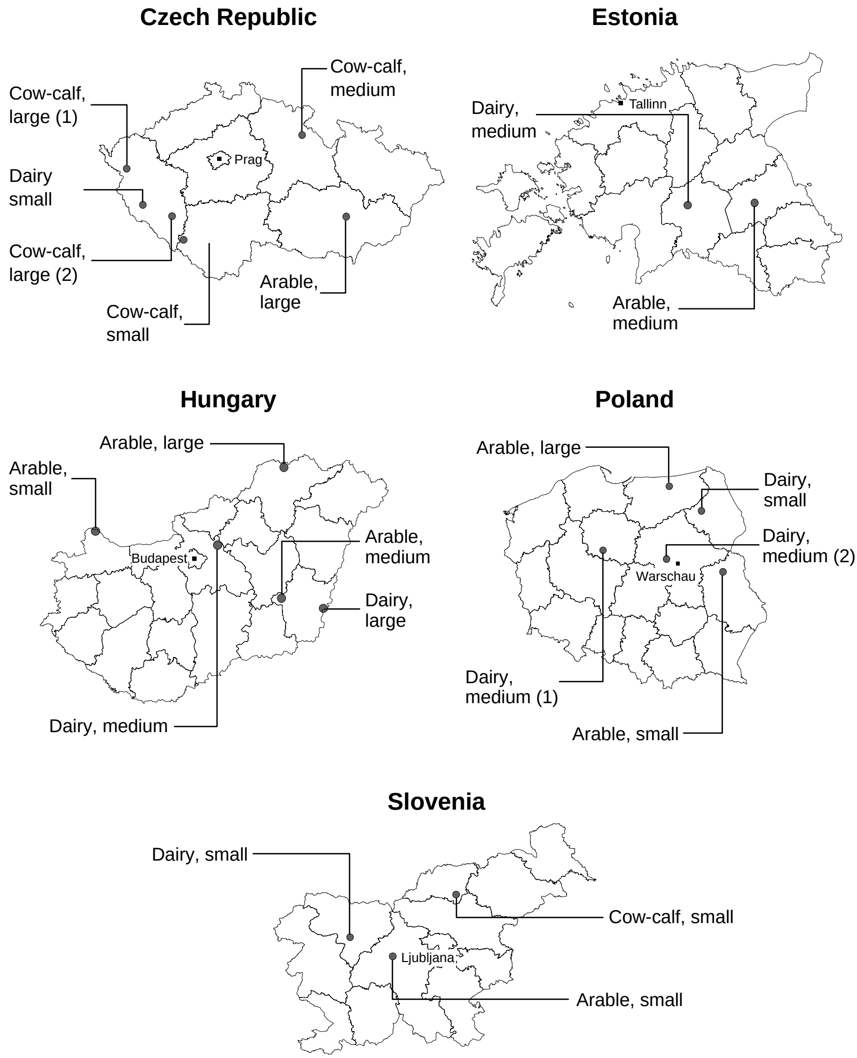
Annex

Figure A-1: Typical farms in Eastern European countries



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Austria

The choice of farms took place in cooperation with 'Bio-Ernte', the organic farmers' organisation. There are 12 000 farmers in this association, accounting for about 65% of all organic farms in Austria.

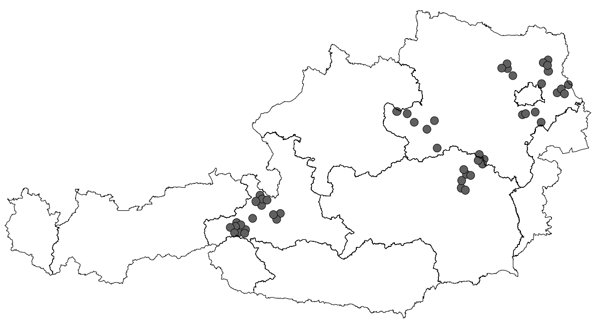
Austria was divided into the following three regions: Northeast Austria (Upper Austria, Lower Austria, Vienna and Burgenland), Southeast Austria (Kärnten, Steiermark and East Tyrol) and West Austria (Vorarlberg, Tyrol without East Tyrol and Salzburg). The number of farmers to be interviewed in each region was determined on the basis of the guidelines specified (chapter 2.3.2).

Due to shortage of time and financial means, it was decided not to carry out the survey in all of Austria as previously planned, but rather to set regional emphases. These were chosen so that all relevant farm types and sizes were included in the survey. The choice of farms was carried out by three regional offices of Bio-Ernte. Farms with the desired farm focus were chosen on the basis of the likelihood that they would indeed participate.

Ultimately, the survey was carried out with the following regional and associated farm focus:

1. Northeast Austria: 18 farms in the vicinity of greater Vienna (arable crop farms)
2. Southeast Austria: 15 farms in the Mürzzuschlag and the Bruck an der Mur area as well as the southern Most Quarter (mixed farms and beef production)
3. West Austria: 17 farms in the Mittersill and Zell am See area, and Saalfelden (dairy and beef production)

Location of the farms surveyed in Austria



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Germany

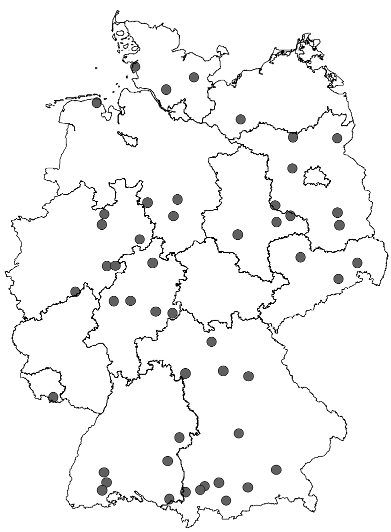
The Institute of Farm Economics has a database (including structural data) of 218 organic farms throughout all of Germany. This information was gathered – according to the agreed guidelines – in 2002, as part of another project (see Rahmann et al. 2004).

For the creation of this sample of 218 farms, data from 17 organic certification bodies and one Länder ministry responsible for agriculture were available, covering more than 90% of German organic farms. The farms to be surveyed were selected at random from this database. Firstly, in order to take the regional specifications into account, farms from the sample were divided into five regions, according to location. This sample is therefore a regionally-stratified random sample.

From this 218-farm sample, the 50 farms necessary for this project were chosen at random according to the guideline requirements.

1. Northern Germany: Schleswig-Holstein, Hamburg, Bremen, Niedersachsen: 7 farms
2. Western Germany: Nordrhein-Westfalen, Hessen, Rheinland-Pfalz, Saarland: 12 farms
3. Southern Germany: Baden-Württemberg, Bayern: 19 farms
4. Eastern Germany – North: Mecklenburg-Vorpommern, Brandenburg, Berlin: 7 farms
5. Eastern Germany – South: Sachsen, Sachsen-Anhalt, Thüringen: 5 farms

Location of the farms surveyed in Germany

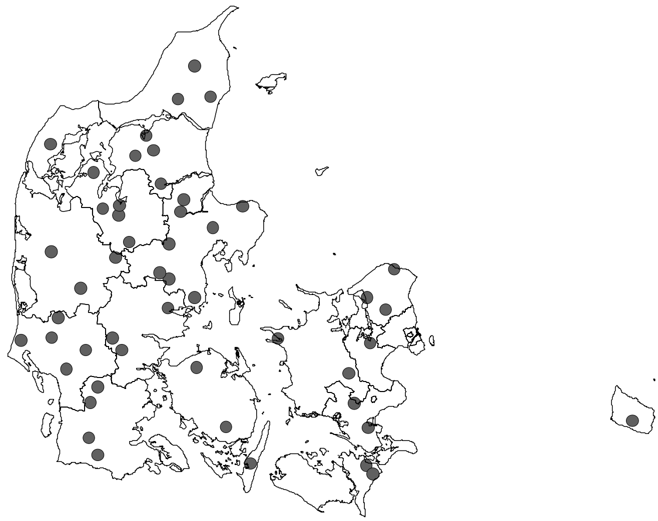


Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Denmark

In Denmark, an address list of all Danish organic farms is available. Distribution by region was not considered necessary and a random sample was drawn from this address list. Farms on very small islands were replaced with other farms chosen at random.

Location of the farms surveyed in Denmark



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Italy

Due to shortages of time and finance, it was decided not to carry out the survey in all of Italy, but to set regional emphases.

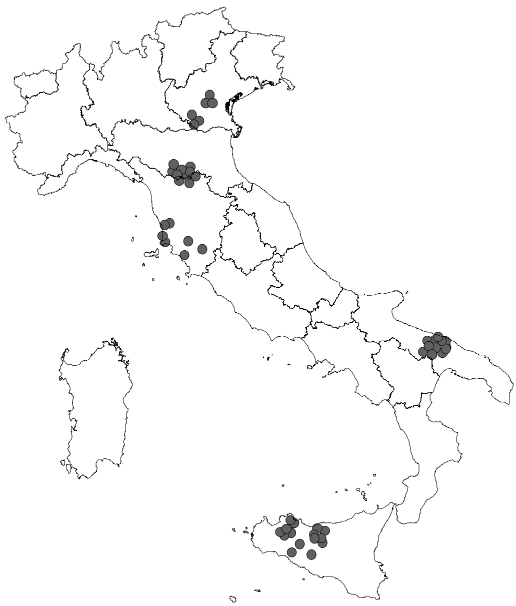
Farm selection was made in two steps according to the number of organic farms in each Italian region. In the first step, two regions were extracted in the north; one region in the centre; one in the south and one of the islands. The number of regions in each geographic area was chosen in order to represent diverse agricultural conditions and not on the basis of numerical representation. The regions in each area were extracted using a Probability Proportional to Sample (PPS) sampling method: the probability of extracting a region in each area was proportional to the ratio of organic farmers to total farmers. The regions extracted are representative of different conditions for organic farming in Italy and are: Emilia and Veneto in the north, Tuscany in the centre, Puglia in southern Italy and the island of Sicily.

In the second step, the number of farmers to be interviewed in each region was then calculated by applying the project methodology as described previously (chapter 2.3.2).

1. Veneto: 6 farms
2. Emilia: 10 farms
3. Tuscany: 7 farms
4. Puglia: 12 farms
5. Sicily: 15 farms

For these regions, a complete data set of organic farms was available. Within the regions, a cluster analysis was used to carry out further regional concentrations. The selection and contacting of farms took place in collaboration with and through private control bodies and certification organisations. The final choice of farms to be included in the survey was left to the interviewers, who were inspectors from the organic control bodies.

Location of the farms surveyed in Italy



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in the UK

In the UK, the focus was on holdings in England and Wales as extending coverage to Scotland and Northern Ireland entailed logistical problems as well as problems relating to the devolved policy and data collection regimes in those countries. In England and Wales, four regions were identified to segregate differences in structural and location characteristics. These were Northern England, Central and Eastern England, South Western England and Wales. These regions were based on the statistical regions used for differentiating FADN data collection.

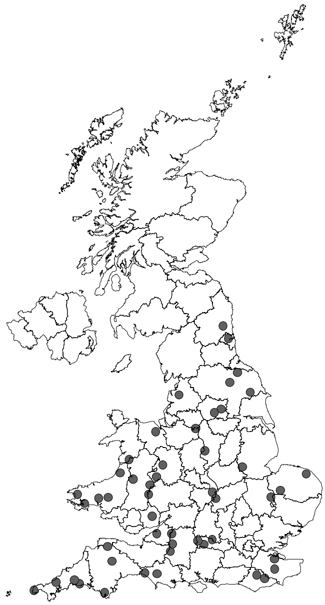
The method of proportional division by square root was used to determine the number of farms to be interviewed per region, as outlined in the farm selection guidelines for the survey:

1. Northern England: 9 farms
2. Eastern England: 16 farms
3. South Western England: 14 farms
4. Wales: 11 farms

The farms were selected utilising two strategies; these were via the Farm Business Survey unit at Aberystwyth and via independent random sampling by the survey co-ordinator for UK:

- *Farm Business Survey organic holdings*: The Institute of Rural Sciences at Aberystwyth is currently contracted by DEFRA to collect organic farm income data for eight main farm types throughout England and Wales. Random sampling techniques were employed during the recruitment phase for this project. Consequently, it was decided to ask farmers participating in the economics research work to participate in the organic farming policy survey. Of the participants in the economics research work, 32 agreed to participate in the policy survey, an approximate response rate of 40%.
- *Separate interviews:* An additional 18 farmers were recruited utilising the prescribed methodology set out in the guidelines for selecting farms for farm survey. This involved the sending of an introductory letter from one interviewer/co-ordinator, followed by a telephone conversation to ask for farmer participation. In total, 42 letters were sent out to farms in order to recruit the additional 18 participants for the survey, giving a response rate of 42%. The address lists for identifying farmers on a regional basis were supplied by two organic certification bodies: the Soil Association and Organic Farmers and Growers.

Location of the farms surveyed in the UK



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Switzerland

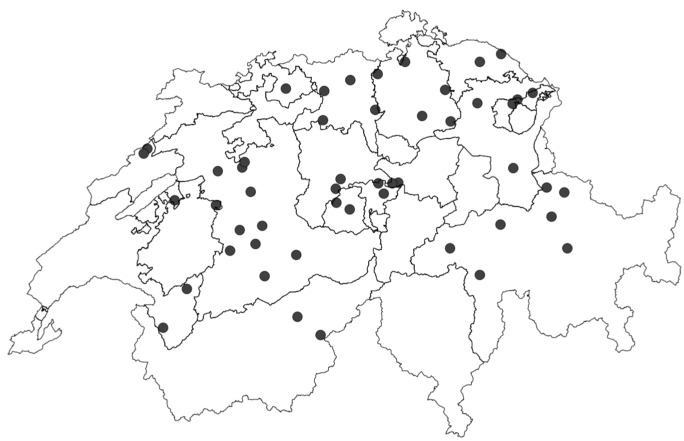
An address file including about 97% of all organic farms in Switzerland was available from the organic inspection service, 'Bio-Inspecta'. The country was divided into four main regions, with further division of the regions Mittelland, West Switzerland and East Switzerland into mountain and valley sub-regions.

The calculation of the number of farms in each region took place according to the farm selection guidelines for the survey:

1. Mittelland, Western Switzerland, Tessin: 18 farms
2. Northwest Switzerland: 5 farms
3. Eastern Switzerland: 14 farms
4. Central Switzerland and Zurich: 13 farms

The farms to be interviewed were selected randomly.

Location of the farms surveyed in Switzerland

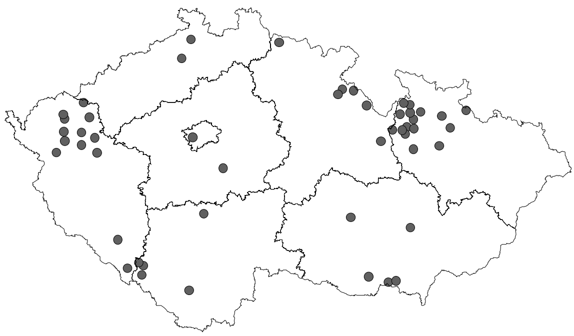


Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in the Czech Republic

The selection of organic farms was made on the basis of a database from the inspection and certification body 'KEZ, o.p.s'[1], containing all organic farms in the Czech Republic. The farms included in the database were then divided on the basis of two regional characteristics: highland and lowland. The distribution of Czech regions (NUTS2) between lowland and highland was made on the basis of expert estimates and geographical characteristics. In a meeting with the PRO-BIO farm association, the relative proportions of low and highland farms in the sample were discussed. According to their expert recommendation, a ratio of 10 (lowland) to 40 (highland) farms was chosen. The final choice of farms to be included in the survey was left to the regional representatives of PRO-BIO.

Location of the farms surveyed in the Czech Republic



Source: Own compilation.

1 o.p.s. = public benefit company

Type of farm selection and the spatial distribution of the farms surveyed in Estonia

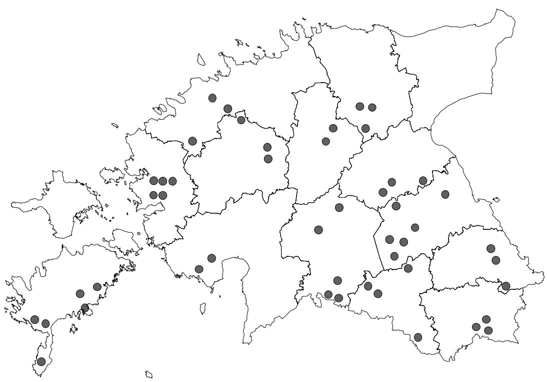
In Estonia, data on organic farms were made available by the Organic Agriculture Department of the Estonian Plant Production Inspectorate (PPI), which is the inspection and certification body for organic farming in Estonia.

For the survey, the territory of Estonia was divided into four regions. The determination of the number of farms to be interviewed per region was undertaken according to the farm selection guidelines for the survey (with some minor adjustments):

1. North and North Eastern Estonia (counties: Harju, Lääne-Viru, Ida-Viru): 6 farms
2. Central Estonia (Rapla, Järva, Jõgeva, Viljandi): 13 farms
3. West Estonia and islands (Pärnu, Lääne, Saare, Hiiu): 13 farms
4. South Estonia (Tartu, Valga, Põlva, Võru): 18 farms

For the farm selection, a two-way sampling process was chosen. In the first step, the farms to be interviewed in every region were selected randomly. In a second step, some of the selected farms were replaced by further farms also chosen at random, in order that the different farm types were represented in the sample.

Location of the farms surveyed in Estonia



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Hungary

For Hungary, only an address list of organic farms that received organic area payments in 2001 and 2002 was available.

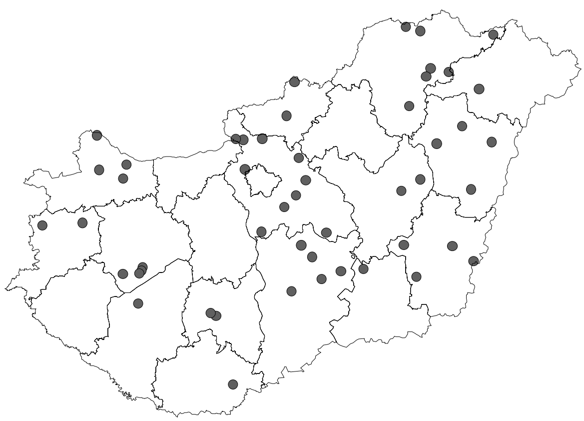
On the basis of a survey of organic farms carried out in the summer of 2001 and expert assessment, the following regional divisions for the surveyed farms were established:

1. Dél-Alföld Region (Bács-Kiskun, Békés, Csongrád): 10 farms (20%)
2. Dél-Dunántúl Region (Baranya, Somogy, Tolna): 4 farms (8%)
3. Észak-Alföld Region (Hajdú, Jász-Nagykun, Szabolcs): 7 farms (14%)
4. Észak-Magyarország Region (Borsod, Heves, Nógrád): 9 farms (18%)
5. Közép-Dunántúl Region (Fejér, Komárom, Veszprém): 5 farms (10%)
6. Közép-Magyarország Region (Pest, Budapest): 10 farms (20%)
7. Nyugat-Dunántúl Region (Győr, Vas, Zala): 5 farms (10%)

In order to best consider the production structure of Hungarian farms, main farm activities were taken into account: 20-25 farms producing mainly cereals and oilseeds, 10-15 farms producing vegetables, fruits and grapes, 5-10 livestock rearing farms and 5-10 miscellaneous farms.

For the farm selection, a two-way sampling process was chosen. Regional representation was the primary selection factor and production was the second. Firstly, the farms to be interviewed in each region were selected at random. In a second step, some of the selected farms were replaced by further (randomly chosen) farms in order that the different farm types were represented in the sample.

Location of the farms surveyed in Hungary



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Poland

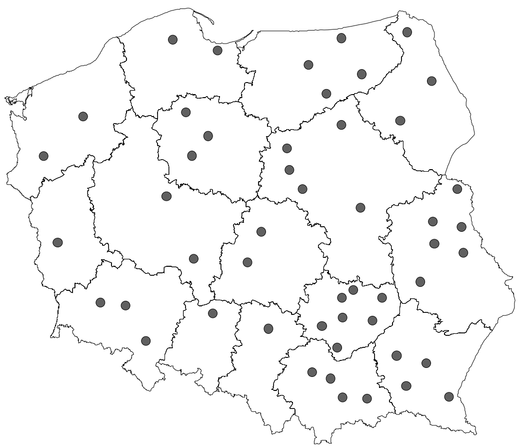
An address list of all organic farms from the inspection bodies in Poland was available.

Poland was divided into three main regions. Calculation of the number of farms in each region took place as described in the farm selection guidelines for the survey.

1. Region 1 (West Poland): 11 farms
2. Region 2 (North-East Poland): 13 farms
3. Region 3 (South-East Poland): 26 farms

Farm selection was undertaken by the regional inspection bodies according to the guidelines for the survey. Farmers who were not willing to participate in the survey were replaced by other organic farms nearby.

Location of the farms surveyed in Poland



Source: Own compilation.

Type of farm selection and the spatial distribution of the farms surveyed in Slovenia

Data in Slovenia were made available from the Union of Slovenian Organic Farmers' Association (USOFA). This database includes more than 50% of all certified farms in Slovenia.

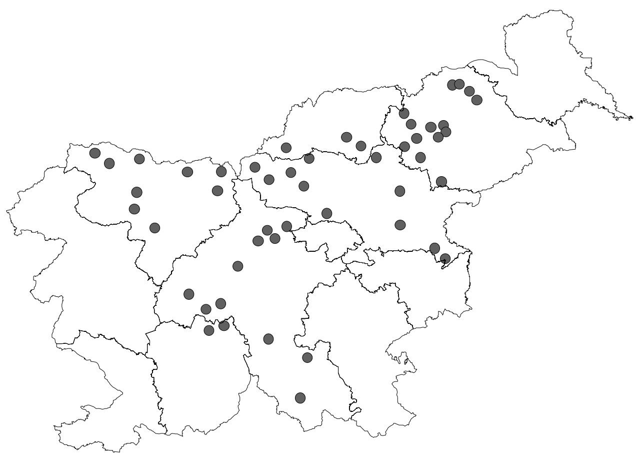
Out of the 12 statistical regions (specific Slovenian state divisions for national statistical purposes), five survey regions were formed by combining a number of statistical regions into one survey region, and by excluding two statistical regions (the coastal area of South West Slovenia, and Pomurje in North East Slovenia, as few organic farms are located in these two regions). The final interview area thus covered approximately 85% of the country. During the procedure, structural and locational factors were taken into account: climate, geographical characteristics and, therefore, the prevailing type of agricultural production.

The number of farms to be interviewed per region was determined according to the farm selection guidelines for the survey:

1. Ljubljana - SV okolica: 8 farms
2. Notranjsko-kočevska: 5 farms
3. Podravje, Pohorje, Koroška: 17 farms
4. Celjsko-savinjska: 11 farms
5. Gorenjska: 9 farms

A random sample of farms was drawn from each region, consistent with the calculated number of farms required.

Location of the farms surveyed in Slovenia



Source: Own compilation.

Table A-1: Distribution of the surveyed farms according to farm size categories

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	49	50	50	50	50	50	50	299	250	549
		Percentage of farms													
ha UAA															
> 0 - 5	**%**	4	0	2	4	0	6	0	2	8	10	14	3	7	5
> 5 - 10	**%**	18	0	10	8	2	16	0	4	4	32	28	9	14	11
> 10 - 30	**%**	42	18	20	46	14	62	18	18	26	34	42	34	28	31
> 30 - 50	**%**	18	16	18	22	6	14	8	16	10	16	4	16	11	13
> 50 - 100	**%**	16	28	20	12	39	2	12	28	14	4	12	19	14	17
> 100 - 200	**%**	2	20	20	6	31	0	16	16	10	2	0	13	9	11
> 200 - 500	**%**	0	10	10	0	4	0	18	12	8	2	0	4	8	6
> 500 - 1000	**%**	0	2	0	2	4	0	14	4	6	0	0	1	5	3
> 1000	**%**	0	6	0	0	0	0	14	0	14	0	0	1	6	3

Source: Own calculations based on farm survey winter/spring 2004.

Table A-2: Farm types of surveyed farms[1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Mixed farm	%	**2**	**18**	**4**	**28**	**20**	**2**	**4**	**30**	**18**	**42**	**10**	**12**	**21**	**16**
Arable farm - all	%	**28**	**22**	**40**	**12**	**14**	**8**	**14**	**14**	**50**	**20**	**10**	**21**	**22**	**21**
... mainly cereal, oilseed, pulses	%	*4*	*4*	*32*	*12*	*2*	*0*	*8*	*6*	*26*	*10*	*2*	*9*	*10*	*10*
... mainly potatoes, sugar beet, vegetables	%	*6*	*6*	*2*	*0*	*4*	*2*	*2*	*0*	*12*	*6*	*4*	*3*	*5*	*4*
... mixed	%	*18*	*12*	*6*	*0*	*8*	*6*	*4*	*8*	*12*	*4*	*4*	*8*	*6*	*7*
Grazing livestock farm - all	%	**56**	**56**	**52**	**24**	**52**	**80**	**80**	**46**	**12**	**24**	**72**	**53**	**47**	**50**
... mainly dairy	%	*26*	*22*	*34*	*8*	*14*	*54*	*4*	*28*	*4*	*16*	*4*	*26*	*11*	*19*
... mainly suckler cows	%	*12*	*28*	*4*	*0*	*8*	*10*	*48*	*6*	*0*	*0*	*40*	*10*	*19*	*14*
... mainly cattle for fattening	%	*4*	*0*	*10*	*14*	*6*	*6*	*4*	*0*	*0*	*0*	*8*	*7*	*2*	*5*
... mainly sheep and goats	%	*2*	*6*	*2*	*2*	*2*	*6*	*2*	*10*	*4*	*6*	*16*	*3*	*8*	*5*
... mixed	%	*12*	*0*	*2*	*0*	*22*	*4*	*22*	*2*	*4*	*2*	*4*	*7*	*7*	*7*
Intensive livestock farm - all	%	**8**	**2**	**4**	**0**	**10**	**2**	**0**	**4**	**2**	**0**	**0**	**4**	**1**	**3**
... mainly pig production	%	*2*	*0*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*
... mainly poultry production	%	*0*	*2*	*4*	*0*	*6*	*2*	*0*	*0*	*0*	*0*	*0*	*2*	*0*	*1*
... mixed	%	*6*	*0*	*0*	*0*	*2*	*0*	*0*	*4*	*2*	*0*	*0*	*1*	*1*	*1*
Permanent crops farm - all	%	**6**	**0**	**0**	**34**	**2**	**6**	**2**	**0**	**14**	**6**	**4**	**8**	**5**	**7**
... mainly vineyards	%	*4*	*0*	*0*	*6*	*0*	*4*	*2*	*0*	*6*	*0*	*0*	*2*	*2*	*2*
... mainly fruits and citrus	%	*0*	*0*	*0*	*4*	*2*	*0*	*0*	*0*	*8*	*2*	*2*	*1*	*2*	*2*
... others	%	*2*	*0*	*0*	*24*	*0*	*2*	*0*	*0*	*0*	*4*	*2*	*5*	*1*	*3*
Horticultural farm	%	**0**	**2**	**0**	**2**	**2**	**2**	**0**	**6**	**4**	**8**	**4**	**1**	**4**	**3**

1) Question asked: What is the main focus of your farm? (The focus is defined by the main source of income, if there is no main source of income, the farm is classified as mixed farm.)

Source: Own calculations based on farm survey winter/spring 2004.

Table A-3: Labour force and structure of the surveyed farms (AWU/farm, average of all farms)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		AWU / farm													
AWU family workers	Mean	1.8	1.3	0.7	2.0	1.7	1.7	1.2	1.7	1.9	2.4	2.1	1.5	1.8	1.7
AWU permanent employees	Mean	0.0	1.4	0.3	0.7	0.5	0.1	6.3	1.6	16.0	0.4	0.0	0.5	4.9	2.5
AWU trainees and apprentices	Mean	0.1	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1
AWU total	**Mean**	**1.9**	**3.0**	**1.2**	**2.8**	**2.2**	**1.8**	**7.5**	**3.3**	**18.0**	**2.9**	**2.1**	**2.1**	**6.8**	**4.2**
AWU seasonal workers	Mean	0.9	0.5	0.0	0.8	0.1	0.0	0.2	0.1	1.7	1.1	0.1	0.4	0.6	0.5
AWU total incl. seasonal labour	**Mean**	**2.8**	**3.5**	**1.2**	**3.6**	**2.4**	**1.9**	**7.7**	**3.4**	**19.7**	**4.0**	**2.1**	**2.5**	**7.4**	**4.7**

AWU= Annual Working Unit; 1 AWU = 2200 hours per year. One person working more than 2200 hours/year is counted as 1 AWU. Family members count as from the age of 15/16 years.

Source: Own calculations based on farm survey winter/spring 2004.

Table A-4: Percentage of surveyed farms with permanent employees, trainees/apprentices and seasonal/casual labour and the respective AWUs of these farms

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
Permanent employees															
% of farms		4	42	22	28	30	6	56	26	44	18	2	22	29	25
AWU		1	3.3	1.5	2.6	1.6	0.9	11	6.1	36	2.1	1	2.3	16.6	9.8
Trainees / apprentices															
% of farms		2	22	8	2	2	14	10	0	14	12	2	8	8	8
AWU		4	1.4	2	1	1	0.7	0.4	0	1	1	1	1.4	0.8	1.2
Seasonal workers															
% of farms		66	42	12	70	34	34	48	28	66	76	24	43	48	45
AWU		1.4	1.2	0.2	1.1	0.4	0.1	0.4	0.3	2.6	1.5	0.2	1	1.3	1.1

AWU= Annual Working Unit; 1 AWU = 2200 hours per year. One person working more than 2200 hours/year is counted as 1 AWU. Family members count as from the age of 15/16 years.

Source: Own calculations based on farm survey winter/spring 2004.

Table A-5: Legal status of the surveyed farms/enterprises

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Private / Family Farm	**%**	100	88	96	92	96	96	70	86	70	100	100	95	85	90
Joint stock company	**%**	0	6	2	0	2	4	4	6	2	0	0	2	2	2
Limited.	**%**	0	2	2	8	2	0	24	4	14	0	0	2	8	5
Co-operative	**%**	0	0	0	0	0	0	0	2	8	0	0	0	2	1
Other	**%**	0	4	0	0	0	0	2	2	6	0	0	1	2	1

Source: Own calculations based on farm survey winter/spring 2004.

Table A-6: Percentage of fully and partially converted surveyed farms[1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
		Percentage of farms													
Fully converted	**%**	100	100	94	84	86	100	94	70	62	100	100	94	85	90
Partially converted	**%**	0	0	6	16	14	0	6	30	38	0	0	6	15	10

1) Question asked: Is the farm fully or partially converted?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-7: Surveyed farms with exclusively arable land, permanent pasture or permanent crops

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	49	50	50	50	50	50	50	299	250	549
		Percentage of farms													
Exclusively arable land	**%**	22	2	22	22	10	0	6	4	26	0	2	13	8	11
Exclusively permanent pasture	**%**	50	28	2	0	20	60	54	0	0	2	14	27	14	21
Exclusively permanent crops	**%**	2	0	0	24	0	0	0	0	8	0	0	4	2	3

Source: Own calculations based on farm survey winter/spring 2004.

Table A-8: Utilisation of arable land - average share of different crops in the respective farm samples [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms with arable land	**N**	24	35	49	37	37	20	21	50	42	49	38	202	200	402
		Average share (as % of arable land)													
Cereals (without maize)	**%**	43	49	41	34	30	34	69	32	35	55	32	42	40	41
Grain maize	**%**	7	2	0	0	0	6	0	0	9	0	6	1	5	4
Dried pulses	**%**	8	8	5	3	6	2	1	2	2	5	2	6	2	4
Potatoes	**%**	7	2	0	0	2	4	1	1	0	4	8	2	1	1
Industrial crops (Rape, sunflower, soya etc.)	**%**	2	2	1	7	1	1	9	1	21	1	11	2	14	9
Outdoor fresh vegetables, melons, strawberries	**%**	10	6	0	0	3	8	0	0	3	8	10	4	2	3
Forage plants	**%**	7	13	37	49	35	40	19	56	23	28	31	27	29	28
Fallow land / set aside (total)	**%**	13	17	12	5	22	3	0	7	1	0	0	14	2	8
… Fallow land used for fodder prod.	*%*	*3*	*9*	*9*	*3*	*20*	*0*	*0*	*0*	*0*	*0*	*0*	*9*	*0*	*4*

1) Question asked: How many hectares are devoted to the different crops grown organically on your farm (last harvest)?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-9: Utilisation of permanent crop land - percentage of surveyed farms growing the respective crops [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms with permanent crops	**N**	7	5	1	31	3	6	5	44	17	38	27	53	131	184
		Percentage of farms													
Fruit and berry plantations	**%**	29	80	100	29	100	67	80	100	65	97	48	43	83	72
... Berry plantations	*%*	*14*	*0*	*0*	*0*	*67*	*17*	*20*	*25*	*12*	*39*	*0*	*8*	*22*	*18*
Citrus plantations	**%**	0	0	0	3	0	0	0	0	0	0	0	2	0	1
Olive plantations	**%**	0	0	0	65	0	0	0	0	0	0	0	38	0	11
Vineyards	**%**	71	0	0	42	0	50	20	0	24	0	7	40	5	15

1) Question asked: How many hectares are devoted to the different crops grown organically on your farm (last harvest)?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-10: Utilisation of permanent crop land - average share of different crops in the respective farm samples [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms with permanent crops	**N**	7	5	1	31	3	6	5	44	17	38	27	53	131	184
		Average share (as % of permanent crop land)													
Fruit and berry plantations	**%**	11	98	100	6	100	26	59	100	50	97	23	13	64	37
... Berry plantations	**%**	*10*	*0*	*0*	*0*	*2*	*0*	*0*	*12*	*3*	*21*	*0*	*1*	*6*	*3*
Citrus plantations	**%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Olive plantations	**%**	0	0	0	54	0	0	0	0	0	0	0	46	0	25
Vineyards	**%**	89	0	0	20	0	74	4	0	23	0	7	23	12	17

1) Question asked: How many hectares are devoted to the different crops grown organically on your farm (last harvest)?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-11: Organic animal production - herd size and yearly production (number of heads) of the surveyed farms [1) 2)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Dairy cows															
No. of farms	N	*18*	*17*	*19*	*3*	*9*	*30*	*7*	*17*	*3*	*37*	*3*	*96*	*67*	*163*
Herd size	Mean	**15**	**37**	**83**	**97**	**117**	**18**	**60**	**38**	**194**	**9**	**4**	**45**	**30**	**39**
	Min	2	8	4	15	49	7	2	1	1	1	3	2	1	1
	Max	55	70	200	230	300	50	180	242	520	80	5	300	520	520
Suckler cows															
No. of farms	N	*20*	*23*	*10*	*2*	*34*	*12*	*37*	*11*	*8*	*2*	*31*	*101*	*89*	*190*
Herd size	Mean	**7**	**72**	**6**		**28**	**19**	**92**	**13**	**407**		**7**	**30**	**79**	**53**
	Min	1	3	1		2	3	5	1	1		1	1	1	1
	Max	20	523	15		115	50	560	38	3000		23	523	3000	3000
Bovine animals for meat production															
No. of farms	N	*8*	*24*	*16*	*9*	*35*	*18*	*32*	*21*	*6*	*15*	*15*	*110*	*89*	*199*
Yearly production	Mean	**7**	**46**	**32**	**18**	**26**	**10**	**37**	**10**	**36**	**8**	**3**	**27**	**20**	**24**
	Min	1	4	1	9	1	1	2	1	1	1	1	1	1	1
	Max	15	481	100	68	92	25	250	90	90	50	6	481	250	481
Sheep: milking and breeding females															
No. of farms	N	*2*	*6*	*12*	*5*	*24*	*6*	*7*	*12*	*3*	*3*	*10*	*55*	*35*	*90*
Herd size	Mean		**251**	**24**	**174**	**254**	**17**	**128**	**78**	**587**	**113**	**65**	**162**	**131**	**150**
	Min		35	4	100	12	4	10	4	50	3	2	4	2	2
	Max		755	95	220	900	43	450	300	1500	210	160	900	1500	1500
Sows															
No. of farms	N	*3*	*4*	*0*	*1*	*2*	*2*	*3*	*3*	*4*	*13*	*5*	*12*	*28*	*40*
Herd size	Mean	**25**	**23**					**5**	**7**	**23**	**3**	**1**	**18**	**6**	**10**
	Min	2	1					2	3	1	1	1	1	1	1
	Max	50	80					8	15	60	10	1	80	60	80
Fattening pigs															
No. of farms	N	*6*	*13*	*1*	*0*	*3*	*10*	*2*	*7*	*5*	*19*	*12*	*33*	*45*	*78*
Yearly production	Mean	**47**	**121**			**171**	**106**		**11**	**54**	**15**	**6**	**105**	**16**	**54**
	Min	4	2			73	2		4	4	1	2	2	1	1
	Max	200	1050			355	700		20	100	80	12	1050	100	1050
Laying hens															
No. of farms	N	*8*	*13*	*5*	*0*	*7*	*21*	*5*	*15*	*4*	*34*	*32*	*54*	*90*	*144*
Herd size	Mean	**46**	**736**	**2211**		**369**	**181**	**35**	**35**	**73**	**44**	**15**	**507**	**33**	**211**
	Min	10	5	4		7	2	20	2	17	2	5	2	2	2
	Max	120	5000	5000		2000	1500	74	256	200	220	100	5000	256	5000
Poultry: Broilers, pullets, turkeys, ducks etc.															
No. of farms	N	*4*	*0*	*3*	*0*	*3*	*3*	*1*	*2*	*6*	*21*	*7*	*13*	*37*	*50*
Yearly production	Mean	**71**		**101**		**2673**	**619**			**1898**	**27**	**14**	**805**	**326**	**451**
	Min	3		2		18	7			9	2	2	2	1	1
	Max	250		200		7000	1800			11000	80	60	7000	11000	11000

1) Question asked: Do you keep any organic livestock? What is the extent of organic animal husbandry on your farm? Please indicate the current stock and the numbers kept/produced in the last year.

2) Numbers recorded only if at least 3 farms of a country keep the respective animal.

Source: Own calculations based on farm survey winter/spring 2004.

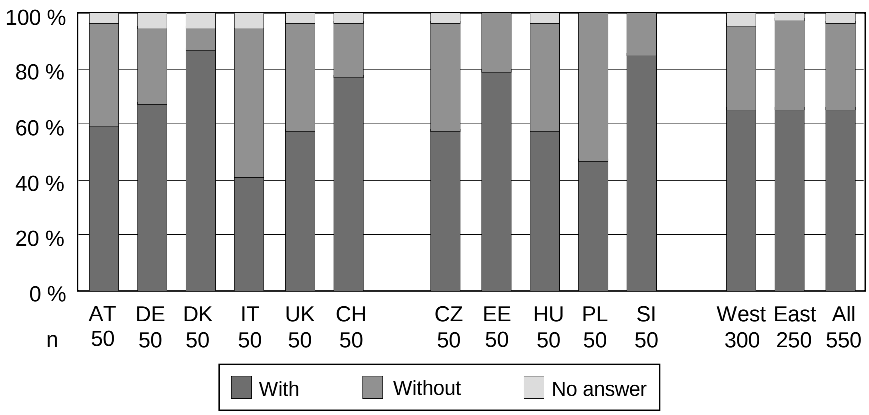
Table A-12: Location of the surveyed farms - driving distances in minutes 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	**N**	50	50	50	50	50	50	50	50	50	50	50	300	250	550
Minutes driving		**Distance to nearest town (> 5.000 Inhabitants) % of farms**													
< 15		38	52	60	50	40	42	34	10	44	30	16	47	27	38
15 - <30		42	42	36	46	46	32	50	44	50	56	52	41	50	45
30 - >60		18	6	2	4	14	18	14	42	6	14	28	10	21	15
>= 60		2	0	2	0	0	8	2	4	0	0	4	2	2	2
		Distance to nearest larger city (> 100.000 Inhabitants) 1) % of farms													
< 30		16	22	20	34	28	32	4	6	32	8	24	25	15	21
30 - <60		58	40	34	34	50	36	28	22	46	40	30	42	33	38
60 - <90		8	32	22	30	12	16	56	26	18	32	32	20	33	26
>= 90		18	6	24	2	10	16	12	46	4	20	14	13	19	16

1) or densely populated area

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-2: Percentage of farms with other forms of income (additional to their farm income) 1)



1) Question asked: Do you have other forms of income (additional to your farm income)?

Source: Own calculations based on farm survey winter/spring 2004.

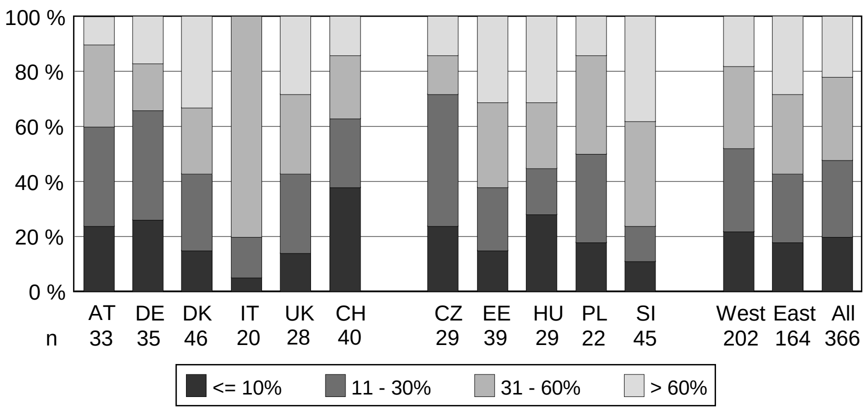
Table A-13: Type of other forms of income (additional to farm income) 1)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of answers	**N**	34	49	62	22	37	63	51	70	46	43	69	267	279	546
		Percentage of answers													
Accommodation (agrotourism, hotel, apartments etc.)	**%**	12	10	2	41	14	2	31	3	9	26	6	9	13	11
Catering (restaurant, other on farm catering)	**%**	6	2	2	0	3	2	8	1	7	7	3	2	5	3
Contracting of labour/ machinery on other farms	**%**	9	6	10	5	14	13	12	19	9	9	1	10	10	10
On-farm forestry	**%**	12	12	0	0	3	5	8	24	9	5	30	5	17	11
Renting out land	**%**	0	2	5	5	3	3	0	0	7	0	1	3	1	2
Training / consultancy	**%**	0	4	3	0	11	2	4	4	13	7	1	3	5	4
Off-farm job (incl. family (household) members)	**%**	47	33	65	18	38	44	24	24	20	21	45	44	28	36
Others	**%**	15	31	15	32	16	30	14	24	28	26	12	23	20	21

1) Question asked: Do you have other forms of income (additional to your farm income)? If yes, please specify.

Source: Own calculations based on farm survey winter/spring 2004.

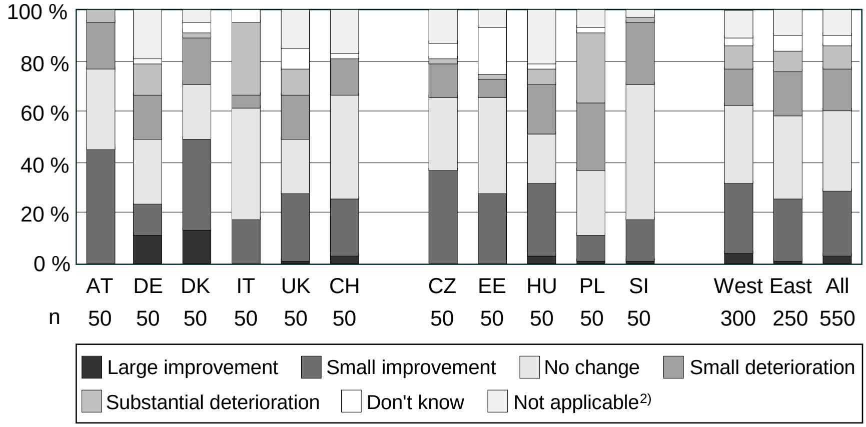
Figure A-3: Farmers' perception of the share of non-farm income in total income (only farms with non-farm income) 1)



1) Question asked: Do you have other forms of income (additional to your farm income)? If yes, please assess the share of your off-farm income in your total income.

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-4: Farmers' estimation of the effects of conversion to organic farming on the economic situation of their business - during the conversion period [1)]

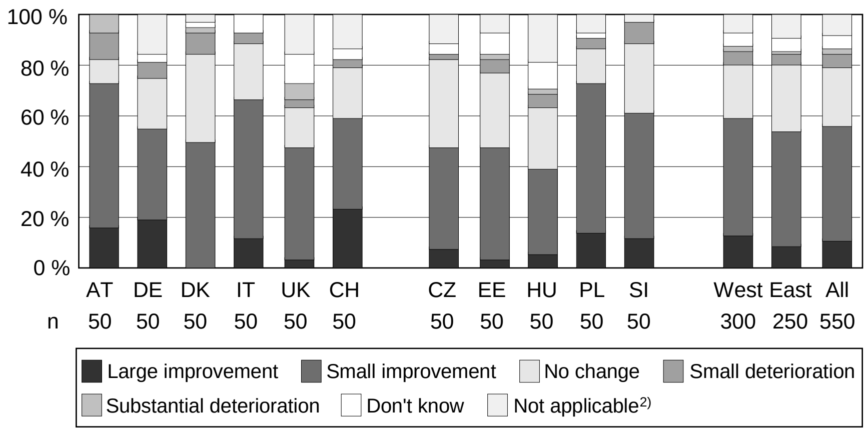


1) Question asked: How has conversion to organic farming affected the economic situation of your business? A) During conversion period? B) After conversion period?

2) Farm started organically or converted too many years ago.

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-5: Farmers' estimation of the effects of conversion to organic farming on the economic situation of their business - after the conversion period [1)]



1) Question asked: How has conversion to organic farming affected the economic situation of your business? A) During conversion period? B) After conversion period?

2) Farm started organically or converted too many years ago.

Source: Own calculations based on farm survey winter/spring 2004.

Table A-14: Farmers' perception of the effects of conversion to organic farming on the economic situation of their business - development during and after the conversion period [1)]

			AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms		**N**	50	39	46	47	37	39	41	38	35	46	49	258	209	467
			Percentage of farms													
Economic development																
During conv.	**After conv.**															
Improvement	**Improvement**	**%**	42	31	33	11	24	33	34	37	37	13	18	29	27	28
No change	**Improvement**	**%**	16	15	9	32	16	28	10	8	9	15	22	19	13	17
Improvement	**No change**	**%**	2	0	20	9	8	0	12	0	0	0	0	7	2	5
No change	**No change**	**%**	6	15	11	13	8	26	24	39	17	13	27	13	24	18
Deterioration	**Improvement**	**%**	16	21	9	30	24	8	15	5	11	52	22	18	22	20
Improvement	**Deterioration**	**%**	2	0	2	0	5	0	0	0	6	0	0	2	1	1
Deterioration	**No change**	**%**	2	10	9	2	5	0	5	0	14	2	2	5	4	4
No change	**Deterioration**	**%**	10	3	4	2	3	0	0	3	0	0	6	4	2	3
Deterioration	**Deterioration**	**%**	4	5	4	2	5	5	0	8	6	4	2	4	4	4

1) Question asked: How has conversion to organic farming affected the economic situation of your business? A) During conversion period? B) After conversion period?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-15: Income on organic farms in Western European countries, 2001

Farm type and size	FNVA/AWU	FFI+W/AWU
	EUR / AWU	
	Austria	
All farms (average)	18 742	16 919
Arable (average)	29 110	24 725
Dairy* (average)	17 393	15 509
Dairy* (< 15 cows)	13 515	12 141
Dairy* (15 and more cows)	21 583	19 148
Mixed (average)	20 006	17 526
Permanent crops (average)	24 511	23 626
Combi (average)	16 924	15 949
	Denmark	
All farms (average)	39 228	13 389
Arable (average)	18 293	-6 013
Dairy (average)	41 067	15 009
Dairy (<80 cows)	28 310	7 909
Dairy (80 and more cows)	45 555	17 508
Pigs (average)	33 179	14 414
	Germany	
All farms (average)	26 861	20 444
Arable (average)	31 910	23 448
Arable (< 30 ha)	14 277	10 326
Arable (30-50 ha)	28 367	20 698
Arable (> 50 ha)	40 020	29 575
Dairy (average)	24 299	18 862
Dairy (< 100 t)	15 860	13 648
Dairy (100-150 t)	25 056	20 460
Dairy (> 150 t)	30 127	21 554
Oher grazing livestock (average)	20 994	16 021
	Italy	
All farms (average)	34 857	14 774
Arable (average)	25 351	7 722
Grazing livestock* (average)	44 028	13 285
Permanent crops (average)	34 860	20 910
	Switzerland	
All farms (average)	32 249	27 842
Dairy (valley)	38 386	32 613
Dairy (hill)	34 125	28 876
Dairy (mountain)	28 333	24 575
Suckler copws (mountain)	29 190	25 686
Other cattle (mountain)	20 899	18 800
Mixed (arable-dairy, valley)	50 517	44 429
Mixed (pig+poultry, valley)	50 347	45 264
Mixed (other, valley)	40 508	34 352
	The UK	
All farms (average)	31 876	20 433
Arable (average)	37 208	20 923
Dairy (average)	38 217	25 597
Dairy (< 80 cows)	24 609	18 804
Dairy (80 and more cows)	47 302	30 132
Grazing livestock (lowland)	17 408	10 356
Grazing livestock (upland)	19 964	14 240
Mixed (average)	33 750	20 645

AT*:Dairy farms and other grazing livestock farms.
IT*:Grazing livestock farms including dairy farms.
Combi = farms with more than 25 % of total Standardised Gross Margin from forestry.

Source: Own calculations based on national FADNs.

Table A-16: *Income (FNVA/AWU and FFI+W/AWU) on typical organic farms in Eastern European countries, 2003*

Farm type and size	FNVA/AWU	FFI+W/AWU
	EUR / AWU	
	Czech Republic	
Arable (large, 200 ha)	10 334	8 476
Dairy (small, 58 t milk)	1 596	1 324
Cow-calf (small, 100 ha)	2 959	2 867
Cow-calf (medium, 140 ha)	28 291	27 491
Cow-calf (large, 551 ha, 145 cows)	23 220	17 813
Cow-calf (large, 500 ha, 160 cows)	10 756	10 425
	Estonia	
Arable (large, 89 ha)	2 980	2 891
Dairy (large, 194 t milk)	2 615	2 519
	Hungary	
Arable (small, 9 ha)	2 136	2 136
Arable (medium, 374 ha)	12 435	9 433
Arable (large, 1 245 ha)	2 975	173
Dairy (medium, 335 t milk)	14 634	12 980
Dairy (large, 3 360 t milk)	12 432	10 167
	Poland	
Arable (small, 17 ha)	2 642	2 553
Arable (large, 100 ha)	6 733	6 557
Dairy (small, 34 t milk)	2 565	2 400
Dairy (medium, 88 t milk)	4 618	4 490
Dairy (medium, 100 t milk)	5 945	5 717
	Slovenia	
Arable (small, 13 ha)	5 373	4 867
Dairy (small, 28 t milk)	2 466	2 280
Cow-calf (small, 9 ha, 9 cows)	956	956

Source: Own calculations based on typical farm modelling.

Table A-17: FNVA/AWU by farm size, altitude and share of income from farming in total income on organic and comparable conventional farms in selected Western European countries, 2001

			Sample size	Organic farms	Comparable conventional farms	Relative income	% OF > CCF
			N	FNVA/AWU (€)		1)	2)
					By size		
AT	dairy farms	small	108	13 515	10 541	128%	67%
		large	76	21 583	17 070	126%	71%
DK		small	54	28 310	26 190	108%	65%
		large	84	45 555	40 138	113%	64%
UK		small	20	24 609	21 182	116%	55%
		large	20	47 302	42 200	112%	60%
DE		small	24	15 860	15 122	105%	59%
		medium	24	25 056	21 230	118%	79%
		large	25	30 127	32 648	92%	48%
DE	arable farms	small	26	14 277	14 489	99%	62%
		medium	44	28 367	30 060	94%	32%
		large	17	40 020	39 081	102%	53%
IT	all farms	small	234	22 402	20 646	109%	n.a.
		medium	400	33 647	31 951	105%	n.a.
		large	117	53 392	45 778	117%	n.a.
					By altitude		
AT	valley and hills		37	23 481	20 505	115%	57%
	mountain		157	19 728	15 057	131%	64%
	alpine regions		123	16 036	13 623	118%	63%
CH	valley		48	40 959	31 867	129%	71%
	hill		71	33 832	27 923	121%	72%
	mountain		125	27 984	22 293	126%	72%
IT	plain		516	38 992	34 122	114%	n.a.
	hill		123	32 504	30 022	108%	n.a.
	mountain		112	39 152	35 987	109%	n.a.
					By full-time/part-time		
DE	full-time		196	26 841	27 020	99%	51%
	part-time		27	15 618	13 147	119%	63%
DK	full-time		129	41 690	37 081	112%	62%
	part-time		70	16 458	6 352	259%	64%

1) FNVA/AWU in organic farms relative to comparable conventinal farms
2) Share of organic farms in the sample with a higher FNVA/AWU than the respective comparable conventional farm group

Source: Own calculations based on national FADNs.

Table A-18: Percentage of farms with land without organic farming payments and share of land for which organic payments are not received [1)]

a) Percentage of farms with land for which organic payments are not received

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	38	49	50	50	50	50	50	50	287	250	537
		Percentage of farms													
Farms with land without organic payments	%	32	78	86	34	24	8	26	32	36	30	56	44	36	40

b) Average percentage of land without organic payments (referring only to farms with land without organic payments); arithmetic farm average

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	14	36	43	9	11	1	13	13	15	15	28	114	84	198
		Percentage of land without organic payments													
	Mean	12	18	21	62	37	100	8	39	34	16	25	24	25	24

c) Average percentage of land without organic payments (referring to all farms; weighted average)

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of farms	N	50	50	50	38	49	50	50	50	49	50	50	287	249	536
		Percentage of land without organic payments													
	Mean	7	23	21	7	7	0	1	8	46	17	15	15	24	22

1) *Question asked: Are there some areas for which organic payments are not made? If yes, please specify (Number of ha).*

Source: Own calculations based on farm survey winter/spring 2004.

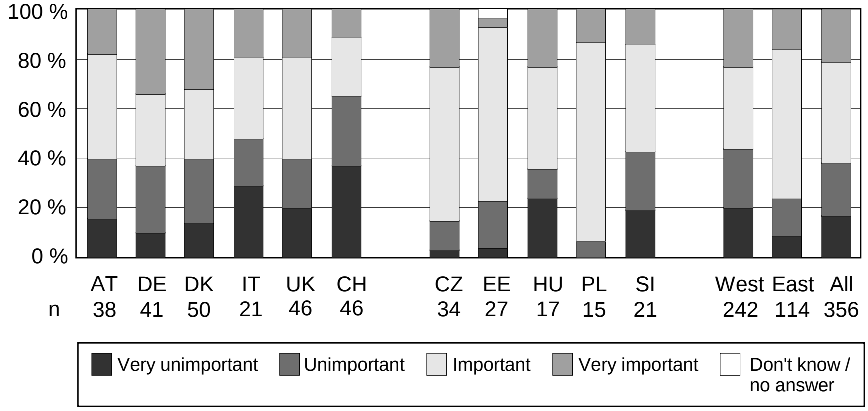
Table A-19: Farmers' reasons for exclusion of land from organic payments [1)]

		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	All
Number of answers	**N**	18	46	60	14	9	5	16	16	20	16	34	152	102	254
		Percentage of answers													
Set-aside land	**%**	89	54	63	7	0	0	0	38	0	25	18	53	16	38
Permanent pasture is not eligible for payments	**%**	6	2	5	14	0	0	19	6	25	0	3	5	10	7
Areas get agri-environmental payments higher than organic payments	**%**	0	17	5	7	0	0	0	0	0	0	0	8	0	5
Combination with another scheme, no dual funding	**%**	0	11	0	7	0	0	6	0	5	0	0	4	2	3
Areas rented less than 5 years	**%**	0	2	3	0	11	0	19	0	15	13	6	3	10	6
Lack of funding / too many applications	**%**	0	2	0	21	22	0	0	0	30	0	0	4	6	5
No acceptance of applications (incomplete application or other reasons)	**%**	0	0	0	0	33	0	6	19	5	0	24	2	13	6
Plot size/sum of crop area is too small	**%**	0	0	0	0	11	40	6	0	5	0	35	2	14	7
Other (administrative reasons etc.)	**%**	6	11	23	43	22	60	44	38	15	63	15	20	30	24

1) Question asked: Are there some areas for which organic payments are not made? Reasons for exclusion from payment?

Source: Own calculations based on farm survey winter/spring 2004.

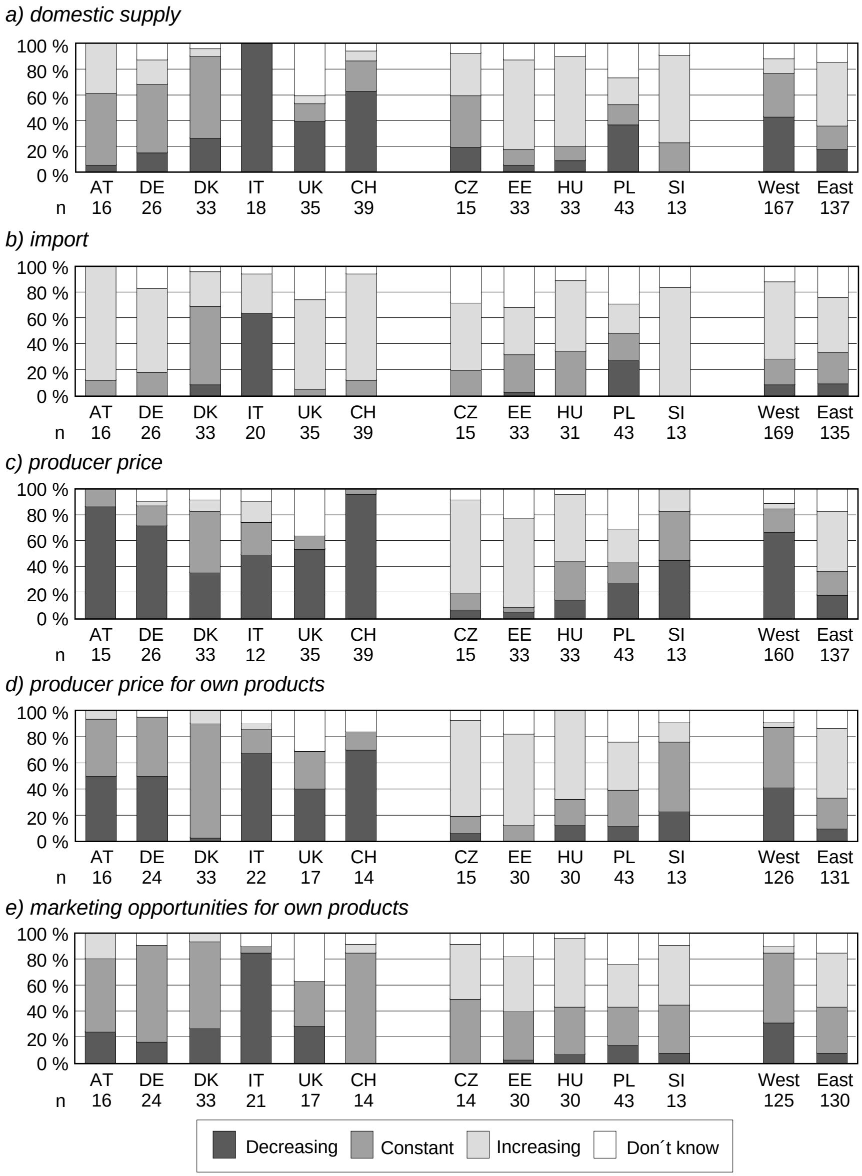
Figure A-6: Farmers' statements on the importance of the availability of organic payments in their decision to convert 1)



1) Question asked: How important was the availability of organic payments in your decision to convert?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-7: Farmers' expectations of the impact of EU enlargement on domestic organic cereal markets[1)]

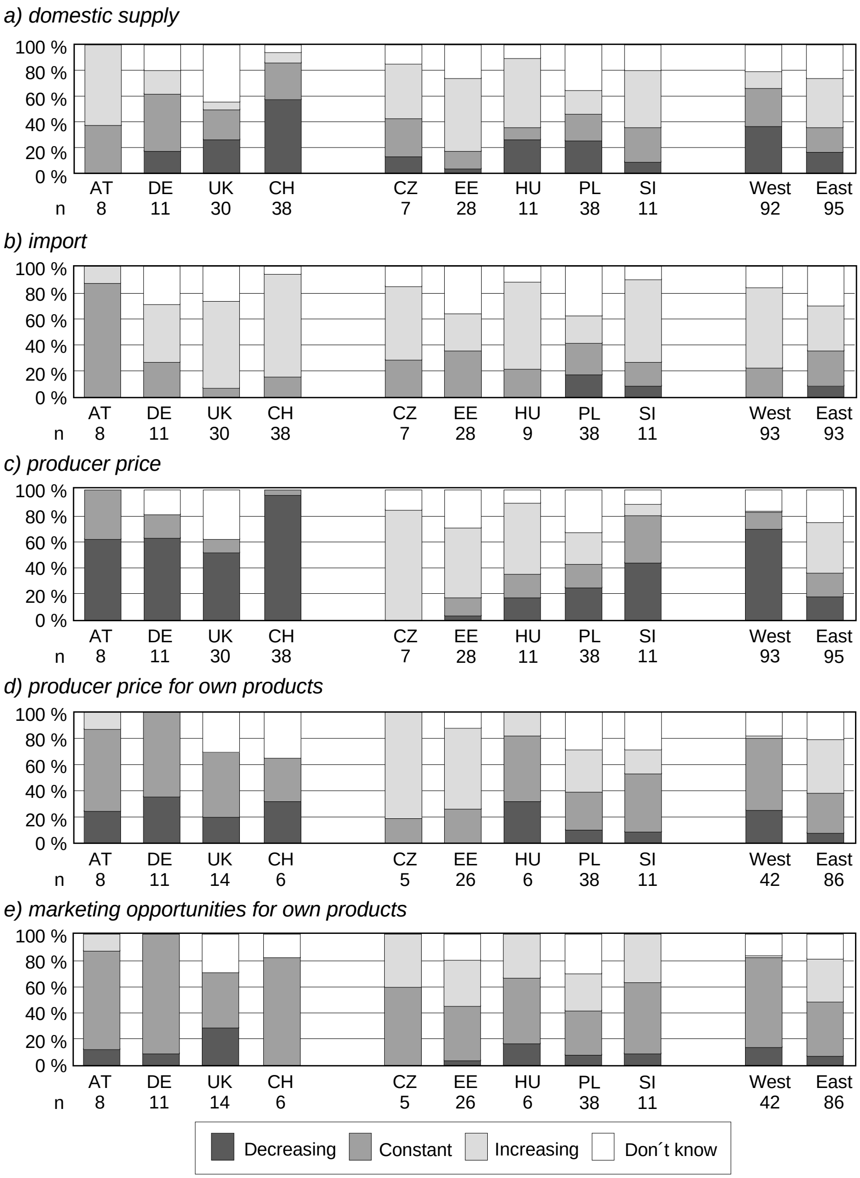


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-8: Farmers' expectations of the impact of EU enlargement on domestic organic potato markets[1)]

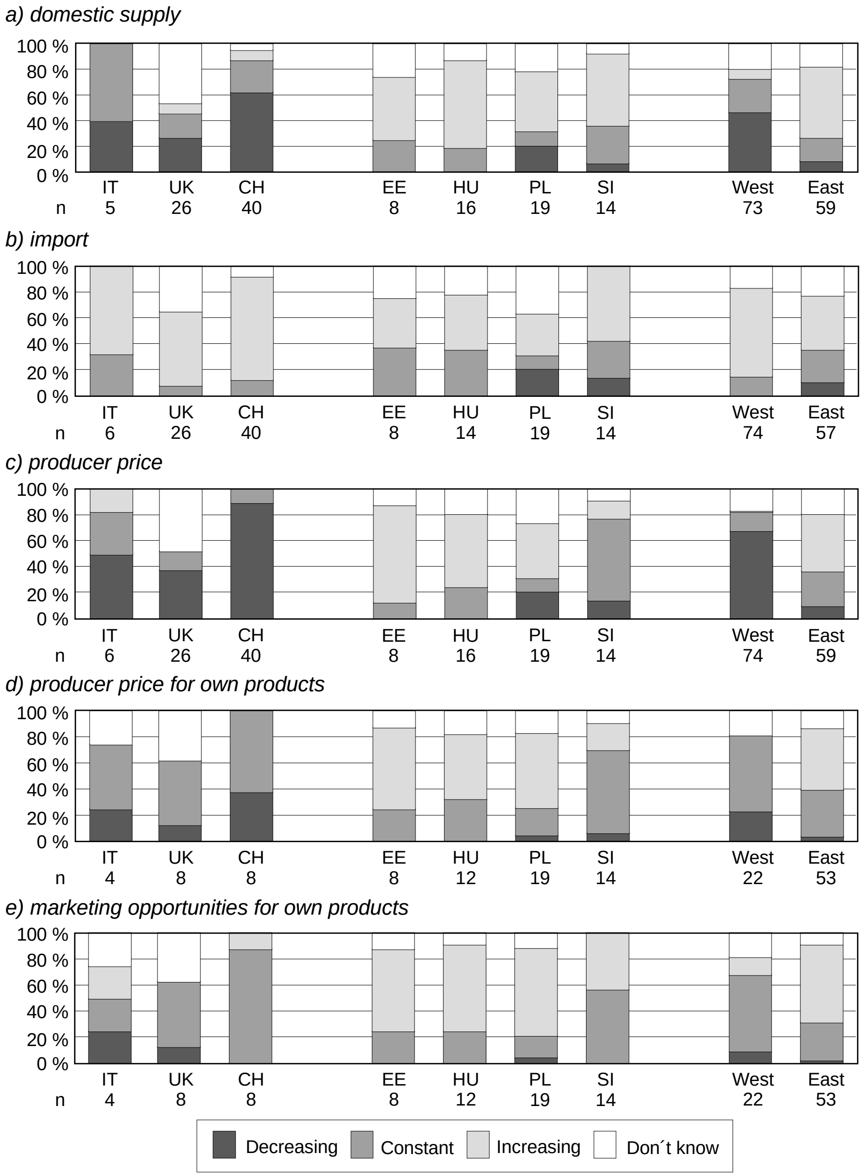


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-9: Farmers' expectations of the impact of EU enlargement on domestic organic fruit markets[1)]

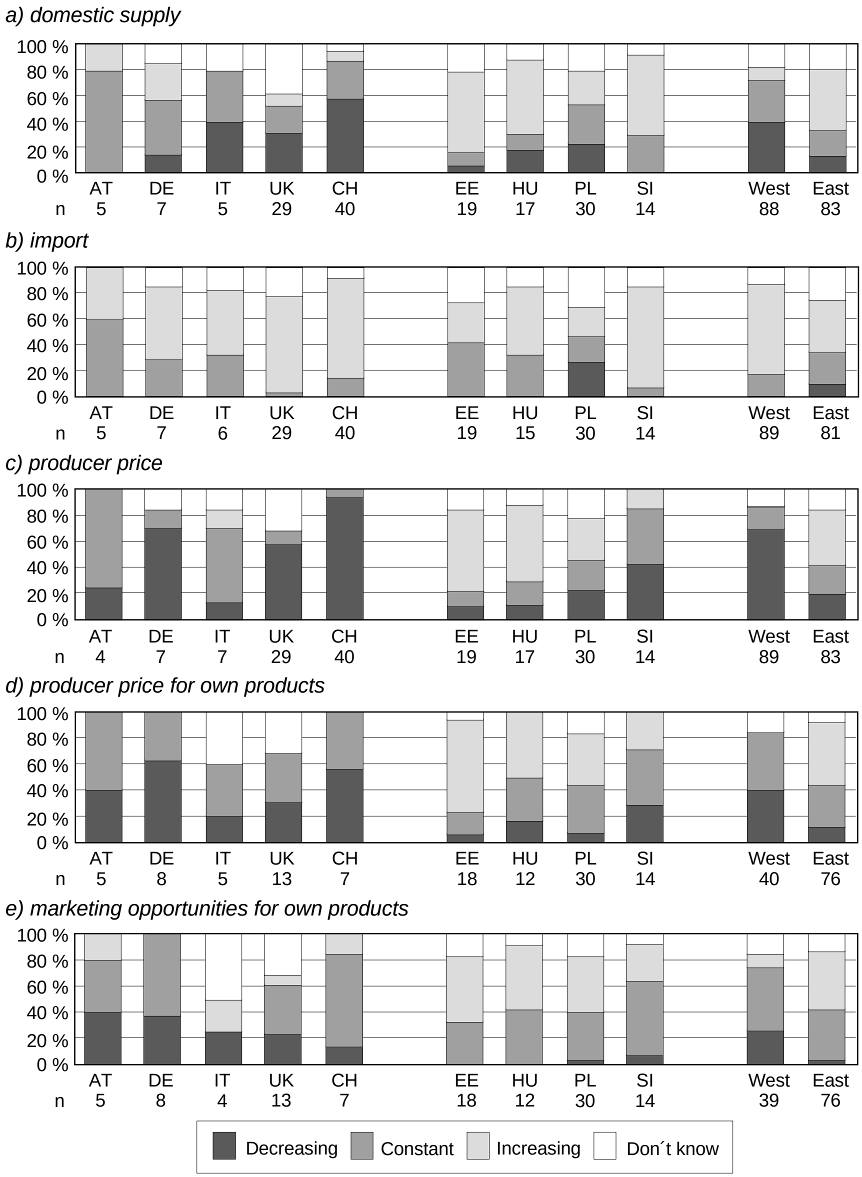


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-10: Farmers' expectations of the impact of EU enlargement on domestic organic vegetable markets[1)]

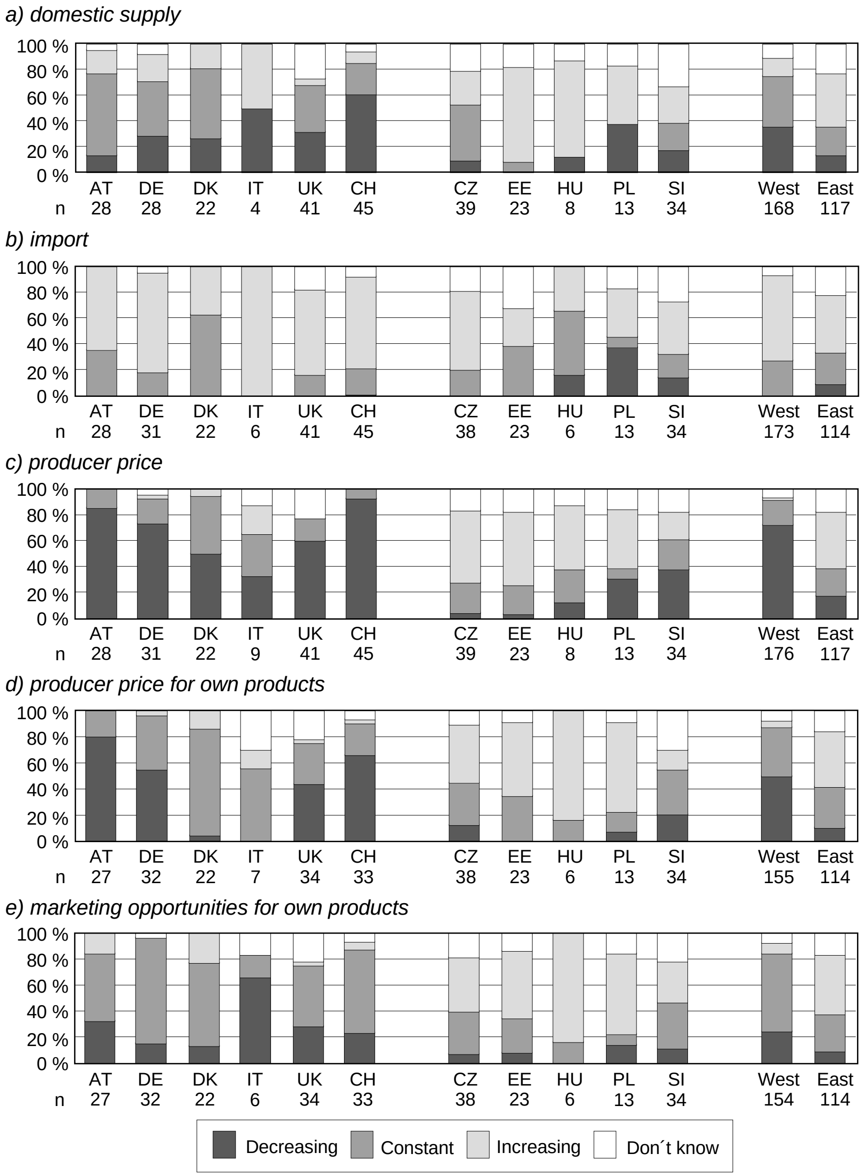


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-11: Farmers' expectations of the impact of EU enlargement on domestic organic beef markets[1)]

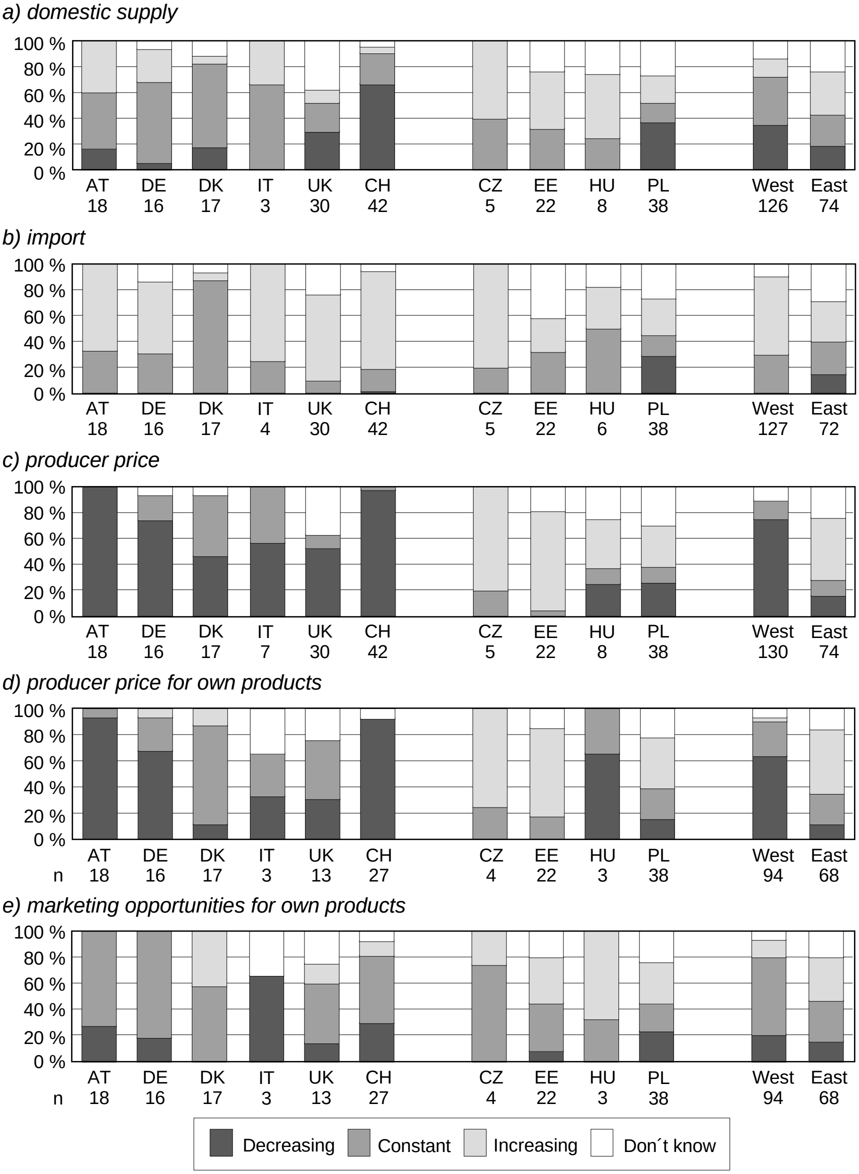


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-12: Farmers' expectations of the impact of EU enlargement on domestic organic milk markets[1)]

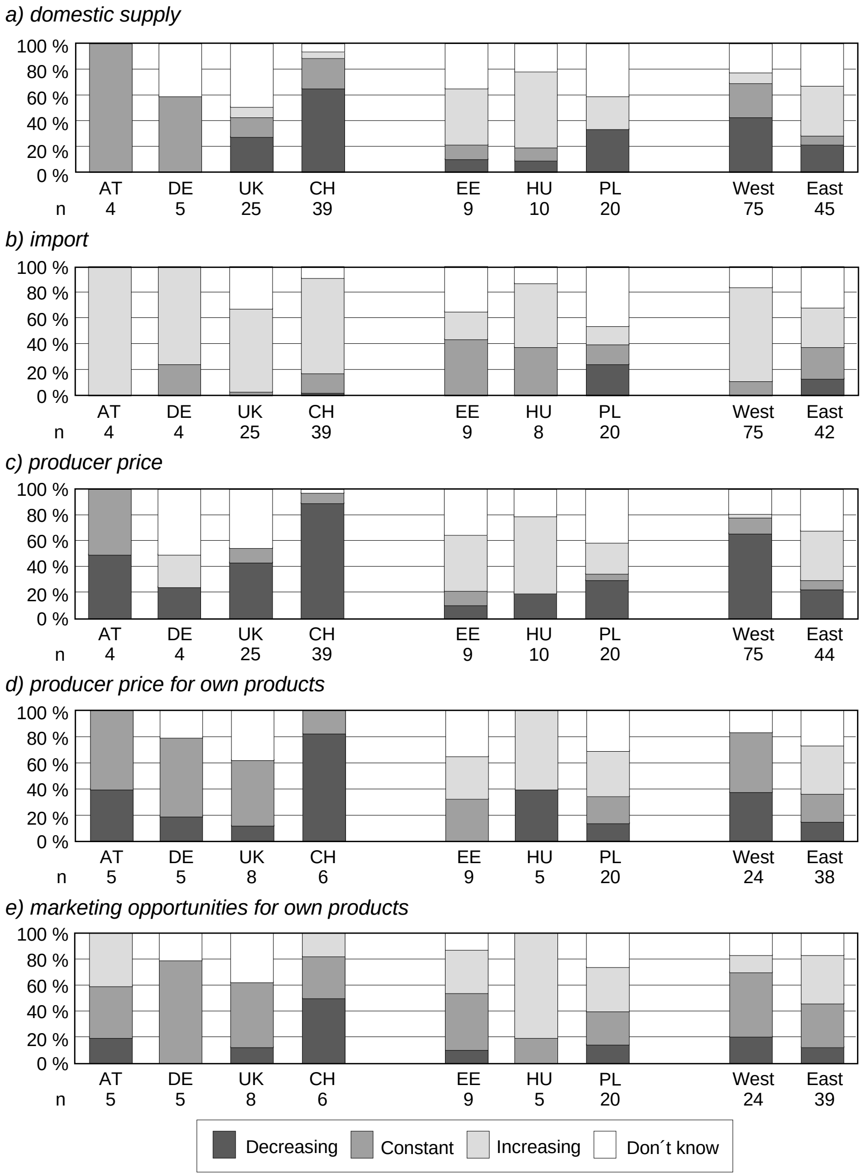


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-13: Farmers' expectations of the impact of EU enlargement on domestic organic pork markets[1)]

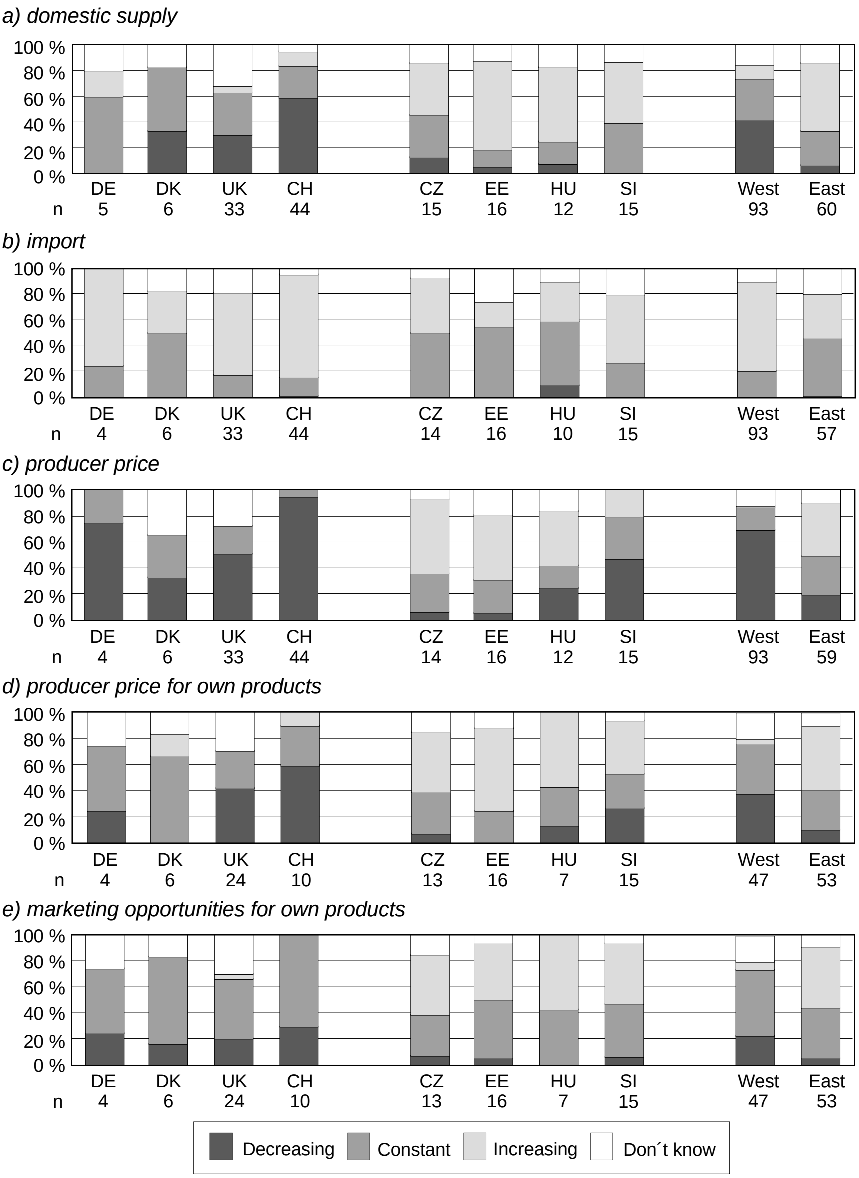


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-14: Farmers' expectations of the impact of EU enlargement on domestic organic sheep markets[1)]

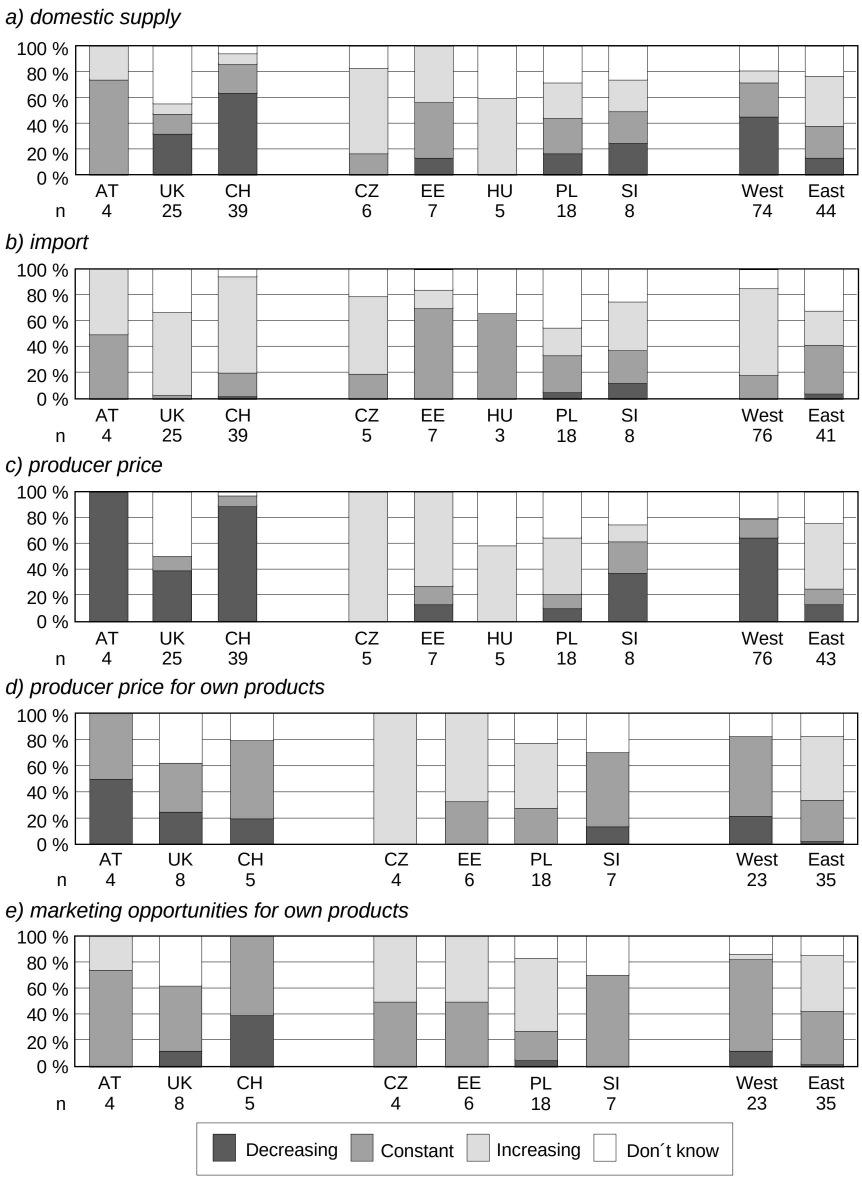


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-15: Farmers' expectations of the impact of EU enlargement on domestic organic eggs markets[1)]

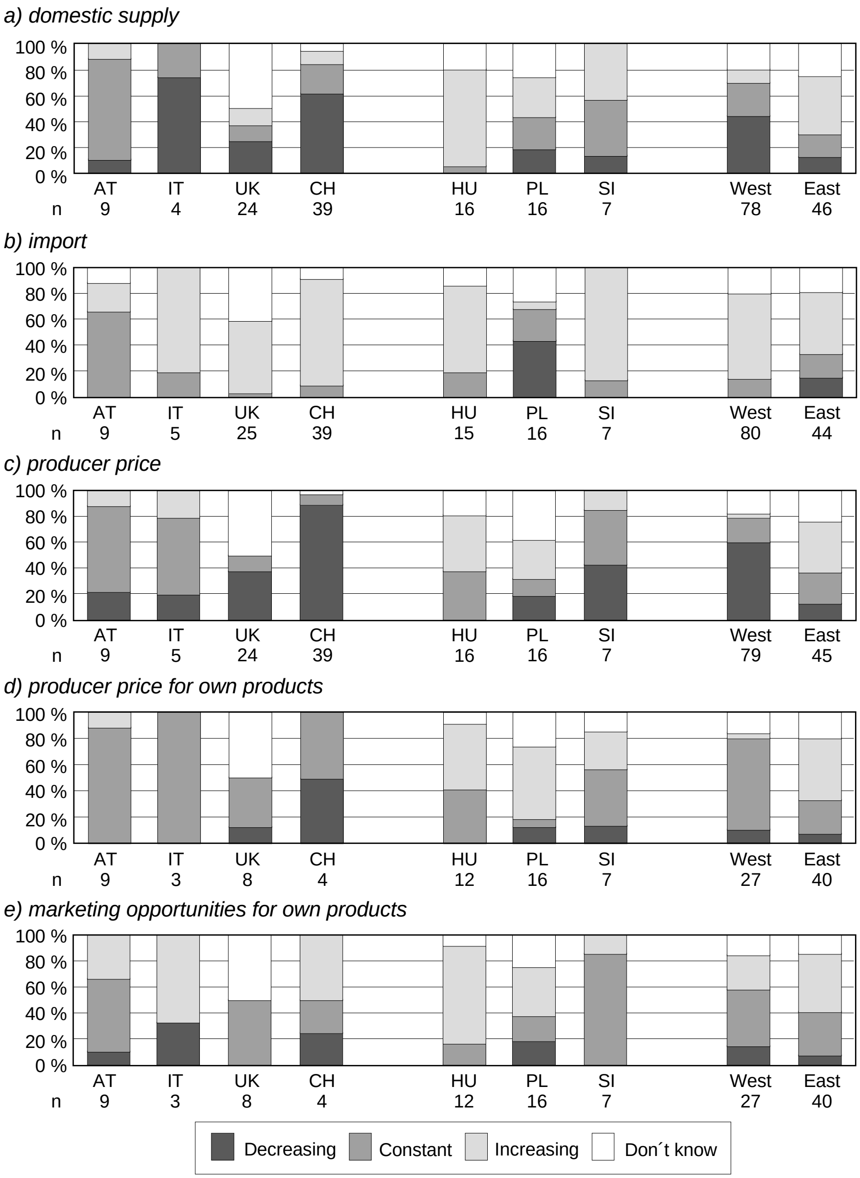


n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-16: Farmers' expectations of the impact of EU enlargement on domestic organic processed product markets[1)]



n: number of farmers answering

1) Question asked: How do you judge the development of domestic product markets on organic farming in your country as a result of enlargement (CH: of the bilateral agreement). Refer only to procduct groups you are producing on your farm. Do you see possible opportunities/difficulties arising for specific products from your farm due to enlargement?

Source: Own calculations based on farm survey winter/spring 2004.

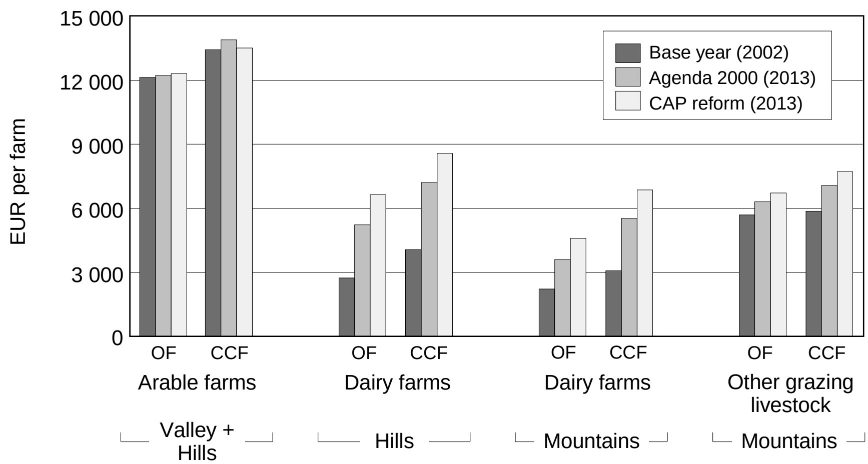
Table A-20: Farmers' investment plans in the next five years[1)]

		Country											Region		All
		AT	DE	DK	IT	UK	CH	CZ	EE	HU	PL	SI	West	East	
Number of farms planning bigger investments		13	25	15	6	26	20	45	44	38	37	43	105	207	312
		Percentage of farms													
Machinery, other equipment (incl. for on-farm processing)	%	23	28	20	33	42	35	84	77	55	65	49	31	67	55
Storing capacities (incl. manure storage etc.)	%	8	32	27	33	15	20	33	39	53	51	23	22	39	33
Investment in animal husbandry, animal welfare (compliance with standards for animal husbandry)	%	15	28	7	17	12	0	27	20	26	27	19	13	24	20
Stable for pigs/hens/poultry	%	0	20	20	0	8	0	0	0	5	3	5	10	2	5
Stable for dairy cows/suckler cows/sheep	%	31	12	33	33	19	25	20	27	3	16	12	23	16	18
Investments in off-farm activities (tourism, catering, energy etc.)	%	8	36	7	50	23	10	22	7	13	27	37	21	21	21
Buying additional/new stock	%	0	0	13	0	8	15	4	11	16	14	14	7	12	10
Buying land	%	0	4	47	17	12	30	53	7	26	27	21	17	27	24
Room/building for on-farm processing/direct marketing	%	8	0	7	17	4	0	7	7	0	5	5	4	5	4
Renovation/rebuilding	%	0	4	7	0	4	35	9	5	0	3	5	10	4	6
Other	%	31	0	0	17	12	0	2	7	0	5	9	8	5	6

1) Question asked: Are you considering some bigger investments in the next 5 years? If yes, please specify (max. 3 answers).

Source: Own calculations based on farm survey winter/spring 2004.

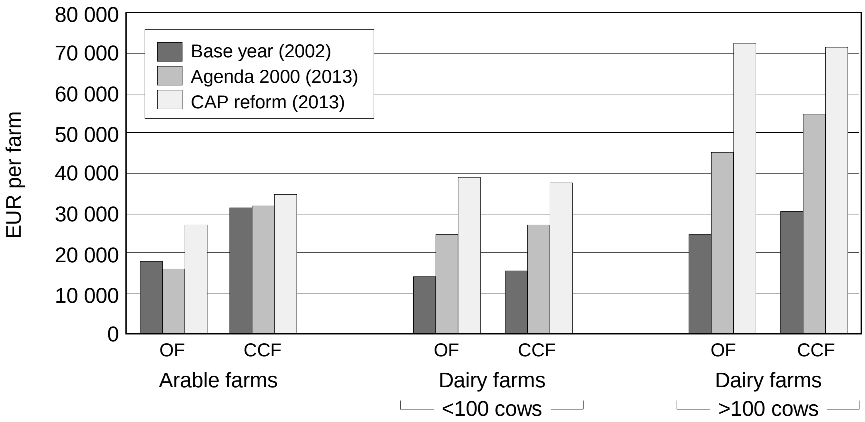
Figure A-17: First pillar direct payments on organic and comparable conventional farms in Austria for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

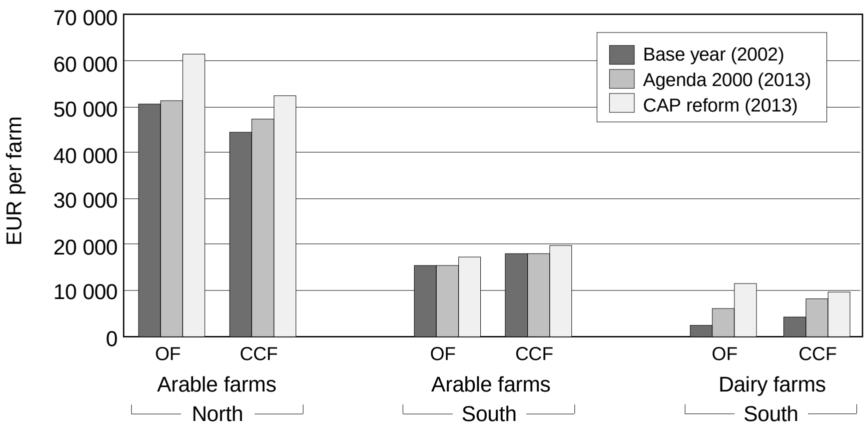
Figure A-18: First pillar direct payments on organic and comparable conventional farms in Denmark for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

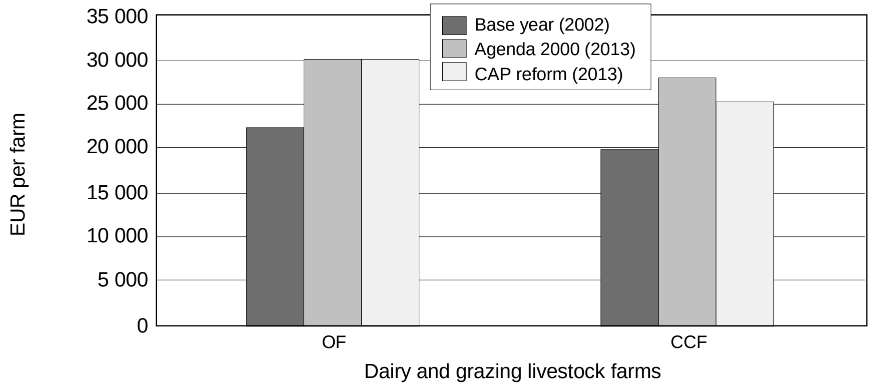
Figure A-19: First pillar direct payments on organic and comparable conventional farms in Germany for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Figure A-20: First pillar direct payments on organic and comparable conventional farms in the UK for different policy scenarios



OF: Organic farms
CCF: Comparable conventional farms

Source: Own calculations based on EU-FARMIS 2005; FADN-EU-DG-AGRI/G3.

Table A-21: Adjustments of the production structure as reaction to policy changes on typical organic farms in the Czech Republic, baseline (2013) compared to base year (2003)

		Arable farm (large, 200 ha)		Dairy farm (small, 58 t milk)		Cow-calf farm (small, 100 ha)	
		2003	2013	2003	2013	2003	2013
UAA (total)	ha	186	+44%	62	0%	100	-30%
Permanent grassland	ha	32	0%	12	0%	100	-30%
Arable land	ha	154	+53%	50	0%	0	0%
including							
Cereals	ha	106	+56%	29	0%	0	0%
Oilseeds	ha	0	0%	0	0%	0	0%
Vegetables	ha	0	0%	0	0%	0	0%
Ley/ fodder mixtures	ha	48	+46%	21	0%	0	0%
Dairy cows	heads	0	0%	16	0%	0	0%
Suckler cows	heads	0	0%	0	0%	11	-36%
Cattle for fattening	heads	0	0%	10	0%	0	introd.
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	yes
Other farm activities	yes / no	no	no	no	no	yes	yes
		Cow-calf farm (medium, 140 ha)		**Cow-calf farm (large, 551 ha, 145 cows)**		**Cow-calf farm (large, 500 ha, 160 cows)**	
		2003	**2013**	**2003**	**2013**	**2003**	**2013**
UAA (total)	ha	141	+155%	536	0%	500	-13%
Permanent grassland	ha	141	+155%	536	0%	430	-7%
Arable land	ha	0	0%	0	0%	70	-50%
including							
Cereals	ha	0	0%	0	0%	65	-69%
Oilseeds	ha	0	0%	0	0%	0	0%
Vegetables	ha	0	0%	0	0%	0	0%
Ley/ fodder mixtures	ha	0	0%	0	0%	0	introd.
Dairy cows	heads	0	0%	0	0%	0	0%
Suckler cows	heads	70	+71%	145	0%	160	0%
Cattle for fattening	heads	0	0%	0	0%	62	0%
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	yes
Other farm activities	yes / no	yes	no	no	no	no	no

introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-22: Adjustments of the production structure as reaction to policy changes on typical organic farms in Estonia, baseline (2013) compared to base year (2003)

		Arable farm (large, 89 ha)		Dairy farm (large, 194 t milk)	
		2003	2013	2003	2013
UAA (total)	ha	89	0%	230	0%
Permanent grassland	ha	4	0%	171	0%
Arable land	ha	85	0%	59	0%
including					
Cereals	ha	40	0%	30	0%
Oilseeds	ha	0	0%	0	0%
Vegetables	ha	5	0%	0	0%
Ley/ fodder mixtures	ha	36	0%	200	0%
Dairy cows	heads	0	0%	56	+54%
Suckler cows	heads	0	0%	0	0%
Cattle for fattening	heads	0	0%	0	0%
Sheep	heads	42	+48%	0	0%
Processing activity	yes / no	no	no	no	no
Agrotourism	yes / no	no	no	no	no
Other farm activities	yes / no	yes	yes	no	no

Source: Own calculations based on typical farm modelling.

Table A-23: Adjustments of the production structure as reaction to policy changes on typical organic farms in Hungary, baseline (2013) compared to base year (2003)

		Arable farm (small, 9 ha)		Arable farm (medium, 374 ha)		Arable farm (large, 1 245 ha)	
		2003	2013	2003	2013	2003	2013
UAA (total)	ha	9	0%	374	0%	1 245	0%
Permanent grassland	ha	0	0%	0	0%	0	0%
Arable land	ha	9	0%	374	0%	1 245	0%
including							
Cereals	ha	3	0%	288	0%	330	0%
Oilseeds	ha	0	0%	42	0%	570	0%
Vegetables	ha	3	0%	44	0%	0	0%
Ley/ fodder mixtures	ha	3	0%	0	0%	0	0%
Dairy cows	heads	0	0%	0	0%	0	0%
Suckler cows	heads	0	0%	0	0%	0	0%
Cattle for fattening	heads	0	0%	0	0%	0	0%
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no
Other farm activities	yes / no	no	no	no	no	no	no
		Dairy farm (medium, 335 t milk)				Dairy farm (large, 3 360 t milk)	
		2003	2013			2003	2013
UAA (total)	ha	290	0%			1 850	0%
Permanent grassland	ha	45	0%			500	0%
Arable land	ha	245	0%			1 350	0%
including							
Cereals	ha	91	0%			850	0%
Oilseeds	ha	0	0%			0	0%
Vegetables	ha	0	0%			0	0%
Ley/ fodder mixtures	ha	105	0%			350	0%
Dairy cows	heads	60	0%			500	+16%
Suckler cows	heads	0	0%			0	0%
Cattle for fattening	heads	6	0%			250	0%
Processing activity	yes / no	yes	yes			no	no
Agrotourism	yes / no	no	no			yes	yes
Other farm activities	yes / no	yes	yes			yes	yes

Source: Own calculations based on typical farm modelling.

Table A-24: Adjustments of the production structure as reaction to policy changes on typical organic farms in Poland, baseline (2013) compared to base year (2003)

		Arable farm (small, 17 ha)		Arable farm (large, 100 ha)		Dairy farm (small, 34 t milk)	
		2003	2013	2003	2013	2003	2013
UAA (total)	ha	17	+18%	100	0%	17	0%
Permanent grassland	ha	3	+120%	12	0%	4	0%
Arable land	ha	15	0%	88	0%	13	0%
including							
Cereals	ha	2	0%	47	0%	3	0%
Oilseeds	ha	0	0%	0	0%	0	0%
Vegetables	ha	3	0%	4	0%	1	0%
Ley/ fodder mixtures	ha	4	-24%	37	0%	8	0%
Permanent crops / fruits	ha	4	0%	0	0%	1	0%
Dairy cows	heads	2	0%	14	0%	7	0%
Suckler cows	heads	0	0%	0	0%	0	0%
Cattle for fattening	heads	3	+100%	6	0%	0	0%
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	yes	yes
Other farm activities	yes / no	no	no	yes	yes	yes	yes

		Dairy farm (medium, 88 t milk)		Dairy farm (medium, 100 t milk)	
		2003	2013	2003	2013
UAA (total)	ha	18	0%	48	0%
Permanent grassland	ha	5	0%	35	0%
Arable land	ha	13	0%	13	0%
including					
Cereals	ha	0	0%	5	0%
Oilseeds	ha	0	0%	0	0%
Vegetables	ha	0	0%	2	0%
Ley/ fodder mixtures	ha	13	0%	7	0%
Permanent crops / fruits	ha	1	0%	0	0%
Dairy cows	heads	18	0%	30	0%
Suckler cows	heads	0	0%	0	0%
Cattle for fattening	heads	0	0%	0	0%
Processing	yes / no	no	no	yes	yes
Processing activity	yes / no	no	no	no	no
Other farm activities	yes / no	no	no	no	no

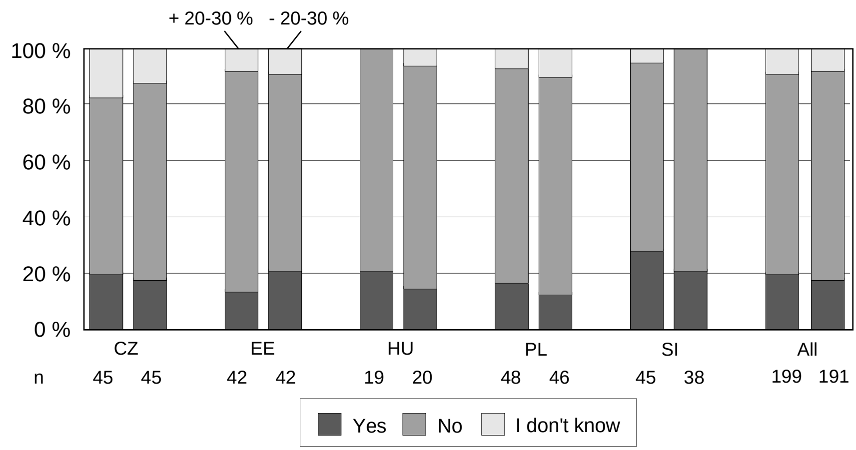
Source: Own calculations based on typical farm modelling.

Table A-25: Adjustments of the production structure as reaction to policy changes on typical organic farms in Slovenia, baseline (2013) compared to base year (2003)

		Arable farm (small, 13 ha)		Dairy farm (small, 28 t milk)		Cow-calf farm (small, 9 ha, 9 cows)	
		2003	2013	2003	2013	2003	2013
UAA (total)	**ha**	13	+54%	13	0%	9	0%
Permanent grassland	**ha**	3	-40%	13	0%	9	0%
Arable land	**ha**	10	+82%	0	0%	0	0%
including							
Cereals	**ha**	5	+140%	0	0%	0	0%
Oilseeds	**ha**	0	0%	0	0%	0	0%
Vegetables	**ha**	1	+74%	0	0%	0	0%
Ley/ fodder mixtures	**ha**	2	-29%	0	0%	0	0%
Dairy cows	**heads**	0	0%	7	0%	0	0%
Suckler cows	**heads**	2	-100%	0	0%	6	0%
Cattle for fattening	**heads**	1	-100%	0	0%	3	0%
Processing activity	**yes / no**	yes	no	no	no	no	no
Agrotourism	**yes / no**	no	no	no	no	no	no
Other farm activities	**yes / no**	no	no	no	no	no	no

Source: own calculations based on typical farm modelling

Figure A-21: Farmers' assessment of the need for changes on the farm following (a) a strong increase and (b) a strong decrease in the prices of organic feed grains1)



n: number of farmers answering

1) Question asked: (a) It is possible that the prices for organic feed grains increase by 20-30 %. Could such a development lead to adjustments on your farm? (b) It is possible that the prices for organic feed grains could drop by 20-30 %. Would such a development lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-26: Farmers' reactions to an increase in the prices of organic feed grains1)

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		9	6	4	7	13	39
		Percentage of farmers					
Increase in own grain production	%	56	83	25	29	15	38
Reduction of pork production due to higher production costs	%	22	17	25	14	15	18
Reduction of beef production due to higher production costs	%	0	0	25	14	23	13
Reduction of milk production due to higher production costs	%	11	0	0	0	15	8
Reduction of poultry production due to higher production costs	%	0	0	0	14	0	3
Probable changes not clear yet	%	11	17	25	29	31	23

1) Question asked: It is possible that the prices for organic feed grains increase by 20-30 %. Could such a development lead to adjustments on your farm? If yes, please specify (max. 3 answers).

Source: Own calculations based on farm survey winter/spring 2004.

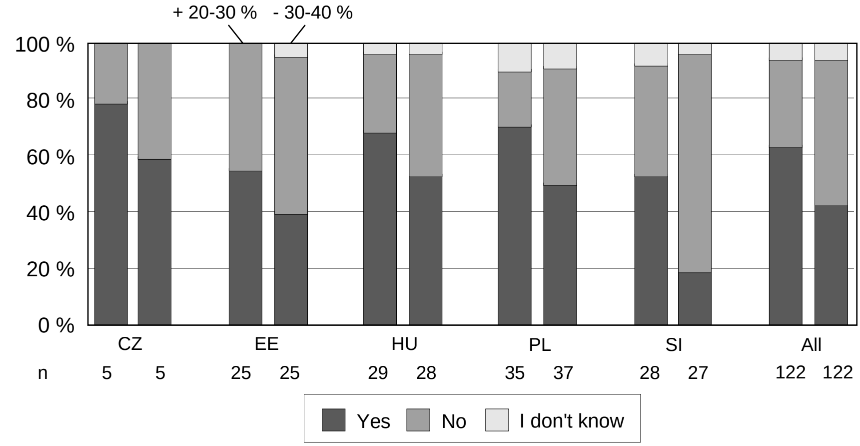
Table A-27: Farmers' reactions to a decrease in the prices of organic feed grains1)

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		8	9	3	7	7	34
		Percentage of farmers					
Reduction of own grain production	%	38	22	33	0	0	18
Ending of grain production	%	13	33	0	0	0	12
Increase in pork production	%	25	0	0	14	14	12
Increase in beef production	%	0	0	33	29	57	21
Increase in milk production	%	13	11	0	14	0	9
Expansion of poultry production	%	0	0	0	29	0	6
Increasing the grain content in feed ration	%	13	22	0	0	14	12
Other measures	%	0	44	0	0	0	12
Probable changes not clear yet	%	0	11	33	29	14	15

1) Question asked: It is possible that the prices for organic feed grains could drop by 20-30 %. such a development lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-22: Farmers' assessment of the need for changes on the farm following (a) a strong increase and (b) a strong decrease in the prices of organic vegetables and fruits1)



n: number of farmers answering

1) Question asked: (a) Do you think that an increase in prices for organic vegetables and fruits by 20-30 % could lead to adjustments on your farm? (b) Do you think that a price drop for vegetables and fruits by 30-40 % could lead to adjustments on your farm?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-28: Farmers' reactions to an increase in the prices of organic fruits and vegetables1)

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		4	15	19	22	14	74
		Percentage of farmers					
Increase in vegetable and/or fruit production	%	100	60	68	64	86	70
Increase in farm size (to expand vegetable and/or fruit production)	%	0	20	5	36	0	16
Introduction of vegetable/ fruit production	%	25	0	21	0	7	8
Reduction of other farm activities (cereals, fodder prod. etc.) in favour of vegetable and/or fruit production	%	0	13	5	41	21	20
Introduction of new farm activities	%	0	27	5	27	21	19
Investment in production technology	%	25	60	37	18	7	30
Intensification of marketing activities	%	0	40	26	5	0	16
Other measures	%	0	20	16	14	7	14

1) Question asked: Do you think that an increase in prices for organic vegetables and fruits by 20-30 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

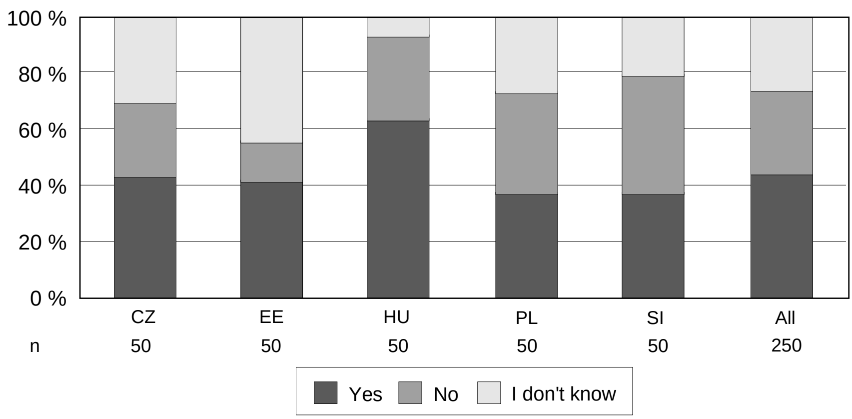
Table A-29: Farmers' reactions to a strong decrease in the prices of organic fruits and vegetables[1)]

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		3	10	15	17	5	50
		Percentage of farmers					
Reduction of vegetables / fruit production	%	67	20	27	71	40	44
Ending vegetables / fruit production	%	33	20	27	12	0	18
Drop in production costs through stronger rationalisation	%	0	0	13	24	20	14
Intensification of marketing activities	%	0	20	13	6	0	10
Expansion of other farm activities (crop production)	%	0	0	20	12	0	10
Introduction of new farm activities (e.g. processing etc.)	%	0	50	20	18	60	28
Closure of farm	%	0	0	7	0	0	2
Re-conversion to conventional farming	%	0	0	7	0	0	2
Other measures	%	0	20	0	12	0	8

1) Question asked: Do you think that a price drop for vegetables and fruits by 30-40 % could lead to adjustments on your farm? If yes, please specify (max. 4 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Figure A-23: Farmers' assessment of the need for changes on the farm following increase in costs for labour[1)]



n: number of farmers answering

1) Question asked: It is conceivable, that the costs for labour might increase. Can you imagine this having an effect on your production program?

Source: Own calculations based on farm survey winter/spring 2004.

Table A-30: Farmers' reactions to an increase in labour costs[1)]

		Country					
		CZ	EE	HU	PL	SI	All
Number of farms		18	14	23	15	5	75
		Percentage of farmers					
Decrease or ending of production of vegetables and/or fruits	%	6	0	30	87	20	29
Decrease or ending of production of other crops	%	22	0	4	13	20	11
Decrease or ending of animal husbandry	%	28	0	0	7	0	8
Decrease or ending of direct marketing activities and/or product processing	%	11	7	0	0	20	5
Increase mechanisation / rationalisation of production	%	0	43	13	0	0	12
Increase product prices / try to get higher prices	%	6	0	4	0	40	5
Increase the output/production quantity to reduce the costs per unit	%	0	29	9	7	20	11
Other adjustments	%	6	0	26	7	20	12
Probable changes not clear yet	%	39	29	13	7	0	20

1) Question asked: It is conceivable, that the costs for labour might increase. Can you imagine this having an effect on your production program? If yes, please specify (max. 3 answers).

Source: Own calculations based on farm survey winter/spring 2004.

Table A-31: Adjustments of the production structure on typical organic farms in the Czech Republic in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (large, 200 ha)			Dairy farm (small, 58 t milk)			Cow-calf farm (small, 100 ha)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	**ha**	267	+125%	-26%	62	+52%	0%	70	0%	0%
Permanent grassland	**ha**	32	0%	0%	12	+67%	0%	70	0%	0%
Arable land	**ha**	235	+142%	-30%	50	+48%	0%	0	0%	0%
including										
Cereals	**ha**	165	+124%	-36%	29	+24%	0%	0	0%	0%
Oilseeds	**ha**	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	**ha**	0	0%	0%	0	0%	0%	0	0%	0%
Ley/ fodder mixtures	**ha**	70	+139%	-31%	21	+76%	0%	0	0%	0%
Dairy cows	**heads**	0	0%	0%	16	+56%	0%	0	0%	0%
Suckler cows	**heads**	0	0%	0%	0	0%	0%	7	0%	0%
Cattle for fattening	**heads**	0	0%	0%	10	+50%	0%	5	0%	0%
Processing activity	**yes / no**	no	no	no	no	no	no	no	no	no
Agrotourism	**yes / no**	no	no	no	no	no	no	yes	yes	yes
Other farm activities	**yes / no**	no	no	no	no	no	no	yes	yes	yes

		Cow-calf farm (medium, 140 ha)			Cow-calf farm (large, 551 ha, 145 cows)			Cow-calf farm (large, 500 ha, 160 cows)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	**ha**	360	+10%	-61%	536	0%	0%	435	+38%	0%
Permanent grassland	**ha**	360	+10%	-61%	536	0%	0%	400	+29%	0%
Arable land	**ha**	0	0%	0%	0	0%	0%	35	+143%	0%
including										
Cereals	**ha**	0	0%	0%	0	introd.	0%	20	+300%	0%
Oilseeds	**ha**	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	**ha**	0	0%	0%	0	0%	0%	5	-100%	0%
Ley/ fodder mixtures	**ha**	0	0%	0%	0	0%	0%	10	-100%	0%
Dairy cows	**heads**	0	0%	0%	0	0%	0%	0	0%	0%
Suckler cows	**heads**	120	+67%	-42%	145	0%	0%	160	+19%	0%
Cattle for fattening	**heads**	0	introd.	0%	0	0%	0%	62	+16%	0%
Processing activity	**yes / no**	no	no	no	no	no	no	no	no	no
Agrotourism	**yes / no**	no	no	no	no	no	no	yes	no	yes
Other farm activities	**yes / no**	no	no	yes	no	no	no	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-32: Adjustments of the production structure on typical organic farms in Estonia in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (large, 89 ha)			Dairy farm (large, 194 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	89	+8%	0%	230	0%	0%
Permanent grassland	ha	4	0%	0%	171	0%	0%
Arable land	ha	85	0%	0%	59	0%	0%
including							
Cereals	ha	40	0%	-37%	30	0%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%
Vegetables	ha	5	0%	0%	0	0%	0%
Ley/ fodder mixtures	ha	36	+19%	+41%	200	0%	0%
Dairy cows	heads	0	0%	0%	86	+35%	+35%
Suckler cows	heads	0	0%	0%	0	0%	0%
Cattle for fattening	heads	0	0%	0%	0	0%	0%
Sheep	heads	62	+96%	0%	0	0%	0%
Processing activity	yes / no	no	no	no	no	no	no
Agrotourism	yes / no	no	no	no	no	no	no
Other farm activities	yes / no	yes	yes	yes	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2

Source: Own calculations based on typical farm modelling.

Table A-33: Adjustments of the production structure on typical organic farms in Hungary in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (small, 9 ha)			Arable farm (medium, 374 ha)			Arable farm (large, 1 245 ha)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	9	+33%	0%	374	0%	0%	1 245	-24%	-24%
Permanent grassland	ha	0	0%	0%	0	0%	0%	0	0%	0%
Arable land	ha	9	+33%	0%	374	0%	0%	1 245	0%	0%
including										
Cereals	ha	3	0%	+100%	288	-10%	+21%	330	-71%	-85%
Oilseeds	ha	0	0%	0%	42	0%	-100%	570	-23%	-22%
Vegetables	ha	3	+100%	-100%	44	+68%	-41%	0	introd.	0%
Ley/ fodder mixtures	ha	3	0%	0%	0	0%	0%	0	introd.	introd.
Dairy cows	heads	0	0%	0%	0	0%	0%	0	0%	0%
Suckler cows	heads	0	0%	0%	0	0%	0%	0	0%	0%
Cattle for fattening	heads	0	0%	0%	0	0%	0%	0	introd.	introd.
Sheep	heads	0	0%	0%	0	0%	0%	0	introd.	introd.
Processing activity	yes / no	no	yes	no	no	no	no	no	yes	yes
Agrotourism	yes / no	no	no	no	no	no	no	no	no	no
Other farm activities	yes / no	no	no	no	no	no	no	no	yes	yes

		Dairy farm (medium, 335 t milk)			Dairy farm (large, 3 360 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	ha	290	0%	0%	1 850	0%	0%
Permanent grassland	ha	45	0%	0%	500	0%	0%
Arable land	ha	245	0%	0%	1 350	0%	0%
including							
Cereals	ha	91	0%	0%	850	0%	0%
Oilseeds	ha	0	0%	0%	0	0%	0%
Vegetables	ha	0	0%	0%	0	0%	0%
Ley/ fodder mixtures	ha	105	0%	0%	350	0%	0%
Dairy cows	heads	60	0%	0%	580	0%	0%
Suckler cows	heads	0	introd.	0%	0	0%	0%
Cattle for fattening	heads	12	0%	0%	250	+40%	0%
Processing activity	yes / no	yes	yes	yes	no	no	no
Agrotourism	yes / no	no	no	no	yes	yes	yes
Other farm activities	yes / no	yes	yes	yes	yes	yes	yes

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-34: *Adjustments of the production structure on typical organic farms in Poland in 2013, changes in different market scenarios compared with the baseline in %*

		Arable farm (small, 17 ha)			Arable farm (large, 100 ha)			Dairy farm (small, 34 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	**ha**	20	0%	0%	100	0%	0%	17	0%	0%
Permanent grassland	**ha**	6	0%	0%	12	0%	0%	4	0%	0%
Arable land	**ha**	15	0%	0%	88	0%	0%	13	0%	0%
including										
Cereals	**ha**	2	0%	0%	47	0%	-85%	3	-11%	0%
Oilseeds	**ha**	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	**ha**	3	0%	0%	4	0%	-100%	1	+60%	0%
Ley/ fodder mixtures	**ha**	3	0%	0%	37	0%	+119%	8	-3%	0%
Permanent crops / fruits	**ha**	4	0%	0%	0	0%	0%	1	0%	0%
Dairy cows	**heads**	2	0%	0%	14	0%	-100%	7	+29%	0%
Suckler cows	**heads**	0	0%	0%	0	0%	introd.	0	0%	0%
Cattle for fattening	**heads**	6	0%	0%	6	0%	0%	0	0%	0%
Processing activity	**yes / no**	no	no	no	no	no	no	no	no	no
Agrotourism	**yes / no**	no	no	no	no	no	no	yes	yes	yes
Other farm activities	**yes / no**	no	no	no	yes	yes	no	yes	yes	yes

		Dairy farm (medium, 88 t milk)			Dairy farm (medium, 100 t milk)		
		bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	**ha**	18	0%	0%	48	+73%	0%
Permanent grassland	**ha**	5	0%	0%	35	+66%	0%
Arable land	**ha**	13	0%	0%	13	+92%	0%
including							
Cereals	**ha**	0	0%	0%	5	+122%	0%
Oilseeds	**ha**	0	0%	0%	0	0%	0%
Vegetables	**ha**	0	0%	0%	2	0%	0%
Ley/ fodder mixtures	**ha**	13	0%	0%	7	+93%	0%
Permanent crops / fruits	**ha**	1	0%	0%	0	0%	0%
Dairy cows	**heads**	18	0%	0%	30	+100%	0%
Suckler cows	**heads**	0	0%	0%	0	0%	0%
Cattle for fattening	**heads**	0	0%	0%	0	0%	0%
Processing activity	**yes / no**	no	yes	no	yes	yes	yes
Agrotourism	**yes / no**	no	no	no	no	no	no
Other farm activities	**yes / no**	no	no	no	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.

Table A-35: Adjustments of the production structure on typical organic farms in Slovenia in 2013, changes in different market scenarios compared with the baseline in %

		Arable farm (small, 13 ha)			Dairy farm (small, 28 t milk)			Cow-calf farm (small, 9 ha, 9 cows)		
		bl	Sc1	Sc2	bl	Sc1	Sc2	bl	Sc1	Sc2
UAA (total)	**ha**	20	0%	-35%	13	0%	0%	9	0%	0%
Permanent grassland	**ha**	2	0%	+67%	13	0%	0%	9	0%	0%
Arable land	**ha**	18	0%	-45%	0	0%	0%	0	0%	0%
including										
Cereals	**ha**	12	0%	-58%	0	0%	0%	0	0%	0%
Oilseeds	**ha**	0	0%	0%	0	0%	0%	0	0%	0%
Vegetables	**ha**	2	0%	-43%	0	0%	0%	0	0%	0%
Ley/ fodder mixtures	**ha**	1	0%	+42%	0	0%	0%	0	0%	0%
Dairy cows	**heads**	0	0%	0%	7	0%	0%	0	0%	0%
Suckler cows	**heads**	0	0%	introd.	0	0%	0%	6	0%	+17%
Cattle for fattening	**heads**	0	0%	introd.	0	0%	0%	3	0%	-100%
Processing activity	**yes / no**	no	no	yes	no	no	no	no	no	no
Agrotourism	**yes / no**	no	no	no	no	no	no	no	no	no
Other farm activities	**yes / no**	no	no	no	no	no	no	no	no	no

bl: Baseline, Sc1: Scenario 1, Sc2: Scenario 2, introd.: introduction of farm activity

Source: Own calculations based on typical farm modelling.