

**International Masters' Programme in Environmental Sciences
LUMES**

**Organic Food System: A comparative analysis between Sicily and
Sweden food System.**

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Summary

This study examines the social and economic factors in creating more sustainable organic food production. Where social and economic sustainability refer to the necessary human relations that maintain systems within the criteria of sustainable (NKJ, 1999, p 7). The aims are to propose strategies for appropriate handling of conflicts of interests between actors in the food system and collective decision-making institutions. In organic food sector, the goals for social and economic development are relatively ambiguous; therefore the interest of the study is to define the role, opportunities and scope of participants in the organic food sector.

The study analyses the organic food system focusing on European Union. The notable interest for organic food in the European Union and the experience of organic farming's common regulations, is a good example of how the interactions between actors, i.e. the farming community, decision makers and food processors and retailers, affect the social and economic development of not only of organic agriculture but also conventional.

The study focuses on the production and process of organic lemon juice, which is largely use as conservative for the increased market of processed food. Despite possibilities for the organic lemon market, the quantity of land in Sicily dedicated to organic production of lemons and oranges continues to decline. While in contrast organic processed food has been increasing sales.

The conclusions are that although the benefits of political implementation, they are not enough to promote a stable and sustainable development of organic food system. In addition, other factors promotes a well structured organic food system; this factors are:

A well-organized organic food sector, consumers' trust in political institutions and processors and retailers, environmental awareness of producers, processors and consumers; management and interest in organics from big food chains and good relationship between the organic and conventional organizations that allows to access to advice and know-how.

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Introduction:

This study examines the social and economic factors in creating more sustainable organic food production. Where social and economic sustainability refer to the necessary human relations that maintain systems within the criteria of sustainable (NKJ, 1999, p 7). The aims are to propose strategies for appropriate handling of conflicts of interests between actors in the food system and collective decision-making institutions. In organic food sector, the goals for social and economic development are relatively ambiguous; therefore the interest of the study is to define the role, opportunities and scope of participants in the organic food sector. Organic agriculture is holistic in nature, thus strategies for increasing the sustainability should focus on different technical, biological and economic aspects of production and processes of organic food.

The background for the study is the current debate regarding food security and environmental and food quality issues, where organic farming presents an alternative to industrial food production. The threats of industrialized food production to human health and the environment are well documented. However, the impacts of genetically modified organisms remain unclear. In addition in the globalized world of agricultural product trading there are many concerns about equity, labor standards, and environmental effects.

Concerns about how the food we consume is produced becomes more relevant as land degradation, livestock diseases, the effects of agrochemicals on human health and the environment, the uncertain effects of use of genetically modified organism, and other issues become more widespread and severe. Organic agriculture and its produce, on the other hand offers improved human health, preservation of the environment, and better conditions for agricultural workers. As demand for higher quality food increases, the growth in the organic market is restructuring the paths of modern agriculture: the number of hectares dedicated to clean and environmental friendly production are increasing and actors in the food system are becoming more involved in organic production issues, offering economic incentives, subsidies and elaborating on regulations and standards.

Despite the benefits of organic practices, a farmer's decision to shift from "conventional" to organic farming is influenced primarily by market forces which are dependent on consumer preferences, regulations, and the mainstreaming of organic food both at the manufacturing and retail level (Klonsky, 2000, p. 234). For example, as demand for organic food increases, there is difficulty in meeting the growing demand largely because production takes place on small and medium farms which are unable to compensate for fluctuating markets. Retailers, which require secure and everyday supplies, prefer to buy from large and some times distant organic suppliers thus bypassing the regional ones and increasing the negative effects on the local economy and transportation. Moreover, in order to meet the requirements of the market, many of big organic suppliers do not practice the best possible ecological and social techniques.

In addition social and economic issues remain uncertain in the dynamics of food system, which affect production and market of organic products. Weak co-ordination among actors in the both the organic and non-organic food production system has led to stagnation in the quantity of land dedicated to organic farming, market availability and hindered improvements in social issues such as concerns over workers' welfare. Thus, the report analyses the importance of coordination among actors in the food system to promote sustainable organic agriculture.

Growth of organic agriculture depends on integrated changes in every sector of the food system rather than isolated modifications in agricultural policies or marketing. The report concludes that the recognized “institutionalisation” of the organic farming sector enhances cooperation and interest between actors in the food system and thus improves the social and economic sustainability of the food production system.

The study analyses the organic food system focusing on European Union. The notable interest for organic food in the European Union and the experience of organic farming’s common regulations, is a good example of how the interactions between actors, i.e. the farming community, decision makers and food processors and retailers, affect the social and economic development of not only of organic agriculture but also conventional. This is due mainly to fact that standards of organic farming have a weighted affect on those of conventional farming.

Objectives and Scope

The objectives of the study are to propose strategies for collective decision-making and appropriate handling of conflicts of interests in order to develop the social and economic sustainability in the organic food sector. Social and economic sustainability concerns the effects of human initiatives and actions to on the environment. Although organic farming practices have positive impacts on agro ecosystems, social and economical concerns must be addressed in order to develop sustainable agriculture. A well-structured food system facilitates more transparent food production and processes that improve environmental, economic and social conditions within the whole food system.

The study concludes by developing strategies to promote a more sustainable organic food system and overcome existing and possible obstacles. Thus the main objectives are to:

- Propose strategies for coordination between the different sectors in the food system: farming community, food processors, retailers and policy makers in order to promote sustainable agriculture.
- Propose political, economic and social approaches to support growth of organic food sector.

The main research questions that will be answered are:

- How the development of organic farming and processes could be promoted, implemented and maintained.
- What are the goals for sustainable food system and how could they be included within the organic food sector.

It will also briefly attempt to explain how international trade & distribution of organic products could be more sustainable. The analysis is focused on the EU organic food system with comparative case studies of Swedish and Sicilian food systems. It is based on qualitative information, results of bibliographical research and interviews with representatives from the organic farming sector. It examines the relations between actors in the food system and their effects on the development and quality of organic products, including political and economical institutions.

The study investigates social and economical issues involved in the policymaking and development of organic farming, processing and retailing, rather than technical, scientific and environmental issues of organic agriculture. It is assumed that organic farming brings benefits and advantages to the ecosystems and human health and the research will not deal with the debate of the environmental advantages and constraints of organic farming.

Method:

The first part of the report is a review of existing strategies and theoretical framework within the food system and the role of the organic products. The literature review mainly consisted of well-documented studies by academics pertaining to food system issues. Here the scope of the study is narrowed and a general outline of the social and economic conditions of the food system is given.

Analysis of the empirical data was done using a Causal Loops Diagram (CLD). CLD's illustrate the cause-and-effect relationships between variables by showing the causal connections with arrows. The arrows are labeled '+' or '-' depending on whether the causal influence is positive or negative (Ford, 1999, p. 69-71). The basic process of a CLD starts by defining and confining system boundaries according to the specific question for which an answer is being sought. The model is then tested and possibly changed according to the empirical data (Sverdup and Haraldsson, 2001 p. 9).

In addition to the literature review, additional information was gathered during the authors fieldwork on two organic farms one in Sweden and the other in Sicily. These farms, though both in the EU were selected due to their geographic, social, and cultural differences. During the period of fieldwork both formal and informal interviews were carried out with selected actors of the food system. The authors experience on the farms provided opportunities for informal interviews with farming community, familiarization with organic practices, techniques and certification procedures in the EU and provided an understanding of the economic rational behind the behavior of actors. The farm in Sweden was Fraxinus Produkter AB Ekologiskt odlad, located in the Väjjo, which produced vegetables and fruits. The interviews conducted consisted of a series of informal interviews with the owners of the farm, and informal interview with the inspector of the certification body KRAV, during an inspection of the farm. The farm in Italy was Azienda Agricola Vasari, in Santa Lucia del Mela, Sicily which produces wine, citrus and olives. Here series of informal interviews were carried out with the two owners of the company and informal interview with the inspectors of the certification body Suole e Salute during the inspection. In addition formal interviews with the CIA Milazzo, an farmers association, Ministry of agriculture in the Mezzina Region, and Fratelli Branca - Industria agrumi, processor company, all located in Sicily.

Theory:

Agriculture and Sustainable Development

Sustainability represents society's main challenge to agricultural production today. Sustainable development in agriculture necessitates high yield production while preserving ecosystems, insuring economic security and adhering to social standards (NKJ, 1999 p. 6). The goals for a well-functioning ecosystem are fertile soils, clean water, fresh air, a stable climate, and aesthetically pleasing landscapes. Because agriculture represents the largest human influence on nature, future agricultural systems must support and maintain ecological

balance (NKJ, 1999 p. 6). To do this a long-term consideration for the use and management of renewable resources is necessary.

Strategies for development of sustainable agro ecosystems should consider that natural capital cannot be replaced by other types of capital and that some are non renewable. Thus use of renewable resources, recycling, and careful use of limited resources are of major interest. Furthermore, social and economic sustainability requires resource management for current and future generations, collective decisions instead of isolated market forces, appropriate handling of conflicts of interest in decision making and adequate management of complex systems (NKJ, 1999 p. 6,7).

Ecological efficiency can be achieved through technical improvements in food production and processing, mainly by incorporating more efficient demand side energy use within the processes of the food system. Currently, the food system has a strong dependency on fossil fuels derived from crude oil that make the system vulnerable to world oil price fluctuations (Jones, 2002, p. 574). More efficient use of energy reduces the dependence on fossil fuels in transportation and food production, pesticides production and reduces pollution, which ultimately harms agricultural productivity. Ecological efficiency also demands better-designed delivery programs, more efficient transportation modes and cleaner technologies.

In addition to ecological efficiency other factors necessary in achieving sustainable agriculture include

- high profitability and quality in order to compete on the international market (SEA, 1999, p. 21).
- increased demand for local production due its to reduced environmental impacts and enhanced social sustainability.
- development of low external-input food production systems which promote and enhance biodiversity and ecological balance, including animal welfare.
- development and preservation germ plasma from genetic engineering and patenting (Jones, 2002, p. 575).

Although the problems associated with the contemporary food system are well documented, there is no consensus on an adequate tools or a set of indicators to measure the sustainability of the food supply system. As a result, there is confusion over the appropriate actions that consumers, businesses, and policy-makers involved in the food system can take in order to reduce the negative impacts associated with food supply and, ideally, contribute to an improved quality of life and ecological restoration. A well coordinated and locally specific analysis tools are needed to identify the most environmentally benign options for food provision. The results of such analyses will contribute to information provision for consumers and policy-makers in order to gain a better understanding of the options available and the environmental impacts of each (Jones, 2002, p. 575).

The Food System: Actors and Interests

According to Jones (2002, p. 560),

Food supply is now synonymous with convenience, extensive choice, and the year-round availability of both processed and fresh produce. Food production, distribution, and retailing systems have undergone significant change over the past 50 years to make this availability and choice possible... The availability, range, and source of fresh fruits and vegetables has been extended, with exotics as star fruit, mangoes, and okra as well as indigenous varieties, which are not, or cannot be grown throughout the year in Europe, imported in large quantities.

Jones goes on to explain that this has occurred largely because of four developments: the modernization of agriculture; a commitment to international trade; the provision of transport infrastructure and low transport cost; and the emergence of the multiple retailers which increasingly coordinate the production processing, and distribution of food products (Ibid). The food system has become more focused efficient processing of food, and the role of primary producers has been somewhat marginalized, becoming more dependent on the specific requirements of other actors in the system. Traditionally farmers' decisions were influenced by the natural conditions regulating the food production. Now patterns of consumption, accessibility and international and domestic policies has taken precedence and decision are made by other actors in the food system, specifically retailers and processors (Tansey and Worsley, 1995). For example processors and retailers are constantly developing new products with specific characteristics and searching for production plants flexible enough to supply the wide products range demanded by fragmenting consumers markets (Triall, 1998, p. 56). In modern industrialized food systems, the requirements for raw materials are stricter in quality, quantity and seasonal availability. Demographic and social factors such as postponement of marriage and the incidence of women working out of home are changing the necessities of food to more processed and faster preparation, like frozen prepared meals ready to be heated. The amount of time people spend preparing food has dropped over the past twenty years from an hour a day to 20 minutes. Ready meals are becoming extremely popular in America, Britain and Sweden because of a prevalence of single-family households and working women. In France, Germany and the Netherlands, they are a bit less popular, and the Spanish and Italians "barely acknowledge their existence." (Carhill, 2002, p. 1)

Key Actors

Tansey and Worsley (1995 p. x), define the food system as the set of activities and relationships that interact to determine what, how much by what method and for whom food is produced (and distributed). The follow diagram shows the main actors and the principal interactions among the food system

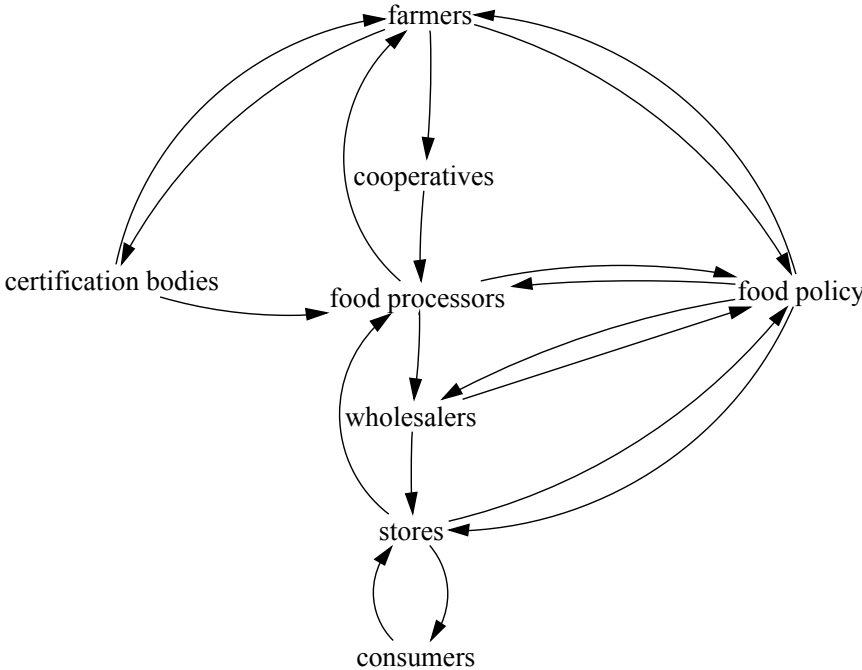


Figure 1. The food system. The arrows indicate the direct interrelations among actors.

Farmers:

The role of farmers has significantly changed in the last decades. First, the Green Revolution introduced new technologies to create more efficient food production. Agro ecosystems have increasingly become monoculture or specialized system that produce only one or two crop varieties. This has been made possible through the use of modern agricultural technologies, such as chemical inputs and industrial machinery. Consequently, industrial farming is more capital intensive than traditional agriculture. The industrialization of the agriculture tends to substitute high capital outlays for a large labor force. In addition the opportunities for farmers have decreased, as they are now dependent on high inputs of machinery and chemical treatments that are produced by few corporations.

However, the promises to meet the increased global demand of food and raw materials with this agro-intensification, is limited by the reduced effectiveness and negative impacts of unrestrained use of external inputs in the agro ecosystems, the environment, society and the economy. These impacts included erosion, pollution, cost of transportation and storage, reduction of employment, collapsing prices, overproduction, market saturation, internal and global competition, and concentration of powerful buyers.

The pressure to raise productivity forces farmers to focus on specific crops to fulfill the market necessities manifests in monoculture production that is more vulnerable to diseases and weather conditions. Monocultures are also prone to be a financial risk, as depressed market prices can break a monoculture farmer. Most modern farms produce crops with defined specifications, or sometimes production is under contract, giving farmers a defined market but if the products do not fit the specifications is rejected by the buyer. Such contract work, in effect, shifts the risk of climate, disease and so on more fully on to the farmer, while the buyer can seek other sources of produce (Tansey and Worsley 1995 p. 91). Crops grown under contract specify price, time and quality factors such as color, size, growing methods, pesticides and treatments that have suitable characteristics for industrial processing (Ibid, p.113).

Another difficult in industrialized agriculture is that much of the capital invested in land, machineries, chemicals and seeds are often loaned with high interests, where the farm itself serves as the collateral. In addition, small and subsistence farmers are unable to afford special machinery or to take risks in the production. Consequently, modern farmers grow primary commodities for sale, while subsistence agriculture, which produces using their own resources, is largely confined to the poorest regions (Tansey and Worsley 1995 p. 91). Today, still a large portion of the world's agriculture is for subsistence, and most large scale agriculture in developed countries has change its role from producing for local markers to becoming suppliers of raw materials for corporations that process and sell the finished products on the global market. The scale of production and necessary capital outlays are making it increasingly more difficult for small farmers to compete and often they are forced to sell their land, where it is incorporated into large industrialized farms. In summary, farmers have a weak position in the dynamics of the food system. More political powerful groups decide the economic and the political decisions that influence earns, markets and regulations under the farmers make their livings.

Processors and Retailers

Food processing and distribution is shifting from traditional small and local stores to multinational retailers and processors. Regional shops have ceased to be the farmer's principal buyers and retail chains and processors have become major consumers. The standardized requirements for raw materials are more specific and strict to processor and retail chains than the small shops.

Processors are constantly developing new products, looking for the profitability in the "added value" often by converting cheap and simple raw materials, like sugar, wheat or nuts, into more convenient and expensive products. The creation of new products depends of the retailer's niches that follow the demand of the consumers' activities. Moreover, processors invest in automatization and technology to control processes, thus minimizing the risks and costs involved with a labor force.

Consumers

Food consumers are people, mainly in urban areas, which do not produce their own food but spend money to obtain it. Consumers are depending on service and resources of others and have little control of the quality and treatments of the products, which is responsibility of other actors in the system. Due to changes in the consumers' economic status, demographic factors, and concerns have resulted in changing preferences, food in industrialized and developing countries has a tendency to become more processed and transformed from raw materials to prepared food that is bought ready to heat and eat.

Food Policy and Decision-Making: Government, Institutions and certification bodies:

Changes in the food system have modified the traditional methods of decision-making in food affairs. Regulations are the result of a strong lobbying and coordination between the different actors in the food system. Although governments still have an important role in policymaking, the interests of retailers and processor influence their decisions significantly. Political participation is not disappearing but modifying their role (McMichael, 2000, p.23), by focusing on the priorities of the domestic industries. These changes involve a wide range of government institutions in order to effectively coordinate the diverse aspects of the food industry policies (Trail, 1998, p. 55). Implementation of the legal framework depends of three crucial factors: the ability to enact policies from the institutions, policy instruments that influence the system, and availability of information. Moreover, the development of the legal framework is dependent on the approach and pressure from various actors on law-makers and regulatory bodies (Tansey and Worsley 1995, p.214-227).

Governments intervene in different degrees to influence agriculture. As McMichael (1999, p.22) points out: "Whether and to what extent a corporate regime comes to dominate world food systems will depend on its political sustainability ... Certainly corporations are the stronger institutions in the food system, but interest of other actors in the food system constrict the world's view as a single market, because is not singularly composed of market-oriented individuals". And even the food business is open to frequent adjustments on the restraints imposed by the counter movements, farmers and other actors influence political decisions. For example farmers are better organized in developed countries and influence industrial nations to protect farming from free markets or other important decisions, in some

countries cooperation between organic farming associations and the state resulted in subsidy schemes and regulations (Agricultural University Wageningen, 1998, p. 8)

Given the system has global, regional, national and local community dimensions; appropriate institutions are needed at each of these levels to interact effectively with a set of enforceable laws, rules and regulations (Tansey and Worsley 1995, p.227). Within the regulatory system environmental concerns have a special niche. Most of the regulations governing organic food are focused on the agricultural sector or production phase. Standards that are developed focus on technical concerns in the production, such as the necessity of avoiding the use of pesticides in field. However regulations with a wider scope, which encompass the many aspects of sustainability should be included into other sections of the system, i.e. trade among countries, emissions of transportation, processor regions, etc.

Incorporating regulations in these areas of organic farming, as part of the agricultural sector, has developed organizations, some specifically dedicated to the organic farming mainstreams, within the institutional setting of the food system and closely interrelated with general agriculture institutions. The three main domains within the institutions are farming community, agriculture policy, food processor and retailers. The interest of each domain and its pressure in the policymaking affects the development of organic farming.

The role of the state to promote the change for organic farming practices still has a very important position. Consumer demand by itself does not increase the number of organic farming.

Greening the food system:

An organic food system begins with the production of organic raw materials. More availability of basic materials improve the development and increase the quantity of processed products, for instance flour and milk are processed into cheese, soup or desserts. As primary products are processed, they become more accessible to consumers. Often processed organic products are better able to compete with their non-organic equivalents than they do as primary products (Lagnevik and Tjærnemo, 1998, p. 218).

The promotion of organic farming practices accelerates the development of organic (sustainable) food system. Where growth of organic agriculture is based on the accumulative impact of individual farmers' decisions regarding conversion to organic agriculture (Michelsen, 2000, p. 5). For farmers, organic farming can represent alternative technical practices, with economic, social and environmental benefits. However, there are currently many constraints associated with organic production. Currently, the development of the organic food sector is mainly shaped by the political decisions. Incentives for conversion from conventional to organic are weak in the face of the industrial food institutions (Michelsen 2001, p. ii). Accordingly to Johnson (2001), "agricultural policy depends on the particular institutional background prevailing in a particular country... between countries; the institutional background differs and is likely to lead to different policy frameworks and different policy delivery system for dealing with the same problem" (Johnson, 2001 p 243). This is reflected in the very unevenly growth of organic sector among countries, due to variations in the policies and regulations and the specific conditions from country to country.

In general, in the European Union agricultural policies have recently focus on promoting more sustainable agricultural, where organic agriculture has taken a central role. Growing ecological concerns and concern over the welfare of the small scale farmer in the face of

increasing industrialization of agriculture has encouraged the actors in the food system to look for alternative farming methods that result in more integral humane, environmental and economical food production.

In the last few years, influenced by the concerns of consumers about the environment and the way food is produced, the organic sector has seen remarkable growth and in many countries it now forms an integral part of agricultural policies. Simultaneously, consumer trends in the European Union are focused on convenient yet better quality food including ecological products. Thus the growing awareness about the impacts of industrial agriculture on the environment has developed into a new ‘green’ market for the food industry.

Results.

The Dynamics of the Organic Food System in the European Community

As the study focuses on the development of the organic farming within the European Union, the first section of the results is a descriptive analysis of the current dynamics of the food system with emphasis in the organic farming regulations. The purpose is to provide the reader with a deeper understanding of the current situation, which is the first step in the process of developing a more sustainable food system. The results are based on bibliographical research, and informal interviews. Finally, a qualitative study cannot claim to include a full explanation of the organic sector but it represent a broad basis for suggesting elements of change.

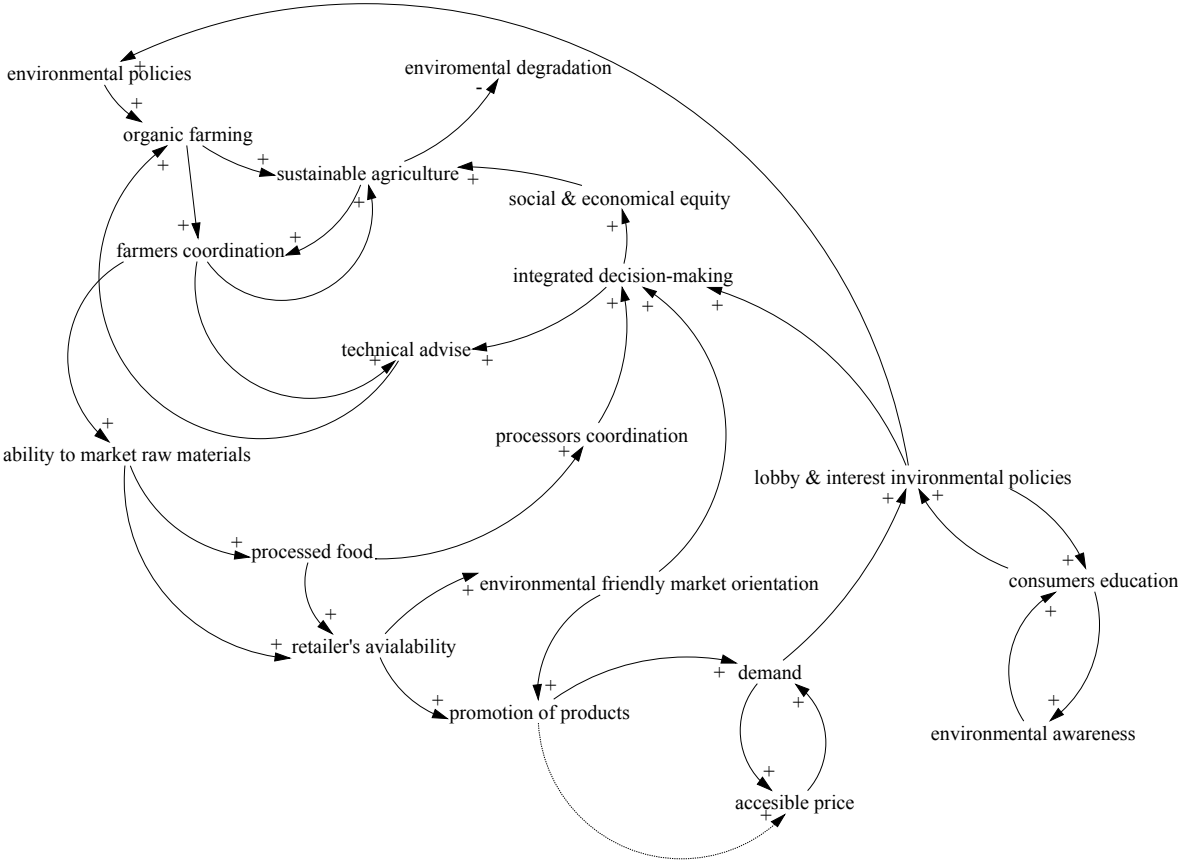


Figure 2. Causal Loop of Sustainable Food System.

INFLUENCE OF ENVIRONMENTAL POLICIES IN THE PROMOTION OF ORGANIC FARMING PRACTICES

In the last twenty years there has been a gradual move towards the creation of policies and mechanisms aimed at encouraging and exploiting the links between organic agriculture and biodiversity conservation, both at a governmental and non-governmental level (Stolton and Geier, 2002 p.14). Such links are based in the argument of the organic farming aims for the maintenance, enhancement and management protection of landscape and agro-ecosystem conservation that promotes biodiversity.

The enhancement of EU environmental policies in recent years offers an example of how proper regulations and incentives can promote organic agriculture. Acknowledging the claim that a conversion to organic farming offers a solution for many environmental conflicts, the EU has begun several initiatives in support of organic agriculture. In this way, the positive environmental effects of organic agriculture, has been the main reason for EU policy support, much to the benefit of the development of organic farming. Table 1 gives the number hectares in each EU member country under organic production, the percent of land compared to total agricultural land, and the number of industries involved in the organic food systems.

Table 1. Organic Land and Industries in Europe 2001.

Country	Ha	%	No. Of Industries	%
Belgium	22.410	1.61	694	1.03
Denmark	174.600	6.51	3.525	5.50
Germany	632.165	3.69	14.703	3.39
Greece	24.800	0.48	5.270	0.64
Spain	485.079	1.66	15.607	1.29
France	420.000	1.40	10.400	1.53
Ireland	32.355	0.73	1.014	0.69
Italy	1.230.000	7.94	56.440	2.50
Luxemburg	1.030	0.81	51	1.70
Holland	38.000	1.94	1.510	1.40
Austria	285.500	8.37	18.292	8.71
Portugal	70.857	1.80	917	0.22
Finland	150.000	6.82	5.225	5.72
Sweden	193.611	6.30	3.589	4.01
England	472.515	2.6	3.182	1.4
Total	3.722.336	2.9	128.556	1.9

From: Agra & Europe. Il Biologico in Europa Nel 2001. Supplemento al No. 32 del 15.09.02 anno xxvi, 2002. p.3

The most significant examples of EU environmental policies that support organic farming practices are The Biodiversity Action Plan for Agriculture published in spring 2001, which makes repeated mention of organic agriculture as a means of promoting farming methods which enhance biodiversity and calls for increases in the numbers of farmers practicing organic farming. The introduction of organic agriculture into areas that have been specifically set aside for the protection of biodiversity provides one of the clearest examples of the relationship between organic systems and agro-ecosystem diversity (Stolton and Geier, 2002, p. 10). Moreover, an important change in the CAP reforms has been the introduction of agri-

environment programs. At present, Stolton and Geier, 2002 (p.14) mention that in 20 per cent of the agricultural land in the EU has being applied agri-environment measures.

Eco-efficiency Policies:

However, agri-environmental policies do not by themselves assure a successful transition to more environmentally friendly agriculture, as agriculture is a complex system in constant contact with a multiplicity of institutions and economic activities. Organic agriculture interacts closely with the industrial sector, as provider of raw materials, and it is within this relationship that organic policies can be better advanced, as industry strongly influences decision making. Therefore it is necessary to create policies which will promote the competitiveness of processed organic products, so that industry will take a more active role in the organic sectors.

Financial incentives are a very important driving-force for technological development, better-organized food flows and changes in the behavior of individuals. For example, policies that promote eco-efficiency are often geared towards saving energy, but they have the added benefit of saving money. Policies such as these are very efficient instruments to promote organic agriculture, and represent what are as win-win solutions. Often times win-win solutions require high initial investment cost. However this is not always the case, as switch to more ecologically beneficial techniques sometimes incurs no added cost. Solutions such as these, for obvious reasons are more easily implemented than solutions that involve high costs or financial loss.

Mostly eco-efficiency measures focus on reducing energy consumption where the goals are to encourage consumers and producers to choose eco-efficient goods and production methods. A prerequisite for eco-efficiency measures is that resource consumption (including fossil fuel use) and environmental impact is reflected in the price of the product. If these cost are internalized consumers are more likely to demand more ecologically beneficial good and producers are more likely to change their production methods and the types of raw material they use.

However, in practice is difficult to internalize the costs of the environmental impacts in the price of goods and services because it requires assigning a value to natural resources. In one way, the price of energy is an important driving-force for stimulating improved eco-efficiency but if a nation has higher energy prices due of energy taxes than the rest of the world, it is economically advantageous to import goods rather than producing them nationally. Thus the negative affects are two fold, domestic industry is harmed and energy use is not reduced and may even be increased due to the transportation for that particular good. For EU members, national environmental policies are very dependent on the EU environmental laws. If the EU introduces rules that promote resource consumption efficiency and eco-cycling it will be necessary to introduce and promote similar rules in each independent country. If the EU pursues a feeble environmental policy, it will be difficult for the countries to pursue a strong one. In particular if this involves placing demands that lead to more expensive production compared to other countries (SEPA, 1999, p. 44).

The Agriculture Policies in the EU:

The Common Agricultural Policy (CAP) of the EU, has resulted in many negative environmental and economic effects such as overproduction, budget problems, inequities between regions and members states, high consumer prices and environmental depletion. Many view the current reforms of the CAP and other agri-environmental policies as a method of both promoting organic farming practices and a strategy to reduce the surplus of

agricultural production. In this way, organic farming in the EU represents a win-win solution in that it maximizes farmer's profits and promotes a cleaner environment. Government's role and relevance of in the food system is now changing. New policies involve segments of society and government previously not associated with agricultural, thus promotion of organic farming requires effective co-ordinate among the various actors. The policies in the EU are now more focused on creating favorable conditions for networks and alliances, competitive policies, inward and outward investment and info strategies.

ORGANIC AGRICULTURAL POLICIES

Because organic farming was initiated by people and organizations who are considered by most to be out of the mainstream agricultural sector, is very important how they organize themselves in relation to conventional agriculture. In general, agricultural institutions consider organic farming a "foreign body", or at least a representative of unusual outside influence. This makes it difficult to cooperate and solve conflicts between the two agricultural sectors.

Therefore, in order to create a more favorable social and economic environment for its development, the organic farming sector needs to improve its reputation in the political arena and institutional bodies in the organic realm need to establish relationships with law makers. In addition organic farming should not be treated as just another type of agriculture. Independent organic institutions, separate from those of non-organic, though out the food system should be established. This is an important step in creating a better competitive climate and support for actors involved.

EEC. Reg. 2029/91 European Union common regulation on organic farming practices

The EU developed well-grounded regulations and certification systems for various phases in the organic food system for the purpose of ensuring credibility and quality. The program adopted in June 1991, serves as a quality guarantee of the ecological products throughout the whole food chain from farmers to consumers. The EEC No. 2029/91 defines in detail the requirements for agricultural products or foodstuffs bearing a reference to organic production methods. The rules not only define the method of agricultural production for crops and livestock but also regulate the labeling, processing, inspection and marketing of organic products within the EU, and the import of organic products from non-member countries (EC. 2000, p. 3)

The rules were introduced as part of the environmental conservation goals in the reform of the common agricultural policy. However the adoption of formal rules is primarily for marketing purposes due the prior lack of clarity in consumers of organic products. Consumers' confusion was mainly a result of existence of different standards and definitions. The lack of a universal terminology system, the non-standardized presentation of products and the tendency to blur the distinctions between concepts such as organic, natural and wholesome all contributed to consumer's confusion. Moreover there were reports in the media of some cases of fraudulent labeling where producers did not fully comply with the necessary organic methods.

The EU organic regulations offer payments to farmers who, on a voluntary and contractual basis, undertake an environmental service for a 5 years period. Payments, which are based on the costs incurred and income lost, are made for measures that go beyond the application of

usual good agricultural practices (Stolton and Geier 2002 p14). Table 2 list a number of crop types and the payment scheme laid out by the regulations.

Table 2. Example of Italian Payments to Organic Farming Conversion:

Product	Payment (euros/ha)
Wheat	350
Other cereals	310
Olives	800
Fruits	800
Wine grapes	650
Fodder	200

Adapted from Suppl. Ord. Alla Gazzetta Ufficiale della Regione Siciliana (P.I.) n. 5 del 2-2-2001 (n.2)

Furthermore, in March 2000 the European Commission introduced a logo bearing the words 'Organic Farming - EC Control System' [Regulation (EEC) No 2092/91] to be used on a voluntary basis by producers whose systems and products have been found on inspection to satisfy EU regulations. Consumers buying products bearing this logo can be confident that:

- at least 95% of the product's ingredients have been organically produced;
- the product complies with the rules of the official inspection scheme;
- the product has come directly from the producer or processor in a sealed package;
- the product bears the name of the producer, the processor or vendor and the name or code of the inspection body. (EC, 2003).

Application of the EU organic regulations:

Organic farming is developing along very different paths both among the different EU member countries and within the countries themselves. The differences are caused by varying institutional, climatic and technical conditions in each country and region. For example, the EU regulations had to be implemented at national level hence; the effective functioning of the EU regulations also depended on the specific national decision-making processes and conditions. Moreover, Michelsen et al. 2001, (p. 149) point out that organic farming is better suited to mountainous areas and smaller farms that are less capital intensive. The varying natural, economic, and social differences across regions highlight the importance of the political arena for the development of organic farming through encouraging policies.

The following section of this study analyses the organic sector in Italy (specifically Sicily) and Sweden two EU member countries with marked different institutional and climatic conditions. Despite the differences both countries have a strong agricultural sector and secondary processing industries. Sicily has one of the highest ratios of land under organic production to non-organic production. Its main products include grapes, olives and citrus. While some grapes and olives are sold to the consumer as primary products, the majority is processed into wine and juice. Many of the lemons produced in Sicily are processed and sent north where they find their way into food as conservatives or acidifiers in processed and pre-prepared food.

Sicilian Lemons and Stakeholders Fragmentation

Sicily has favorable climate conditions for the production of citrus. Its production represents about 70% of the total Italian citrus output. Lemon like other citrus fruits require of warm conditions to growth, thus naturally hindering their production in northern European countries, which are rely on imports. Unlike other citrus fruits like oranges, lemons are harvested throughout the year and unfavorable weather conditions only marginally affected them. Some of Sicily lemons are produced organically which makes the juice marketable as an acidifier for processed organic food. For example, in conventional margarine the acidifier used is lactic acid or E 270, but in organic margarine it is replaced by lemon juice (Fisel, et al. 2000, p. 64). Thus, if conventional margarine which holds a large share of the consumer market in northern European countries is to be replaced by organic margarine a large portion of the organic acidifier needs to come from Sicily. This relationship highlights the links between primary and processed organic foods that exist and have to be improved to increase the quantity of organic products being sold.

Despite possibilities for the organic lemon and orange juice market, the quantity of land in Sicily dedicated to organic production of lemons and oranges continues to decline. This is mainly due to the chronic market crisis affecting Italian citrus industry. Italian citrus exports have lost market share in the European market due to strong competition from Argentina, Spain and other Mediterranean countries. Such competition has been aggravated by the removal of phyto-sanitary restrictions, and reduced duties due to preferential agreements with Mediterranean countries and South Africa in response to WTO agreements. Furthermore, distance from European market and transportation problems has also affected the Sicilian industry, since 90% of citrus is delivered by truck and needs approximately 25% more time than Spanish citrus to arrive on Northern European markets.

Italian citrus industries have not been able to effectively market their products according to the needs of the large distribution companies in Italy and Northern and Eastern Europe. Continuous problems in the market organization of the Italian citrus industries are having a profound negative impact on the Italian market. Exports of lemons are declining and imports are increasing suggesting that domestic demand for lemons remain high but it is being met by outside suppliers. In addition the Italian citrus juice production in 2003 and 2004 is forecast to continue declining due to lack of supply of fruit for processing.

Technical problems with various citrus varieties and a lack of water, and industry fragmentation are contributing to the deficiencies of the Italian citrus producing and market. The average citrus farm area in Sicily is less than 1 hectare. Only 25% of citrus farms have joined producer associations which are advantageous such that they reduce costs, organize production plans, and benefit from more efficient marketing strategies. For example, only this 25% is able to get EU subsidies that are specified for allocation to producer associations according to the EU fruit and vegetable regime (EU Reg. 2202/96). When a few private fruit processing companies in Sicily were able to gather farmers in producer associations in order to obtain subsidies from Brussels they succeeding in doing what the Italian National Farmer Organizations were not able to do, namely to collaborate as collective producers.

This incapacity to collaborate and form associations is partially cultural, partially linked to other reasons including political inefficiency (bureaucracy) and criminal organizations. These criminal organizations reportedly have control over water distribution in all of Sicily. Water is more and more strategic in Sicily due to climate changes. After two consecutive dry producing season water stocks in Sicily are on average reduced to about 10-20% of their

capacity. However, access to these reserves is a more critical constraint than the levels of water in the reserves.

The above-mentioned constraints have led to increasing levels of imports of lemons in 2000/01 and 2001/02, from 41,000 MT to 67,000 MT, respectively. The significant increase in Italian lemon imports is also due to growing competition from Spain and Argentina. In 2000/01 Argentina became the second supplier of Italian lemon imports with 22,000 tons. Spain is number one with 29,000 tons, or 43% of Italian lemon imports. Cacace 2003, mentioned that industrialized Argentinean lemon production has propelled it to the biggest producer country in the world. A cheap labor force and economies of scale have resulted in the a cost of 60 lira/kilo while the Sicilian process is 140 lira/kilo. Making it extremely difficult for Sicily to compete.

Table 3. Example of cultivation and process of Organic Citrus in Mezinna, Sicily (km²)

Year	1999	2000	2001	2002
No. Of associated	19	29	36	33
Lemon	696	131	162	134
Orange	-	-	-	319
Mandarin	-	-	-	109*

*from only one producer

Data proportionate by F.lli Branca S.p.A. Industria di Trasformazione Agrumaria. Personal Communication, 2002.

Table 4. Lemon production in Italy.

	2000	2001	2002
Area planted	35000	35000	34000
Area harvested	35000	35000	34000
Production	610	571	572
Imports	41	61	60
TOTAL SUPPLY	651	632	632
Exports	33	22	19
Fresh Dom. Consumption	222	288	290
Processing	396	322	323
Total distribution	651	632	632

Modified from Gain Report #IT2025. Foreign Agricultural Services/USDA

Organic Expectations:

Sicily, retains a high ratio of land under organic production compared to most regions in Italy. In 1997, Sicily's share of organic land to the total farmed was 8 percent (Zanoli, 1997). A significant motivational factor for the promotion of the organic farming sector in Sicily is the large export market to Northern European countries, mainly exports of biodynamic citrus fruits to Germany. However, despite the apparent marketing opportunities and despite the deteriorating conditions for the conventional citrus market, the switch to organic citrus production can be attributed more to the EU subsidies than market factors.

General farmers' unions, producers and cooperatives have supported organic farming as a means to protect their threatened incomes which have been affected by the crises of general

agricultural production since the mid 1980s. Clearly, organic products produced in Sicily have export potential, and represent an opportunity for producers facing bankruptcy and market stagnation due to the crisis of non-organic production. Still, the farming sector has primary switch to organic as a result of the conversion subsidies. Producers have not embraced the philosophical and ethical aspects of organic farming but rather they have sought the EU subsidy monies. For example general farmers' unions backed up the implementation EC Regulation 2078/92 in 1994 because the economic advantages not because of their interest in a new and more sustainable method of farming.

Moreover, after the EU agri-environmental support was implemented in 1994, the regional agricultural ministry in Sicily began to actively support and encourage organic agriculture. along with a promotion campaign launched in 1997 for organic production. The political support for organic agricultural was further emphasized in 1999 when the Sicilian ministry decided to block all parts of the regional agro-environmental program other than the measures in support of organic markets. In all, the political status of organic farming has given it a jump start allowing for market infiltration and enabling it to compete with conventional produce. (Michelsen et al. 2001, p. 109-111).

Certification bodies are also very important for the development of organic farming. Although they do not directly promotion organic production they are necessary for providing technical advice to farmer. Also, as exports increase the demand for more certification services increases. The certification procedures for organic production has led to some conflicts. For example farmers must choose a certification body which has resulted in various certification bodies competing with each other. In additional, organic certification bodies and some farmers have created informal alliances weakens the integrity of the certification. Thus a complete restructuring this link in the organic food system needs to be undertaken.

At present there are 13 different certification bodies accredited by the general agricultural ministry in Italy. They act as independent and private companies that offer different practices, services, costs and royalties, although they all certify according with the EU organic regulations. Offering their private label on packaging in addition to the EU official label. The many various labels create confusion among consumers and even between producers and regional government.

Despite the widespread confusion and internal conflicts among different certification bodies and farmer's unions, no official reconciliation forum has been made. However, since the implementation of EC Regulation 2078/92 some Sicilian certification bodies have developed contacts with general farmer's unions through alliances and informal agreements. Therefore, it is urgent that official certification bodies move towards a coordination of standards and labeling procedures.

An overall institutional arrangement is missing, as there is no coordination between the stakeholders of the farming community, the agriculture policy makers and the food processors and retailers in the organic sector. Lack of coordination between conventional agriculture and organic farming institutions has failed to attract the interest of producers, which has contributed to the stagnating of organic sector in Sicily (Table 3). Lack of farmers cooperatives have hindered the creation of a stable market which to sell their goods and also created product prices disparities.

While organic agriculture requires institutional guidance for better coordination, it also brings increased bureaucracy. Moreover Sicilian institutional bodies are often plagued by corruption.

As organic agriculture continues to be considered ‘alternative’, its concerns continue to be subordinate to those of conventional agriculture.

Table 3. Hectares dedicated to organic farming with subsidies in the Messina Region, Sicily.

Year	Hectares
1995	3,733
1996	2,827
1997	1,111
1998	2,242
1999	4,800
2000	4,873
2001	3,485

Statistics of Municipal Ministry of Agriculture Messina Region, Sicily 2002.

Germany is the biggest import market for the Sicilian producers. After Spain and Argentina, Italy supplies the most lemons to German. In 1999 the Italian exports to Germany reach 7,030 MT. The lemons are imported both fresh and as processed juice. Some of the whole lemons imported are processed in Germany and then sent them to other countries for use in the processed food industry.

Processor Industries and Retailers –Sweden–:

The Position of Organic farming within the EU Regulations and Swedish Agro Environmental Policies:

This section of the study presents the conditions and relationships of retailers, processor industries and consumers with in the organic farming business. These relationship are important because creating more demand for organic raw materials could represent an opening for organic farming to move into the mainstream. Sweden is particularly relevant because they have a high demand for processed foods and the grow trend of health conscience consumers. Thus, the Sweden processed food industry could represent a large export market for Italian organic lemons.

Despite EC 2078/92 and EU support of organic farming, ultimately the status of organic agriculture is largely dependent of the national position of each member country. For example, while the EC 2078/92 represented an opportunity for struggling Sicilian farmers, in Sweden it represented an opportunity to formalize a national organic farming promotion plan. The integration of Sweden into the EU in 1995 and the application of EU regulations, coincided with the national target program “10% in the year 2000”, referring to 10 % conversion of the total arable land in the country to organic farming. Through EU membership Sweden was able to access to new found support for organic farming and other agri-environmental measures, which made meeting the target possible.

Sweden has experienced strong and steady growth in the organic farming sector. After joining to the EU, Sweden strengthened its environmental goals in agriculture and food production, mainly by protecting sensitive areas, preserving of biological diversity and landscape and through promoting measures to stimulate ecological agricultural practices. However while the strong EU-financed support programs has had a positive effect on the development of Swedish organic farming and agri-environmental policies, this would not have been possible without the existence of a strong foundation in the organic movement.

Before the 1980's organic farming in Sweden consisted of a number of organizations working in isolation, each with its own concepts and philosophy. However the creation of cooperatives and forums made it possible for organic farming to influence political decision-making and market-orientation in greater and more efficient ways. The success of the national Ecological Farmers Association in encouraging market development and marketing of organic products is largely due to developing ties and coordination between the various actors in the food system such as the processing industry, wholesalers and retailers. Moreover, greater acceptance by these actors has influenced political decision makers and increased its acceptance as an economically viable alternative

The means to promote environmentally friendly practices, including organic farming, has been the creation a series of environmental subsidies since 1995, which serve to promote an expanded program covering both environmental and rural policy. The main goals of the subsidies are to promote the ecologically, economically and socially sustainable development of agriculture, food production, forestry and rural areas. According with the Swedish Institute (2001, p 3) the program costs a total of SEK 21 billion, of which about 45% is co-financed by the EU via its budget. During the first five years after Sweden joined the EU, certified organic cultivation rose from 50,000 to nearly 300,000 ha, or more than 10% of arable land. The average organic farm is 46 ha, while an average conventional farm is 33 ha.

Finally climatic situations affect significantly the productions and the way the agriculture is developed. In comparison with the Mediterranean conditions, the Swedish climatic disadvantages limit the growing season and increase the cost of building and maintenance for food production. In spite of these Sweden has developed a competitive agricultural sector by means of efficient production with high yields per cultivated unit and per animal, or by specializing in such fields as organic cultivation. In addition, according with a farmers' association adviser, cold climatic conditions offers some advantages for organic farming in contrast with Mediterranean hot seasons: the winter season force crop production for a frozen rest period that helps to inhibit and kill larva and other pest. Other differences with Mediterranean agriculture are its intensification with fewer and large farms.

Contemporary European Consumption Patterns: the relevance of processed food in the Swedish Market

Contemporary European food supply is characteristic of convenience, extensive choice, and the year-around availability of both fresh and processed. Fresh food availability has been extended with a range and source of fresh fruits and vegetables, exotics and indigenous varieties imported in large quantities. The increased demand for new products has intensified transportation by imports, road freight distribution and shopping trips by car. These force the system to improve the coordination between producers, retailers, and transportation at international level. Likewise, food processed has shown a relevant success in the last years.

In the specific case of Sweden, the average Swedish consumer spends on food is 18 per cent of income. The demand for frozen foods and prepared frozen foods in particular, is strong and experience a rapid growth. Between 1995 and 2000, sales of frozen foods increased by 6 per cent annually, compared to 1 to 2 per cent for other foods. Most analysts predict that food expenditures will increase in the years to come, going mainly into sectors such as convenience, organics and functional foods. For the development of organic sector, these processor industries and retailers interests represent an opportunity for a new serious niche in the market focus on consumers concerned about environment, health and processed methods.

Swedish Food Industries Numbers

While organic farming can no longer be considered small niche production for a few rich consumers of health foods, because has become part of mainstream agriculture and has entered a period of strong growth and development (Swedish Institute, 2001 p. 3).

Table xx. Organic Certified Sectors by KRAV

Inspection category	No. inspection registration	Change in %
Agriculture**	5268 (5186)*	+2
Processing food	692 (677)	+2
Retailers	608 (592)	+3
Certified arable land	156 272 (143 000)	+9

Modified from KRAV, 2002, p 14. General Report English

* Numbers in parenthesis refer to 2000.

**Agriculture includes crop production, animal husbandry, greenhouses, apiculture, mushroom farming, aquaculture, and production inputs.

The Swedish food processing industry is a mixture of small and regionally active private companies, large private and farmer cooperative companies with a national emphasis and very large internationally active food processing groups. The industry mainly uses Swedish agricultural raw materials for its production, and some 70% of domestic agricultural products are used by the food processing industry in Sweden. Other agricultural products are used directly for human consumption, as animal fodder or for export.

In production value the food processing industry is the Swedish fourth largest industrial sector, while is the fifth largest industry in terms of employees with more than 61,000 in 2000. It accounts for about 10% of Swedish industrial production and 9% of industrial employment. At EU level it produced 2.1% of the total food. There are nearly 3,000 workplaces in the industry, located all over Sweden but only about 850 have more than 10 employees. In size the dominant sub-sectors are meatpacking and the dairy and bakery industries, which together provide jobs for more than 60% of food processing employees (Swedish Institute, 2001, p. 4).

70 % of the food companies are Swedish-owned, dominated by the farmers-owned cooperatives. They account for about 45% of total production and are specially prominent in meatpacking (Swedish meats), dairy industry (Arla) and milling and bakeries (Cerealialia). During the 1990s the foreign ownership in the food processing industry grew sharply.

KRAV Confidence:

The creation of KRAV was a very significant step in the consolidation of the organic food sector. KRAV was founded in 1985 by the national organic farmers association: ARF (Ecological Farmers Association) looking for united the different organic philosophies and practices under a common system of standards and certification, with a high degree of transparency and openness of participation for any organization interested in the development of this kind of certification. (Ekologiska Lantbrukarna, 2000).

KRAV is conformed by different stakeholders of the food system; all those involved in the organic production, processing and marketing have joined into one organization with one

label. KRAV is an incorporated association with 28 members organization, representing farmers, processors, trade and animal and environmental interest (see annex 2).

Moreover, KRAV label was consolidated following the necessity for an independent control of ecological products that began to be sold in conventional groceries stores. The main reason of these was de lost of direct contact between consumers and farmers or specialized natural stores, which offer guaranties of organic production. Following market purposes interests, as organic products become more available in the same store of non-organic, stakeholders in the food industry create a liable distinction for the organic products.

The principal responsibilities of KRAV are standards development, inspection, certification and information about KRAV and organic farming. Furthermore, as Sweden has not national certification body or legislation defining organic farming KRAV is the only approved institution by both the Swedish Board of Agriculture and the Swedish National Food Administration to carry out the inspection of organic production according to EU regulations. By only fulfilling EU regulations, a business is allowed to call the product "organic" however, the producer may not use the KRAV label or mark on the product or in any product description. This is due to the EU regulations differs from KRAV standards. KRAV standards complements the EU regulations following the IFOAM Accreditation Criteria, which in some cases is more stricter, also covers other areas of the food system including certification of restaurants, textile producers and aquaculture.

There is another private certification bodies for organic production are recognized by government authorities: Svenska Demeterförbundet. Svenska Demeterförbundet follows Demeter International Standars for bio-dynamic production. Demeter standards are in a way that certificated farmers can be certified also by KRAV, however KRAV farmers do not necessary follows Demeter's standards and not all obtain Demeter logo.

KRAV has been very successful in the promotion of organic products among consumers: KRAV label is recognized by 93 percent of Swedish consumers as a symbol for quality and an eco-label for foods and has more credibility than other labels, including the EU logo, which has poor relevance in the Swedish market. This is due to the strong critics to the EU by the Swedish organic movement. The organic farming association "Ekologiska Lantbrukarna" recognize two most important reasons for the weak position of the EU organic standards in the Swedish market: one is the loss of the influence and dynamic process contributed by a democratic organization and of the impact of the various interested parties on standards setting. Another is the lack of goals and visions in the EU Regulations of organic farming as an instrument in the development of agricultural production and markets. (Ekologiska Lantbrukarna, 2000).

The opinion of the Swedish organic movement is that the control system must provide possibilities for development with a focus on the goals and in close interplay with the market. For example the newly decided EU animal standards are considerer rigid and unsatisfactory in comparison with the KRAV standards that are stricter on several points, mainly because it has a strong focus on respect and welfare for animals KRAV (Ekologiska Lantbrukarna, 2000). For example KRAV 2002 p. 5 mentions:

KRAV's standards for animal husbandry reach farther than those legally required. KRAV certified animal management must have the animals' natural behavior as the starting point. All animals must be kept in an environment and managed in such a way that the animals' health and welfare are safeguarded. Animal husbandry must be characterized by both care in animal management and protection. Feeding must be tailored to the animal's normal needs and concentrates should be limited. Routine preventive pharmaceutical treatments are not allowed.

Finally as the organic methods and technologies need to develop much further KRAV's standards are revised every three years by the Standards Committee.

Developing Standards: Additives, the Manufacturer's Dilemma

A very controversial issue in the organic food process is where the extension of the standards is compromised by corporation interests and trade (See Halweil, 2001, p.9). The development of standards is a very sensitive part of the organic food system as it is influenced by interest of different actors and technical limitations. There are many critics about the topic, like animal ethics, lowering standards to full fill the demand, the American industries pressure to allow the use of GMO in organic production, among others. This paper is focus on the use of additives in organic processed food; mention the example of lemon as acidifier for margarine.

Much of the growth in the organic industry has come from the introduction of processed food products yet; producing organic creates new challenges for manufacturers. This surge in increased demand, therefore importance of the role, of food additives in organic production.

Food additives are typically used to improve the colouring, flavouring, texture, and aroma of foods. They also may be used to preserve, stabilize and add nutrients to various processed foods. Since organic foods have been characteristic with natural or minimal use of food additives, the addition of many of these ingredients to organic foods is somewhat controversial. Many food additives used in conventional food processing, often invisible to consumers on the label, have been problematic for producing organic processed foods (New Hope, 2003).

In principle, there is a generally accepted hierarchy of materials usage in organics. This hierarchy dictates that organic agricultural ingredients are to be used whenever possible. Non-organic agricultural materials are to be used only when organic materials are "commercially unavailable" in sufficient quantities for production; moreover KRAV standards indicate "EU organic source materials shall be used as the first choice and conventional source materials as a last resort". (KRAV standards, 2002, p 97). However "in cases where an ingredient of organic origin is unavailable in sufficient quality or quantity, the certification body may authorize use of non organic raw materials subject to periodic review and re-evaluation," according to the International Federation of Organic Agricultural Movements (IFOAM) Basic Standards.

In accordance with these requirements, KRAV has developed a list of materials approved for use in organic processed foods. In general the list of materials approved are constantly changing as new materials become available commercially. The restrictions on the addition of synthetic colours and flavourings have spurred the development of organic sources of these materials. There are now organic essential oils, including organic citrus, peppermint and vanilla extracts available commercially. Such demand represents a serious and constant market development for the production of organic lemon in Sicily, what is more the Sicilian weather conditions represents an advantage for lemon production to create a serious and secure organic production sector with very low international competition. However the socio-economic situation in the region not only constrain the development of the agricultural production in the region, but also could affect directly the production of processed organic food, as availability of raw materials is limited.

Ingredients for Margarine

Conventional Margarine	Organic Margarine
<p>Ingredients:</p> <p>1) Vegetable oils and fats, partly hydrogenated, water</p> <p>2) Emulsifiers: lecithin (E 322), monoglycerides and diglycerides (E 471), salt</p> <p>Acidifier: lactic acid (E 270)</p> <p>3) Aroma</p> <p>4) Vitamin</p> <p>5) Coloring: carotene (E 160a)</p>	<p>Ingredients:</p> <p>Palm oil*, coconut oil*, sunflower oil*, water, carrot juice*</p> <p>Emulsifier: Soya lecithin (E 322)</p> <p>Acidifier: lemon juice*</p> <p>Natural aroma</p> <p>Observations from the point of view of the Regulation on Organic Production:</p>
<p>(1) Hydrogenated oils and fats, in other words, chemically modified, would be prohibited in organic food products.</p> <p>(2) In Annex VI, Section A, glycerides derived from edible fatty acids are not mentioned and therefore their use as emulsifiers in organic foodstuffs would be prohibited.</p> <p>(3) Only natural aromas would be allowed in organic foodstuffs.</p> <p>(4) Since there is no law requiring the addition of vitamins to margarine, organic margarine must not be supplemented with vitamins.</p> <p>(5) The use of colorings is generally prohibited in organic foodstuffs.</p>	<p>(* Organically produced)</p> <p>It should be observed that for acidification and coloring of organic margarine, food ingredients of organic origin are used instead of additives.</p>

From: Fisel *et al* 2000. EU Regulation on Organic Production of Agricultural Products An introduction. Ministry of the Environment, Protection of Natural Resources, Agriculture and Consumer Protection of the Federal State of North Rhine-Westphalia p. 64.

Discussion:

INTEGRATED DECISION-MAKING IN THE FOOD SYSTEM

The substantial differences in the development of organic farming between countries are more influenced by the importance of man-made institutional conditions for its development than climatic or technical conditions. Hence potential for changing these conditions are possible by means of institutional instruments. Because policy instruments by itself shows to be weak and unsystematic, as in the case of Sicilian organic agriculture, successful organic farming growth depends on a continuous series of initiatives originating in politics, food market and others stakeholders with the attempts to co-ordination between them and to reduce contradictions or increase impacts of actions in any domain.

The Swedish association “Ekologiska Lantbrukarna” (2000) has recognized additionally to the EU policy instruments other development factors that have significantly contributed to the positive development in organic production:

A well-organized sector with a common analysis of problems, the current situation and the goals and objectives of organic farming, and with a strategic division of roles and functions, is a strong lobbying force on all levels. Continues discussion of the organic concept, trends, development and strategies is necessary part of a successful organic movement. This allows the development of standard in a way that encourages development and democratic processes, and the follow-up and analysis of the effects of different initiatives such as standards and support schemes.

Consumers’ trust and awareness: A single certification system and one label supported by all market actors have been very important factors in the successful marketing of the organic concept and products to consumers in Sweden.

Management by the big food chains: Besides existing local initiatives with direct distribution, the main market strategy has been to get into the supermarkets of the big chains in order to make products available to ordinary consumers at fair prices.

Good relationship between the organic and conventional organizations has always been the aim of the organic movement in Sweden. A well-organized organic sector has more relevant participation in national programs and other initiatives concerning organic farming.

Access to advice and know-how is another crucial factor that farmers look for before they go into organic production in a serious way. Organic farming is often considered more difficult, a production niche for skilled experts, so that farmers often are afraid that they will not be able to manage it.

The next section is a deeper analysis of these factors in a general way.

Policy Instruments:

In addition to the factors mentioned above, agricultural policy programs continue being the basis for the implementation and promotion of organic agriculture, for that reason is very important to encourage policy makers to reevaluate the contemporary food system to support national food production. Policy intervention must be interpreted as cost to society. A policy instrument should only be used if the benefit to society is higher than the cost

One of the most important tasks for the policy makers is to recognize the way markets are developing and target their policy instruments accordingly. The policies should always keep in mind that not all the firms are the same, so they should be clear about what aspects wish to encourage, e.g. trade balance, an attractive environment to foreign companies, to encourage international expansion of their multinationals, to promote domestic income generating activities or to develop the small firm sector.

Organic Subsidies ?

Changes in the agricultural production should look for if not to benefit the environment at least do not contribute to its degradation. Within the supposition that organic farming practices contribute to restore biodiversity and reduce the damage caused by pesticides

since their use is restricted; European Union policies has put emphasis in promote organic practices. The EU policies are focus in contribute to the development of organic farming by introducing subsidies for land conversion.

Although the effects of such policies varies among countries, since they are dependent of the national political and economical environment, it is possible to obtain some general assumptions based on development theories and related studies. Lars-Bo Jacobsen, 2002, looks into the effects of subsidies to reduce the use of pesticides and nitrogen. He has concluded that introducing subsidies to organic land is not enough to achieve considerable reduction in the use of nitrogen. The reason is that the allocation of land in conventional production changes to a situation where more fertilizer is used. However, subsidies can be increased to attract more organic land thereby resulting in the same reduction in the weighted sum of pesticides. In the other hand, he points out that use of taxes results in a decrease in the use of fertilizers.

The effect between subsidies and taxes have also different impact in the economy and society. Due to the different movement of land, but also affected by consumers demand or other variables, labor resources can be increased or reduced. When subsidies are applied the released land moves into organic production, but since demand does not follow the inflow of land, this results in an extensification effect in organic production: all other inputs are to some extent substituted by land in the organic production, reducing labor opportunities. In the other hand, taxes result in both lower conventional production and thereby also less demand for inputs of land, labor and capital, but also in a substitution effect where taxed inputs are substituted with other inputs, especially labor, therefore the result is a more labor-intensive conventional production. (Lars-Bo 2002, p.14-15).

A well-organized sector

It is in practically all developing countries a common feature that production decisions are made by a very large number of actors. (Martinussen, 1999, p 135). In the food system there is a strong lobby that force actors actions in all levels therefore, cooperation and interaction between different actors in the food system is a very important tool for the development of competitiveness in the organic sector. When the interests of all the actors in the food system i.e. farmers, consumers, traders, scientist, citizens and others are joined to support each other dynamism and competitiveness is increased.

Farmers' Coordination: Good relationship between the organic and conventional organizations.

The changes in the food system, force farmers to deal with retailers and large suppliers in large enough volumes, and with a continue production for large-scale distribution systems. As not all individual farmers have the infrastructure and capacity to meet the large demand of the retailers the formation of cooperatives represents an opportunity for those small landholdings to enhance productivity. The activities for the co-operative includes societies for production, trade and credit, and extension of the material infrastructure not only in the form of feeder roads, etc, but also in the form of public storage facilities and adequate arrangements for transportation (Martinussen, 1999, p 139).

Moreover, the formation of organic cooperatives increases competitiveness to develop and improve distribution and marketing channels for ecological produce. For example, in the case

of the Sicilian lemon, better coordination between small farmers could make possible the sales and distribution of the products even with conventional cooperatives and intermediaries.

Access to advice and know-how

Martinussen, 1999, (p. 136) propose in his study about agricultural development that neither market signals, in the form of higher prices, nor policy-induced incentives for peasants could bring about production increases or productivity improvements. To achieve these goals it was instead necessary to introduce new technologies and at the same time ensure that the peasants, or at least a proportion of them, could actually access such a new technologies.

Certainly, farmers are more willing to change to new production methods, when their technical uncertainties are cleared. Organic farming has the believed disadvantage of more technical knowledge, mainly due to substitution of chemical applications for mechanical and manual practices, like use of fire to control weeds. Yet in many regions organic practice is closely linked to traditional and indigenous practices, which are common and customary knowledge.

However, in order to promote the conversion for organic practices is necessary to create links between agricultural and development research institutions and farmers. Again, cooperatives or associations represent an useful connection for the transfer of knowledge including research institutions and farmers experiences.

Management by the big food chains

As mention above the development of the organic food sector is positively influenced by the interest of big industries and retailers to make more accessible organic products to common consumers.

The incentive for such big corporations depends largely of their relations between the actors in the food system. One very important step to initiate the interest of retailers is to ensure the farmers' ability to market raw materials to develop and market ecological products.

The secure supply of products for the incremented demand of large-scale distribution system becomes more and more necessary. Here the farmers' cooperatives play a fundamental role to coordinate the distribution and supply, even if production is fragmentized in small landholdings.

Both, retailers and farmers need to create an adequate environment for commercialization considering that exist differences in the continuity of supply between different products. This may create in some degrees a conflict since periods of lack of supply make impossible for food retailers to offer products on a regular basis moreover the situation is critical when the lack of supply is for primary products.

Contrary, production surplus represents a dilemma: production surplus encourage food industry and retailers to develop new processed products, which favored the organic sector. However, temporary surpluses may difficult to producers' co-operatives to encourage farmers to convert to ecological production since farmers are not sure to get a premium prices or sell the product. In many EU cases thus has decremented or stagnated the development of organic farming as farmers reconvert because lower premium prices (See Michelsen, 2001).

Other factors affect the creation of new products, which is not only dependent of the consumers' patterns and availability of raw materials. In addition, the characteristics of the processed food industries influence largely the strategies and scope for development of food technology and supply. Triall 1998, identify food industries by size considering turnovers and the boundaries of the market. He divides in three groups the manufacturers:

- Giant multinationals: with representation in most food products, international presence and turnover billions of euros. Examples of these companies are Unilever or Nestlé.
- Large companies. Still large representation in food products, but turnovers tend on millions euros
- Medium-size companies: (SMEs): these companies refer to most common local and specialist niche.
- Smaller manufactures: national or local level, merge develop products and strategies to supply Europe –wide niches or at least defend home market against foreign competitors.

The capacity of the big manufacturers to support the organic sector is through flexible plants that allow supplying wide product range demanded by fragmenting consumers market. As they are capable to take risks they can be responsible for seeking new products and new technologies, including ecological efficiency technologies (cost minimization).

The European manufacturers are mainly conformed by big companies that although their size have not presence in the whole Europe. Triall 1998, mention that still is a long way before European market becomes truly integrated. By market integration is understood international trade and establishment of multinational enterprises with production in foreign countries. Big processors' are focus in a coordination where reorganizing production into large plants capable of supply the entire European market in certain products categories

AVIALABILTIY OF RETAILERS

The importance of retailers for the development of organic sectors is due to they way the general food system has been changing in the last decades. Retailers have gaining control and influence in the food system, their sharing of profits has been growing considerably. More and more super and hypermarkets are supplementing local and specialty shops. The sales then becomes more concentrated offering the products with the same brand and quality among all their stores (national e international).

One of the strongest advantage of the retailers is that using technologies and statistics -like membership discount cards- they are available to access to consumers database that helps to design foods tracking the preferences of consumers.

Retailers are using its consumers' preferences accessibility to create their proper brand of products, which by default offers confidence to consumers and no need advertisement. Then, their position in the food system is as sophisticated consumer with very demanding quality speciation products. This matches very good with smaller and medium size companies that are able to meet retailers' volume required but strong enough to create their own recognized brand.

This development is given food retailers more power in the system, as becomes more concentrated and more efficient, furthermore although retailers are predominantly national based they are becoming more international with the mergers development of transnational

buying groups. As they get more power, retailers can influence in-store and out-store marketing activities and to persuade or direct manufacturers to produce more environmental friendly products, at the same time that they can have more market environmental orientation developing image of quality variety.

MARKET ENVIRONMENTAL ORIENTATION

In general more sophisticated market has been more flexible to include organic as a quality of the products. Special regional foods, like almonds, wine, olives, chocolates and exotic fruits, which are more expensive in the market, have shown easy preference to include in the price the “extra” environmental cost (internalization) of the production like labor, fair trade or environmental costs. Consumers have shown more willing to pay the right price for these products than for raw vegetables or pasta. In general the ability of the organic product market has serve as point of connectivity and organizing around larger issues, i.e. the social relationships through which commodities are produced are obscured in the commodity as it appears in the market like the conditions of labor of the producers (Klonsky, 2000).

PROMOTION OF ORGANICS:

Retailers have also the most facilities for the promotion of organic products. In some countries retailers have make special agreements with organic producers offering premium prices, for example Denmark (see Martinhusen, 2001). Premium prices are a good strategy for initiate organic farming, however they are a critical factor in maintaining family farms.

Conclusion

The EU has a large experience with the implementation of a common organic regulation that is focus mainly in offer subsidies to farmers for conversion. The results have been strongly influenced by the national framework of each nation; therefore in some countries the development of organic farming has been more structured and faster than others. The study shows that, although the benefits of political implementation, they are not enough to promote a stable and sustainable development of organic food system. In addition, other factors promotes a well structured organic food system; this factors are:

A well-organized organic food sector, consumers’ trust in political institutions and processors and retailers, environmental awareness of producers, processors and consumers; management and interest in organics from big food chains and good relationship between the organic and conventional organizations that allows to access to advice and know-how.

The reason policies has been weak for the promotion of organic farming are mainly due to the changes in the structure of the food system, where retailers are becoming stronger therefore they have been influencing in the dynamics of the food system.

As agricultural activities have been depleting the environment, there is an urgency to develop a system of agriculture that will produce food in a sustainable and economically viable manner in a way that enhances biodiversity rather than depletes it. However, neither the physical nor the biological conditions can be attributed any decisive influence. The economic and social conditions under the producer and retailers interact are much more important. If these conditions embody sufficiently strong incentives for the farmers, nearly all obstacles can be overcome, but this can only happen within certain institutional framework.

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Annex

Annex 1

Questionnaires:

Farmers' organization

CIA:

1. Which is the national body that coordinates the certifications?
2. Which are the interests to support organic farming?
3. Do you have agriculture advisors?
4. Does exist a reconciliation forum for the certification bodies?
5. Are you concern about technological and know-how to promote organic farming?
6. Do you have agreements or any relationship with the industry?
7. Do you have agreements or any relationship with the agricultural ministry or market?
8. What kind of technical assessor do you offer to the farmers?
9. What are the main problems to promote organic farming?

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