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PROFITABILITY OF ORGANIC FARMING IN EUROPE

Frank Offermann and Hiltrud Nieberg

Institute of Farm Economics and Rural Studies

Federal Agricultural Research Centre

Braunschweig

Germany

ABSTRACT

The organic farming sector has shown considerable growth rates throughout Europe since the beginnings of the 90s. Organic farming is increasingly mentioned in the debate on sustainable agriculture, and support programmes exist in all member states of the EU. This paper gives an overview of the socio-economic performance of organic farming in Europe at the farm level. On the basis of a review of current and previous studies as well as farm accounting data and expert assessments, the socio-economic impacts are determined by comparing the incomes of organic and comparable conventional farms. The main factors influencing the economic performance, especially yields, price premia and grants in organic farming in up to 18 European countries are discussed. As the results vary greatly between different regions and different farm types, the profits of organic farms in relation to comparable conventional farms are differentiated and presented accordingly.

INTRODUCTION

What is organic farming?

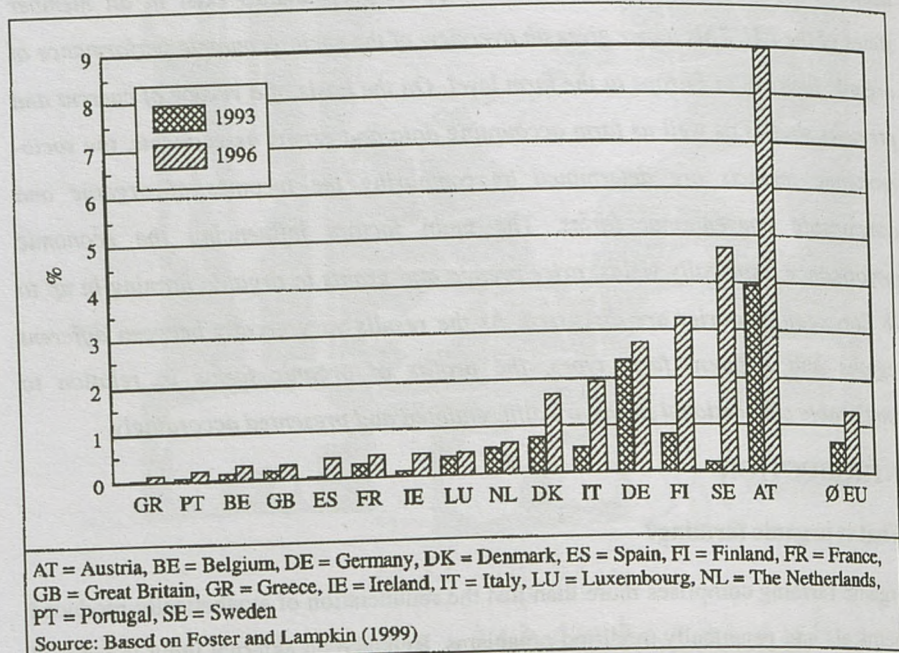
Organic farming comprises more than just the renunciation of synthetically-produced chemicals and genetically modified organisms. Reliance on external input is reduced as much as possible and utilisation and enhancement of natural self-regulating mechanisms (e.g. wide crop rotations) are strived for instead. Detailed production standards and certification procedures were developed (e.g. IFOAM 1995) to draw a clear dividing line between organic and other farming systems. In the European Union, the official definition and certification requirements of organic crop production are given by council regulation No 2092/91. Inspections are carried out at all stages of production and marketing, with a compulsory scheme, officially

recognised and supervised by the Member States, involving regular checks on all operators.

Development of organic farming in Europe

Organic farming in Europe has seen a dynamic development over the past few years. From 1993 to 1996 the area under organic management more than doubled, and a further significant increase is foreseen. On a European scale the importance of organic farming is still low with only 1.3 % of the total agriculture area managed organically in 1996 (1.6 % in 1997).

Figure 1: Organic and in-conversion land area in the EU as % of 1996 total utilisable agricultural area



Significant differences exist however between the member states of the EU. With more than 9 % of its agricultural area managed organically, Austria has the highest share of organic farming, while the respective share (0.3 %) is negligible in Greece and Portugal.

METHODOLOGY

Financial performance is widely seen as an important factor determining the acceptance of organic farming. Still, as several surveys have shown, the motives for

conversion to organic farming are numerous, and often the 'economic' incentive is less important in this decision than other factors, such as concerns about the environment (see e.g. Schulze Pals 1994). This aspect should be kept in mind when evaluating the economic data of organic farms. However, the strong growth in the adoption of organic management practices following the introduction of financial support for organic farming in most countries highlights the increased importance of financial aspects.

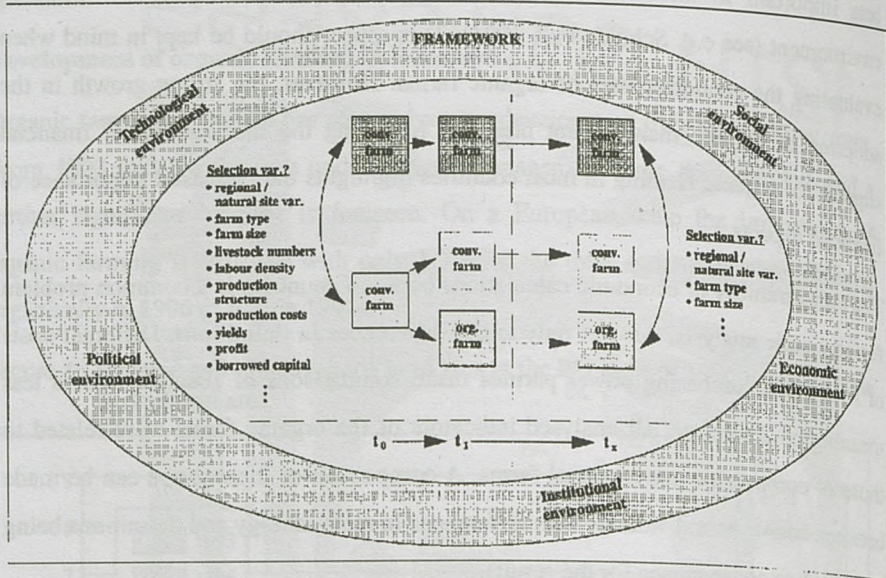
The comparability of economic calculations between countries is a common problem for economic analysis, due not only to the differences in definitions. Different costs of living and purchasing power parities make comparisons of absolute figures less meaningful. Therefore, all analysed indicators of the organic farms were related to those of comparable conventional farms. A comparison of these ratios can be made between countries and studies, with differences in methodology and definitions being of much less consequence for the results.

The reference system

The choice of a conventional reference farm depends on the availability of data and resources. In the following paragraphs, different approaches will be outlined and their strengths and weaknesses discussed.

An obvious solution would be to compare the situation of the organic farm before and after conversion (in Figure 2, this corresponds to comparing the organic farm at a point in time t_x with its conventional situation at a point in time t_0). The economic data for the period before conversion is often easily accessible, and thus does not need to be estimated or calculated. A serious drawback in this procedure is that a comparison with an earlier situation neglects any development the farm would have undergone even if it had not converted. The longer the time span since conversion, the less viable is this approach, since changes in external parameters like prices, policies and technical progress would have substantially influenced economic performance, even without conversion.

Figure 2: The selection of a conventional reference system for the analysis of organic farms



A better assessment is possible using the income of conventional farms in the year of observation as an indicator for the hypothetical 'conventional' income of the observed organic farm. To avoid comparing two things that are in fact very different, these conventional farms should be 'comparable' to the observed organic farms. This will be the case if they have a similar 'potential', that is, a similar endowment with production factors. As the objective is to isolate the effect of the farming system on profits, the choice of characteristics for the selection of comparable conventional farms has to be restricted to 'non-system determined' factors. Examples of factors that are clearly 'non-system determined' are locational factors such as region, soil texture, topography, climate and market distance (Fowler, Lampkin and Midmore 1998). A very simple first approach for assessing the potential income of the conventionally managed farm is therefore to use average data of a sample of conventional farms in the same region. This data is available in most countries as part of their national farm accounting systems. In Figure 2 this approach is illustrated on the right-hand side of the diagram, comparing organic and selected conventional farms at a point in time t_x .

Comparability improves as more factors are taken into account in the selection of the group of conventional farms used for comparison. The problem is that for many farm

characteristics, the distinction between 'non-system' and 'system-determined' factors is not so clear as in the examples given above (Dabbert 1990; Nieberg and Offermann 1998). Is there no link at all between the size of a farm and the system? This might not be the case, if there is a clear correlation between farming system and annual growth of farm size. There is an obvious link between production structure and farming system; but to what extent is there no such link with the farm type? Intensive livestock farms are often seen to reduce their livestock after conversion and move towards a mixed farm. So, should comparable conventional farms be mixed or intensive livestock farms? Similar problems exist for labour. Despite these difficulties, factors that are generally seen as non-system determined and thus used for selecting a group of comparable conventional farms are: location, size and a rough classification of the farm type.

A solution to many of these problems is possible where the situation before conversion is known; the farms used for comparison are therefore selected such that their past situation resembles that of the now organic farm in its former conventional situation (in Figure 2, selecting conventional farms which are comparable at a point in time t_0 , and comparing the farms at a point in time t_x). This procedure ensures that conventional and organic farms have similar conventional starting positions. It requires the application of multivariate (cluster) analysis and the observation of the comparable farms over the years.

One problem that is possibly system-determined, and which, even with this approach, cannot be solved, concerns the abilities of the farm manager: Is there a correlation between managerial abilities and inclination to conversion?

To sum up the discussion above, three main approaches have been identified for choosing a reference system:

- For short-term comparisons, comparing the situation of the farm before and after conversion
- Approximation of the potential income by analysing the economic situation of conventional farms that are comparable with respect to a few important non-system determined characteristics

- Comparison with conventional farms that are selected so as to resemble the analysed organic farm in the years before conversion.

Due to data availability in almost all studies evaluated, the second approach was chosen, selecting comparable conventional farms based on a few important non-system determined characteristics.

RESULTS

Resources and production structure

In most countries, organic farms are on average larger than conventional farms. Labour use is higher than on comparable conventional farms, but the extent of the higher labour requirements is strongly dependent on the farm type. The majority of the studies evaluated report an increase of labour needs in the range of 10-20%. While intensive livestock farms may even reduce their labour needs due to a reduction in stocking rates, extensive livestock farms often have similar labour requirements to conventional management, while horticultural farms may need more than twice the labour input of conventional farms. Production structures of organic farms differ significantly from conventional ones, quite generally the area of cereals, oilseeds and maize for silage is reduced. On the other hand, the area of leys, fodder crops, vegetables, potatoes and pulses is relatively larger. Stocking rates are on average lower, at 60-80% of the respective rate on comparable conventional farms.

Yields

In Europe, yields in organic crop production are in general significantly lower than under conventional management. But, these yield differences vary between crops, and partly also between countries and regions analysed. For cereals, the range of observed typical yield ratios is quite narrow for most countries, especially in central and western Europe. Cereal yields are typically 60-70% of those under conventional management. For most countries the studies evaluated show a high variation in both the absolute and the relative yield levels of potatoes. This variation exists within countries, between countries, and for data of different years. Vegetable yields are often just as high as under conventional management. Few data are available on pasture and grassland yields in organic farming, reported values lie in the range of 70-100% of conventional yields, depending on the intensity of use. In livestock

production, performances per head are quite similar to those in conventional farming. But, due to the lower stocking rates observed in organic farms, performances per ha are lower.

Prices

An important aspect of the profitability of organic farms is the opportunity of receiving higher farm gate prices for organically produced goods than for conventionally produced ones. Prices vary considerably between the different marketing channels. The realised average organic price depends on the level of these prices and on the quantities market via the respective sales channels. For many products, the calculation of an 'average organic farm gate price' has to take into account that often part of the production still has to be sold at conventional prices. Currently, premium prices are very high for most crop products (Figure 3). In nearly all countries analysed, average farm gate prices for organically produced wheat were 50-200 % higher than for conventionally produced wheat, while for potatoes average premia were in the range of 50 % to up to more than 500 %.

In contrast, the average premium prices realisable for livestock products are generally significantly lower (Figure 4). Organically produced milk received on average a premia of 8-36 % on conventional prices. Data on prices for organically produced meat was available for only a few countries. While average farm gate prices for organic beef exceeded conventional prices by 30 %, the respective premia was 20-70 % for pork. Still, during the last few years, prices for some crop products came under pressure, while for livestock products, premium prices can increasingly be realised.

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Figure 3: Typical price premia for selected organically produced crop products in different countries

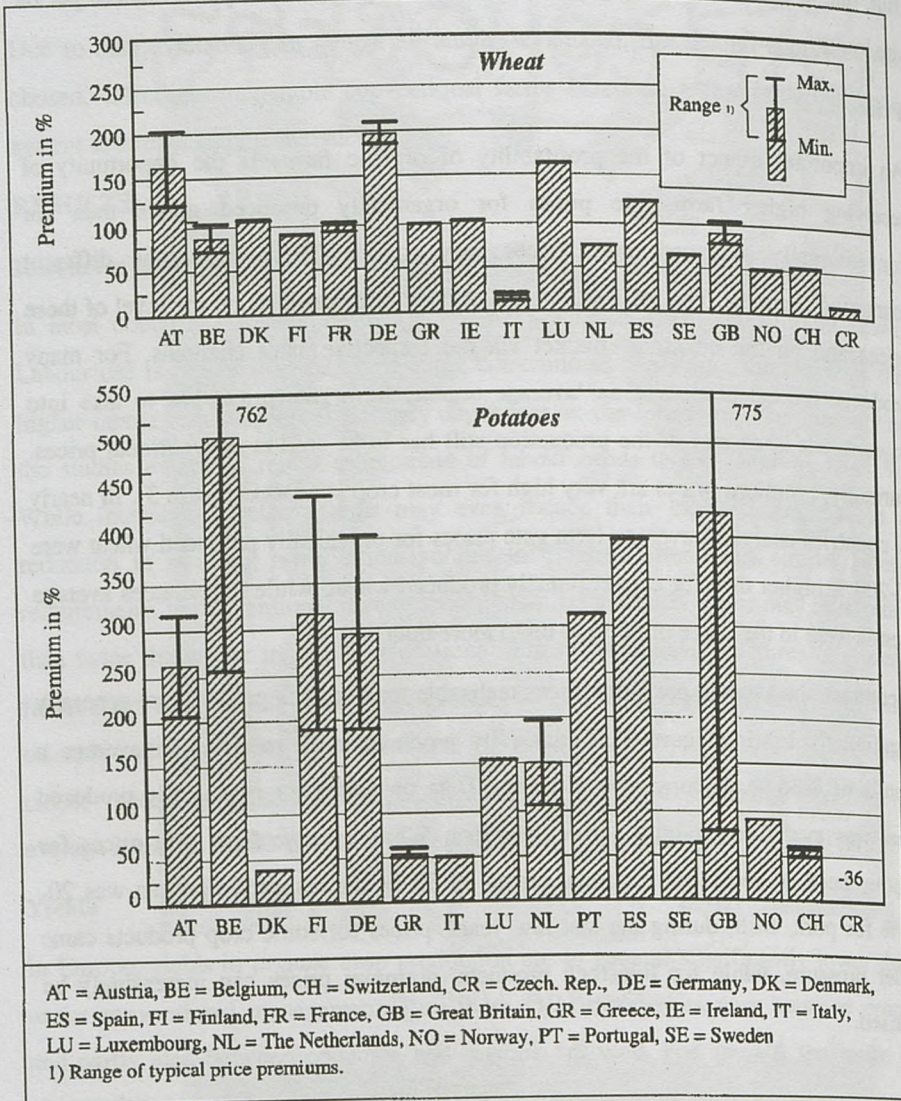
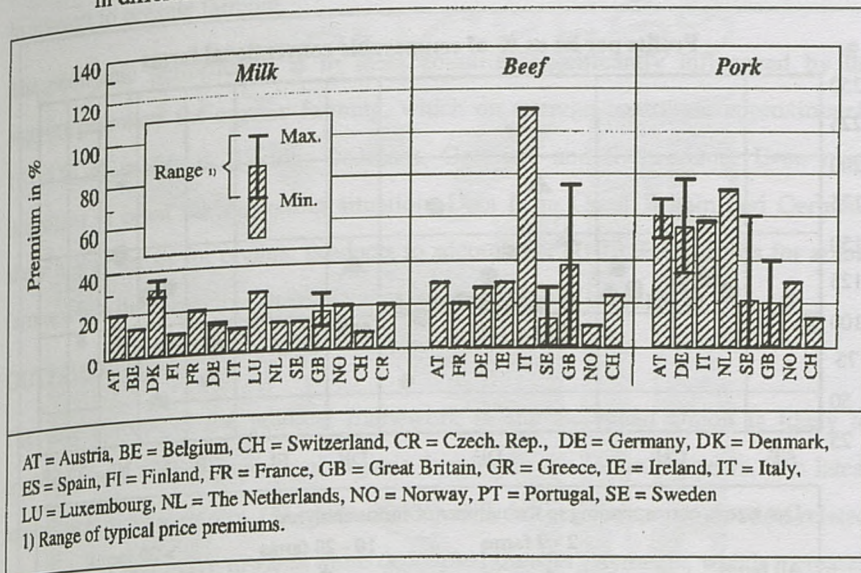


Figure 4: Typical price premia for selected organically produced livestock products in different countries



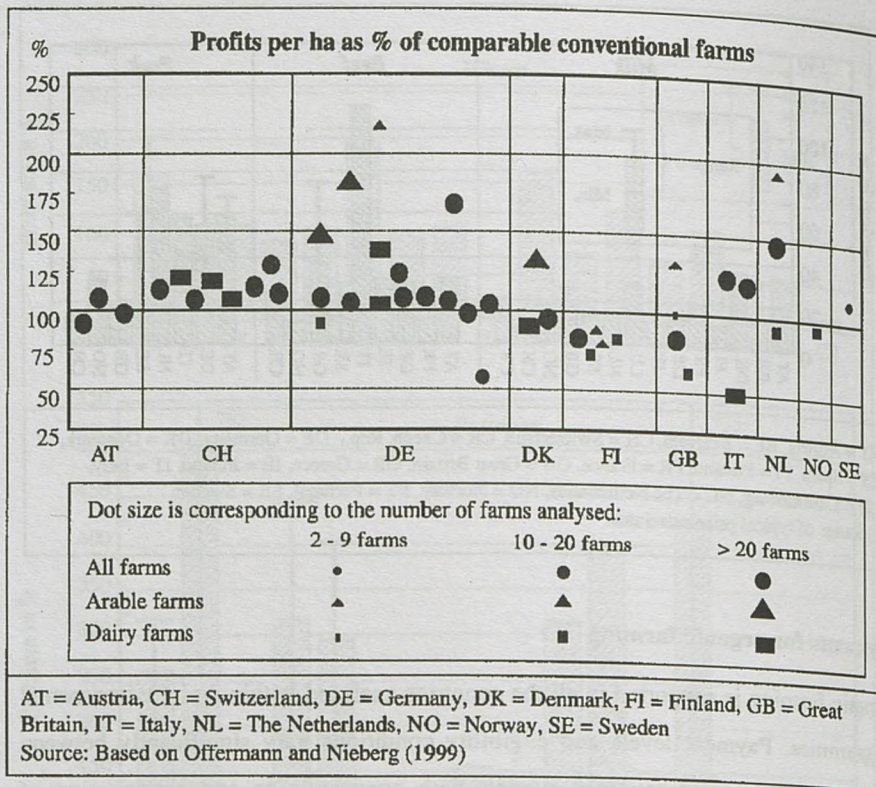
Payments for organic farming

Organic farming is supported in all the countries analysed within agri-environmental programmes. Payment levels and eligibility conditions vary significantly between countries. While most countries support both conversion to and continuation of organic farming, in France and Great Britain only conversion is supported. Payment levels for arable land in first two years of conversion range from 100 EURO/ha/year in Great Britain to 470 EURO/ha/year in Finland and more than 800 EURO/ha/year in Switzerland (Lampkin et al. 1999).

Profits

The analysis of the economic situation of organic farms in Europe shows that on average profits are similar to those of comparable conventional farms, with nearly all observations lying in the range of +/- 20% of the profits of the respective conventional reference groups (Figure 3), but variance within the samples analysed is high. Profitability varies between the countries surveyed, and between different farm types.

Figure 5: Profits of organic farms relative to comparable conventional farms in different countries



Due to the high price premia realisable in the last few years, and the design of the general Common Agricultural Policy (CAP) measures (set-aside, compensatory arable payments), organic arable farms have in several countries been more successful than the average.

For dairy farms, in general relative profitability is higher if measured per family work unit than if measured per ha utilisable agricultural area. With the exception of one study in Italy, the observed profits per family work unit were equal to or higher than in comparable conventional farms in all countries for which data was available. On the other hand, only for a few samples average profits per ha were at least similar to the conventional reference group.

Very few data is available on horticultural and pig and poultry farms. The respective studies highlight both the risks and the opportunities that exist for these farms.

For specialised, highly intensive farms, it would as a rule currently not be profitable to convert to organic farming.

The economic performance is in most countries significantly influenced by the support payments for organic farming, which on average contribute approximately 16-24 % of profits in Austria, Denmark, Germany and Switzerland. Even more important is often the marketing situation. Data from Great Britain and Germany show higher prices for organic products to account for 40-73 % of profits for arable farms, while the respective share is lower for dairy farms (10-48 %).

OUTLOOK

The development of the political framework in the European Union is likely to contribute to a further increase of organic farming in the following years. The latest agricultural policy reform ('Agenda 2000') will further reduce production-related price support and move towards more decoupled transfer payments, which increases the relative profitability of organic farming systems. Several governments have included the goal of increasing the area under organic management in their political programme and raised support payment levels. However, in the long run, a sustainable expansion of organic farming can only be realised together with the consumers.

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