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The Economics of Organic Agriculture

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1. Introduction

It is with great pleasure that I address this audience this afternoon, and I hope that all of you will take home pleasant memories of the Course and of your stay in İzmir and Turkey.

I would like to express my gratitude to The Organizing Committee for giving me the opportunity to contribute to the Program and to discuss "THE ECONOMICS OF ORGANIC AGRICULTURE" with you.

The Economics of Organic Agriculture is a subject for which it is often difficult to obtain reliable data and information. Due to lack of data concerning this new farming method, it may not be an easy task to conduct a study on the topic. This deficiency is even more evident for the purposes of an overview analysis of the subject.

However, we may have discovered an approach based on recent reports and studies, which have been produced in various countries. These reports have been combined and have contributed to the derivation of a considerable amount of information.

Indeed, this paper has been prepared by using RESEARCH FINDINGS of different studies conducted in some countries. So, the focus is not a particular country and region. In contrast, it is a general overview of the subject.

2. Objectives

The aim of this paper is to assess to what extent organic farming represents a viable alternative to conventional practices, in terms of its ECONOMIC, FINANCIAL, SOCIAL and TECHNICAL characteristics. Regarding this main purpose, the subjects that the paper would cover are given in the OUTLINE.

Organic Agriculture (OA) has been subjected to a wide variety of definitions, however, the following definitions will be used here for analysis. It could serve equally well as a definition of "SUSTAINABLE AGRICULTURE".

Organic Agriculture is both a philosophy and a system of farming used to create integrated, human, environmentally and economically sustainable agricultural production systems, which maximize reliance on farm-derived renewable resources and the management of ecological and biological process and interactions. Therefore, it provides acceptable levels of crop, livestock and human nutrition, protection from pests and diseases, and appropriate return to the human and other resources employed (Lampkin and Padel, 1994, p 4-5).

OA is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators and livestock feed additives. To the maximum extent feasible the OA system relies upon crop rotations, animal manures, green manures,

off-farm organic wastes, biological pest control, to supply plant nutrients and to control insects, weeds and other pests (Cacer & Langer, 1986).

In many European countries, OA is known as ECOLOGICAL or BIOLOGICAL AGRICULTURE, reflecting reliance on ECOSYSTEM MANAGEMENT rather than external inputs (Padel et al, 1999).

OA is an organization principle. The main approach of OA is to manage a mixed farm as much as possible like an organization within a closed system. A farm organism can be conceived as an individual entity compared to other types of agriculture, OA depends more on specific site-conditions and is, therefore, forced to combine the best adopted elements to a Holistic Approach (optimizing org. Agr. System Seminar, 2000).

The term organic is best thought of as referring not to the type of inputs used, but to the concept of the farm as an organism, in which all the components parts- the SOIL, MINERALS, ORGANIC MATTER, MICROORGANISMS, INSECTS, PLANTS, ANIMALS and HUMANS, interact to create a coherent WHOLE.

The major factor which distinguishes OA from others is the existence of both legislated and voluntary standards and certification producers to define a clear dividing line between organic and other farming systems, primarily for marketing purposes (Lampkin and Padel, 1994).

In terms of this common definition, the key characteristics of OA include:

- The meeting of strict environmental requirements and conservation of natural habitats;
- No use of chemical fertilizers or pesticides;
- The minimum possible use of energy and irreplaceable raw materials;
- No use of artificial additives or colourings;
- Processing methods which ensure natural preservation and enhancement of quality;
- Packaging which is recyclable and as environmentally friendly as possible;
- Production of Foodstuffs of high nutritional quality and sufficient quantity;
- Providing income to producers and enabling them to earn a living through their work and develop their potential as human beings;
- Avoiding all forms of pollution that may result from agricultural techniques.

The term "CONVENTIONAL FARMING" will be used here to refer to a production system which employs a full range of pre- and post plant tillage practices and are characterized by a high degree of crop specialization.

So, in the course of studying "ECONOMICS OF ORGANIC AGRICULTURE" all the points stated above have been referred to as much as possible.

3. Economics of Organic Agriculture

3.1. General overview

Nowadays, as a result of continuous awareness towards a healthy life and environmentally sound products, more and more people tend to consume "HEALHTY" or "ORGANIC PRODUCTS".

Indeed, OA is increasingly gaining greater importance and is being recognized by CONSUMERS, FARMERS, ENVIRONMENTALISTS and POLICY MAKERS, as one of a number of Possible Models for *Environmental*, *Social* and *Financial* SUSTAINABILITY in agriculture.

Recent years have seen very rapid growth of OA in the countries of the EU. In 1985, certified and policy-supported organic production accounted for just 100.000 Ha on 6300 holdings, or less than 0.1 % of the total Utilisable Agricultural Area (UAA) in the EU. By the end of 1998, this had increased to more than 2.8 million Ha, on 113.000 holdings, nearly 2.1 % of UAA and about 2% of all holdings, that is a 30 fold increase in 13 years. These figures, have seem an even bigger increase in the last 3-4 years (Lampkin, 1999).

However, the development of the organic sector varies considerably within and between countries. Several countries have now achieved 3-10 % of their agricultural area managed organically (namely, Germany, Australia 10 %, Finland 6%, Sweden 4%, Italy 3.2 %). But many others, like the USA and Canada and other European countries are still at or below a 1 % level (Henning, 1991).

Alongside the supply base, the market for organic products has grown and recent estimates have suggested that the RETAIL SALES VALUE of the European market for organic food was of the order of EUR 5-7 billion in 1999 (Lampkin, 1999).

As far as Turkey is concerned, it is one of the best-suited countries in the world for OA. This situation is not only due to her ecological conditions, but also, due to the use of more traditional agricultural methods.

Table 1. Number of Organic Producers by Product Groups in Turkey

Group of Product	1997		1998		1999	
	Number of producers	%	Number of producers	%	Number of producers	%
Dried fruits	4931	66,48	5499	67,07	6975	56,82
Fresh Fruits	1494	20,14	1165	14,21	2026	16,51
Vegetables	16	0,22	22	0,27	264	2,15
Field Crops	478	6,44	504	6,15	1320	10,75
Medicinal plants	9	0,12	33	0,40	325	2,65
Others	489	6,60	976	11,90	1365	11,12
Total	7417	100,00	8199	100,00	12275	100,00

Source: Kenanoglu and Karahan, 2000.

Although organic farming and in-conversion land constitute a small portion of total agricultural land, OA, which was mainly concentrated in the Aegean region in 1985, has expanded throughout all regions. The number of farmers dealing with OA is continuously increasing year by year.

As a result of these developments the variety of organic products is increasing. Although raisins, apricots and dried figs were only pioneering organic products in 1985, today around 30 kinds of agricultural products (a total of 92 products in 1999) are organically produced and shipped abroad. Indeed, the number of organically produced products has increased promptly, in accordance with foreign demand (Kenanoglu & Karahan, 2000).

The production and marketing of organic products are, generally performed within the framework of a "CONTRACT FARMING" agreement signed between the marketing firms and the producers, in Turkey.

Within the course of the last 9 years, the number of producers increased by 47 % and reached to 12.275 from 313 (Table 1).

The area allocated to organic Agriculture has increased within the same period (1990-1999) by about 4385 % (Figure 1).

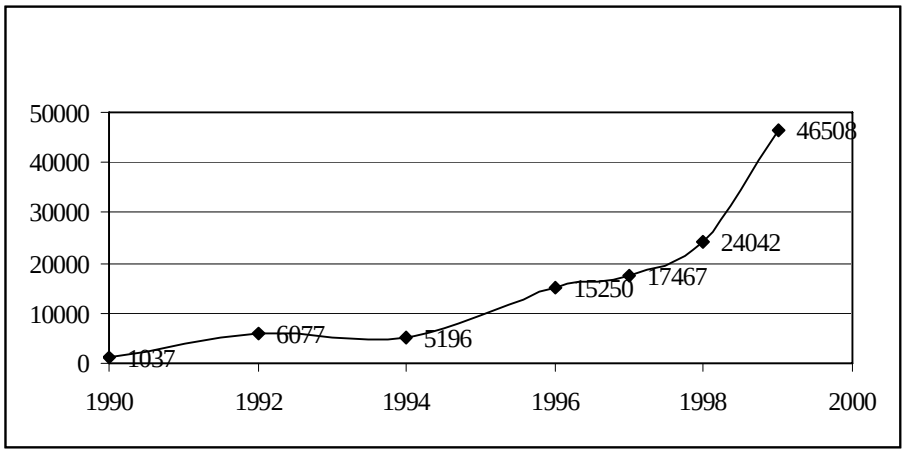

Figure 1. Area Allocated to Organic Agriculture in Turkey
Source: Kenanoğlu, Karahan, Figure 3.

To sum up, in Turkey, approximately 0,20 % of the arable land and 0.30 % of the farms are allocated to organic agricultural production. The share of organic product exports within the total agricultural products is about 0.99 % in Turkey.

The approach for analysing the economics of OA can be grouped into three categories:

1. Economics of OA at the farm level (MICRO LEVEL)
2. Economics of OA at the regional and national level (MACRO LEVEL)
3. International analysis (INTERNATIONAL LEVEL)

The research on the economic feasibility of OA at the farm level, can be grouped into three categories:

a) Comparison of socio-economic parameters between *organic* and *conventional* farms,

b) Analysis of economic returns based on research *PLOT YIELDS* data.

c) Modeling comparisons of organic and conventional farms (Langer, 1986).

Studies on actual farms could be conducted in two ways: The first one is at the ENTERPRISE level. Comparisons are conducted within each farm in order to compare the profitability (superiority) of each enterprise organic or conventional farms.

A second method is a farm level comparison which aims to analyse *the farm as a whole* without paying more attention to each enterprise. Several studies have already been completed and have directly compared YIELDS, COSTS, and RETURNS, on organic and conventional farms in various countries that we will refer to later in the paper.

The other type of Research used Yield data from Research Plots. Inputs to economic analysis have been conducted in the USA.

The third type of study involves MODELLING of organic and conventional farm systems in different scenarios and compares the NET RETURNS, in the USA, too.

The direct comparisons and PLOT data suggest that organic farming is economically feasible and can compete with conventional farming, at least in certain geographic areas and for certain farming enterprises (Langer, 1986).

From a MACROECONOMIC viewpoint, the subject is not only to assess the economic productivity and profitability of organic agriculture, but also, to analyze the implications that the adoption of organic farming will have on the quality of life of present and future generations, on the agricultural production, on supply of agricultural products, to the level of self-sufficiency, on foreign trade, prices of products, and synthetic inputs production and input prices.

While efficiency and profitability in the short-run are rational goals for individual farmers in every country, while economic sustainability is a pre-condition for the wide-spread uptake of any alternative farming practice, it must also take into account Social sustainability which include concerns for the environment and for long-run effects, as well as health and food safety considerations, at large (Zanoli, 1992).

The most important impacts of organic Agriculture at the International level, among others, is for International TRADE.

A large potential for International Trade in organic products depends on labeling to inform the consumers as to which standards are used to grow the product. So, higher international trade in organic products depends to a large extent on national and private certification systems, and provides harmonised standards, expanded production and promoted distribution by natural organic movements and by AGRICULTURE and TRADE POLICIES. Existence of some problems requires careful analysis and implementation present and future of studies.

3.2. Economic performance of organic agriculture

The economic performance of OA has been analyzed and compared with conventional agriculture in terms of resource and production structure, enterprise structure, crop yields, production costs, price relations, labor and capital intensity, profits and factor remuneration for farmers or producers. In short, physical and financial performance of the organic farming system is measured.

However, in some sources, when measuring the economic performance, four main approaches have been identified for choosing a REFERENCE SYSTEM.

a. Calculation of the hypothetical profit by drawing on expert information or models,

b. For short-term comparison, comparing the situation of the FARM BEFORE and AFTER conversion,

c. Approximation of the potential income by analyzing the economic situation of conventional farms,

d. Comparison of organic farm results with conventional FARMS.

The criteria for measuring and evaluating the economic performance of organic farms *depend on* the objectives of the farmer and time horizon of the analysis. A MINIMUM REQUIREMENT would be that organic farming is economically viable. That means that the monetary RETURN

to the activity has to be high enough to cover all expenses incurred, including consumption by the farm household.

On the other hand, in the long run and with more widespread conversion to organic farming RELATIVE PROFITS and the criteria of PROFIT MAXIMIZATION are becoming more important for analysing the economic performance of OA. Organic farming is ECONOMICALLY PROFITABLE, if the profits are higher than those of other possible activities. Thus, organic farming is economically profitable if the returns to the production factors used exceeds their opportunity cost (Offerman and Nieberg, Vol 5, p. 4-5).

Furthermore, in studying the economic performance of OA, its impacts on the PRODUCERS, on CONSUMERS, on MARKETING FIRMS, on the AGRICULTURAL SECTOR and the NATIONAL ECONOMY, as a whole have to be considered, as well.

Many FARMERS who adopted organic farming methods were motivated by reasons relating to the HEALTH and SAFETY of their families, of native and foreign consumers, and livestock, and by idealistic convictions about ECOLOGY. Farmers are converting to organic methods for a variety of reasons, but the most important have to do with a general unease with the health and environmental impacts that organic methods might be profitable.

Consumers are, also, concerned with the environmental impacts of conventional agriculture and increasingly perceive organic products as one solution to their concerns. Beyond the residue issue, organic has an image of superiority, in terms of QUALITY, TASTE and NUTRITION.

Upon following these types of general explanations, we will now provide farm level performance of an organic farming system, in the light of the results of *empirical RESEARCH* into the physical and financial performance of organic farming systems, in different countries. From the evidence presented in the literature (Lampkin and Padel, 1994), it can be concluded that on ORGANIC FARMS:

- Absolute yield levels are increasing over time, but at a slower rate than for a comparable conventional system. So, absolute yields are, generally, lower and changing between 10 % - 45 % levels (Heissenhiber & Ring, 1992) of conventionals. Yield differences relative to the conventional system vary depending on ENTERPRISE TYPE, and INTENSITY of the conventional system between REGIONS and also, between crops within a region. Therefore, in the case of organic farming there is a need to consider not just modification to agricultural practices, such as the level of input use, or the combination of individual inputs, but also restructuring of the farming system.
- Variable input costs, particularly, agrochemicals, are lower. Indeed, quite marked differences between organic and conventional farms can be found in COST STRUCTURE and organic farms are more labor intensive (Zanoli, 1992).
- Total production costs per unit for organics is lower than conventional products due to lower level use of chemicals, generally.
- Premium prices for organic crops are widely available in some European countries, but the size of premium varies crop to crop and country to country.
- An important aspect of profitability of organic farms is the opportunity to receive higher farm gate prices for organic than for conventional goods. Prices vary considerably between different marketing channels. In the long-run especially, the problem of market failure which can only be addressed if some consumers are prepared to place a higher value on organic food, or if policy makers act to bring about coordinated change through voluntary agreements, regulation or appropriate financial signals.

- Gross margins may be similar or higher if premium prices can be obtained, but otherwise they are likely to be lower and individual enterprise gross margins need to be considered in the context the entire farm system because, gross margin comparisons between enterprises with different cost structures can be misleading, particularly where conventional variable costs such as fertilizer and crop protection inputs have been substituted by fixed costs in the organic context.
- Labor use is higher, but this is generally related to an increase in the number and range of enterprises on the farm and to the development of new marketing and processing activities, rather than to increases in labor use for specific crop and livestock enterprises.
- Some fixed costs include items such as power repairs, and depreciation of machinery, and capital costs are typically similar between organic and conventional farms, in most countries. Total costs of organic farms are, on average, only slightly lower than when compared with conventional farms.
- Premium prices are needed to compensate for reduced output. The existence of premiums can be explained by market segmentation. This market segmentation is due to higher quality of organics and growing importance that consumers give to environmentally friendly production systems (Zanoli, 1992).
- In terms of Gross Product Income or Income per Hectare, organic agriculture is slightly higher than conventional agriculture. In terms of income per working hour, the productivity of the organic system is still below the best conventional performance (Zanoli, 1992).
- Standardized farm PROFITS were found to be comparable with or greater than the average for similar farms in Germany, Denmark and Canada. Profits were slightly lower for organic farms in Switzerland but were still seen as providing a significant income for the farm family.

At this point, in order to give an idea from our Aegean Region, the yields, the production cost and marketing systems for organically and conventionally produced raisins in SALİHLİ and KEMALPAŞA counties are compared. Thirty seven (37) producers from each production system were interviewed.

Although yields depend only on a one year analysis, contradictory results for yields are obtained for Kemalpaşa. There are no statistically significant differences in yields for SALIHLI. In fact, yields are 5 % lower for organics in SALIHLI.

Production costs for organic farming is higher than for conventional but profit obtained per kilo of product is also higher for organic than for conventional farming. Thus, the marketing of organic raisins resulted in an increase of profit and hence producer welfare level (Akgüngör, 1996).

Higher labor incomes per hectare were reported from Germany, Denmark and Switzerland, although in some cases, labor incomes per hour or per day were lower than for conventional farming. In some cases, the results indicate that organic farming may help to maintain the full-time operation of smaller farm units.

Whole – farm performance is influenced by yields, prices, variable costs, enterprise structure and labor requirements under organic management. The performance relative to conventional farms will also be influenced by the intensity of the conventional system.

There is little evidence available concerning levels of risk. Some studies suggest that the increase in enterprise diversity reduces risk, but others suggest that risk increases because yields for a given enterprise are more variable.

Where no premiums are available for crops, lower incomes may result unless the conventional system is already relatively extensive. For livestock farmers, comparable incomes might be achieved without access to premium prices due to the benefits of forage legumes, but the relative result will also depend on the intensity of a comparable conventional system.

In some countries, generally, organic farmers are of urban origin and are more educated than conventional farmers. The cultural "self-isolation" of organic producers and consumers is a distinguished feature of organic market segment which has its strength and limits (Zanoli, 1992).

In addition, according to the results of several surveys undertaken to learn about organic farmers in Canada, in general terms, compared to other farmers, organic farmers are relatively young, have not been involved in agriculture as long and tend to operate smaller farms with lower sales levels (Lampkin and Padel, 1994, p. 147).

The economic performance is , in most countries, significantly influenced by the support payments for organic farming, which on average, contribute approximately16-24% of profits in some EU countries (Offerman and Nieberg, vol 5, p.111).

The overall impact of the CAP reform on organic farming has led, on average, to a positive effect through the support programme according to EU Regulation 2078/92 (Offerman and Nieberg, Vol. 5, p. 105).

3.3. Socio-economic benefits of organic agriculture

Organic Farming benefits society substantailly by providing food safety and health for CONSUMERS, reducing pollution and flooding, conserving ENERGY, soil, nutrients, and wild life so the protecting of ENVIRONMENT, and also, providing necessary conditions for SUSTAINABLE AGRICULTURE through insuring the supply of food for future generations.

However, it is to be noted that, virtually no credible data are available to policy makers on the magnitude of these benefits, so they are unable to compare organic farming with other policy alternatives. Policy makers also need information on the impact of organic farming on international trade, input suppliers, the food marketing chain and rural communities. Organic farming is an attractive alternative for both farmers and policy makers with the development and delivery of better information both will be able to make the best use of this alternative (Langer and Cacek, 1986).

When considering the socio-economic benefits of organic agriculture again, *financial* and *economic assessments* are necessary. A *financial assessment* is concerned with organic agriculture performance from the viewpoint of a profit-seeking business; whereas, *economic assessment* is concerned with its performance as seen from the viewpoint of society as a whole. There are, at least, three reasons why organic agriculture might be justified-socio economically:

1. Its impact on the environment may be preferred to that of conventional farming,
2. Its impact on rural employment may be greater than conventional farming, giving it an important role in the field of pluriactivity.
3. Since its output is likely to be lower than that of conventional farming, especially in developed countries, the costs to the taxpayer arising from the need to dispose of surpluses may be lower.

Regarding the socio-economic benefits of organic agriculture these arguments have to be assessed very well (Lampkin and Padel, 1994, p.45).

In the course of assessment, however, different views of environmentalist's and economists persist:

- An economic assessment is not the same as a financial one, even if organic farming were financially unviable, there may still be reasons why it should be encouraged,
- The economic case is based on an acceptance of the concept of a MODIFIED MARKET- a concept which takes into account some of the criticism that environmentalists would make of a completely free market system.
- Environmentalists can best advance their case by arguing from the concept of a modified market, rather than by opposing it (Lampkin & Padel, 1994, p.65).

When studying the economics of organic agriculture, of course, the marketing system of organic products has to be covered within the subject.

3.4. Environmental and sustainable impacts of organic agriculture

The major thrust of organic agriculture is that the farming systems are designed to be in harmony with the environment in which they are practiced. This will then lead to the adoption of farming practices that reduce or eliminate many of the negative environmental impacts of modern production systems, including loss of wildlife habitats, pollution of the environment and the excessive usage of non-renewable resources.

Furthermore, the objective of "sustainability" or conservation, lies at the heart of organic agriculture and is one of the major factors determining the acceptability or specific production practices. The term "sustainable" is used in a wider sense, to encompass not just *conservation of non-renewable resources* (soil, energy, minerals), but also, issues of *environmental* and *social sustainability* (Lampkin & Padel, 1994, p. 5).

These types of wider concerns have influenced the development of organic agriculture:

- *Social concerns* over the loss of jobs and rural population decline;
- *Environmental concerns* over the loss of wildlife species and habitats, pollution;
- *Health concerns* over pesticide residues and other food quality issues, and
- *Sustainability concerns* over the use of resources as efficient as possible for present and future generations.

Indeed, organic farming plays a special role in the realization of sustainable agricultural components provided below:

1. Intergenerational equity;
2. Preservation of the resource base of agricultural production and prevention of pollution;
3. Protection of biological diversity with as little inference with natural ecosystems as possible;
4. Guarantee of the economic viability of the farm sector and enhanced job opportunities in farming as preservation of the structure of the rural community;

5. Responsibility for the society as a whole to produce sufficient food with high nutritious quality, and
6. The taking of responsibility for a sustainable development at a global scale (Optimizing Org. Agr. Systems, İzmir, 2000).

So, organic agriculture would have environmental and sustainable impacts through the points stated above.

3.5 Organic agriculture and agricultural policy relations

In some countries, OA maintains special relations with general agricultural policy and particular policy means have been used for the development of OA within the context of agricultural policy. In this regard, the EU and the USA are typical examples.

Indeed, since the mid-1980's policy makers have increasingly been developing an interest in organic farming. Reasons for this include:

- The potential environmental benefits, increased biodiversity, reduced soil and water pollution;
- The increasing consumer demand for organic products, necessitating an increase in the supply base;
- The existence of a distinct market for organics;
- The limiting of surplus production due to the lower intensity of organic farming, and
- The opportunities for diversification of farms, and, because of increased labor requirements, the potential contribution to rural development (Padel, et al, 1999).

Therefore, in recent years, OA has taken a special place within the CAP reform of the EU. Organic farming has the potential to make a significant contribution to these agricultural policy reforms, particularly, in the areas of environmental protection, reduction in the output of surplus products and reorientation of agriculture towards areas of market demand.

A number of policy options exist to support the growth of the organic sector and to ensure that the potential environmental and surplus reduction benefits of OA are actually achieved. These include the support for research and development, education, training and extension, market development and certification, as well as *financial support for conversion and continued organic production* (Lampkin & Padel, 1994).

Nearly 80% of the expansion in the land area has taken place in the last six years, since the implementation in 1993 of EC Regulations 2092/91, defining crop production and the widespread application of policies to support conversion to and continued organic farming as part of an agri-environment programme (EC Reg. 2078/92).

The *former* policy has provided a secure basis for the agri-food sector to respond to the rapidly increasing demand for food across Europe (COMMON STANDARDS FOR ORGANIC CROP PRODUCTION was developed).

The *latter* has provided the financial basis to overcome real barriers to conversion (SUPPORT FOR ORGANIC FARMING UNDER THE AGRI-ENVIRONMENT PROGRAMME).

The EU Policy Support of this type during the 1990s has arisen, due to a gradual convergence of policy goals with underlying objectives of organic farming, including:

- Environmental protection,
- Animal welfare,
- Resource use sustainability,
- Food quality and safety,
- Financial viability and
- Social justice.

Organic farming is also perceived as farming aimed at contributing to reducing problems of over production. Organic farming offers three potential advantages over other more targeted policy means:

- It addresses most of these goals simultaneously;
- It utilizes the market mechanism to support these goals, and
- It is recognized globally.

However, there *were wide variations between countries*, in terms of the significance of organic farming support, both relatively and absolutely, within the agri-environment programme.

Other EU policy measures which have been used to support organic farming in recent years include:

- Support for marketing and processing activities and producers groups;
- Structural measures;
- Support for advice and demonstration programmes;
- Support for training activities and
- Support for research under the EU framework and national programmes.

To the extent that the Agenda 2000 represent a continuation of the CAP reform process begun in 1992, then the developments are likely to be favourable for organic farming. There remains a case for organic farmer to be exempted *from compulsory set-aside*, while remaining eligible for *voluntary set-aside*.

Potentially the most important Agenda 2000 proposal is to consolidate all existing agri-environment, rural development and structural policies into a single Rural Development Regulation, to be implemented through single programming documents developed by the member states. This regulation makes specific reference to the increasing demand for organic products and the resulting creation of a new market for agricultural products, stating that specific rural development measured may contribute to the production and marketing of organically produced agricultural products (Lampkin, 1999, p. 6-7).

This type of policy measure, of course, will have a positive effect on the growth of organic farming but that growth cannot be explained through policy support alone and some other factors must be involved, such as:

- The economic environment in which conversion takes place, like input-output prices and financial support for conventional agriculture;
- Institutional support for organic farming in the agricultural administration;

- The image of organic farming held by the general public as well as in the agricultural sector, and
- The availability of premium prices and marketing outlets for organic produce, as well as farmer confidence that market outlets will be able to handle substantial increases in supply without premium price erosion.

Although it is not clear to what extent these and other factors have influenced the development of organic farming the prospects are for continued growth, which may lead to 10% of EU agriculture being managed organically in 2005. The Agenda 2000 proposals for continued reform of the CAP look likely to provide further support to this process allowing organic farming to move from NICHE MARKETS to a mainstream part of the agricultural sector (Padel, et al, 1999).

4. Conclusion and Outlook

This analysis of the economics of organic agriculture, in general, has shown that organic agriculture is an attractive alternative for *farmers*, *consumers* and the *society* as a whole. It must be concluded that a widespread adoption of organic farming techniques will benefit the *consumer*, the *environment* and in some conditions, the *farmers* too.

Since a number of important determinants of performance for economics of organic agriculture are clearly going to change over time, prediction of future development will not likely be easy. However, depending on the economic situation of organic farms, the development of organic agriculture will especially depend on the factors listed below (Offerman & Nieberg, Vol. 5).

1. Technical Progress

Technical progress in organic and conventional farming will affect the relative future competitiveness of both types of farming. As organic farming is gaining in importance, one can also expect increased technical progress in this sector, which will have positive a impact on it.

For example, consumer skepticism regarding genetically modified food will result in an increased demand for food products that have been organically produced and not genetically altered.

2. Price Development

Even though prices for organically produced food have mostly remained strong in the last years, despite the strong expansions in organic farming, the risk of prices changing is still to be reckoned with. An EU-wide regulation of organic livestock production and similar regulations for plant production (EC, Reg. 2029/91) can be expected to further strengthen this development.

3. Political Development

The direct support given to organic farming via area payment will continue to have a substantial impact on the economic viability of organic agriculture. Any decision regarding how current schemes within EC Reg 2078/92 will be handled in the future, and what financial support will be available through them, is thus of major importance. CAP reform and an analysis of its impact on organic farming shows that it tends to improve the competitiveness of this type of farming.

In addition to these factors, further areas of interest for future research into the economics of organic farming are:

- Particular attention should be paid to approaches for conversion to organic farming;

- Information needs of organic farmers should be surveyed and an information delivery system should be tailored to meet those needs;
- Alternative farming systems research promises short term and long term returns must be adequately supported;
- The factors determining the absolute and relative economic profitability of organic farms should be studied to provide well founded advisory support;
- The cost structure of organic farms in different countries should be analyzed and assessed the competitiveness of organic farms in different regions should be assessed;
- The efficiency of the existing support schemes should be evaluated and monitored and adequate advisory support, and improved data availability should be provided as it is essential;
- The impact of future agricultural policies should be quantified;
- The economic viability of direct marketing and on farm processing should be studied, and
- The potential of the new media for the marketing of organic produce by producers should be investigated.

As a concluding remark, I would like to state that the importance of organic agriculture can be summed up in two SLOGANS for CONSUMERS. For a healthy future:

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Don't panic- be organic

Don't pay doctors – pay farmers

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