

# **Certification costs and managerial skills under different organic certification schemes - Selected Case Studies**

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## Introduction

Certification provides consumer confidence that organic production ensures food integrity from seed through sell. Certification also guarantees that production and processing are managed under a holistic system that enhances ecosystem health.

Smallholders in developing countries face institutional and economic constraints in obtaining the status of certified organic producers. Despite the outstanding growth of organic markets over the last decade, certification costs and standards from the developed world prevent many smallholders in developing countries from entering these markets. Farmers seeking to sell organic products usually have to hire an organic certification agency to inspect farms annually and confirm that they adhere to the standards established by trading partners.

Alternative certification schemes are seen as an option for overcoming some of these constraints, and FAO has initiated a study to examine the following key questions:

- What are the implications for small farmers' organizations in terms of management and costs?
- What capabilities do farmers need to comply with certification procedures?
- What additional costs do farmers incur from organic production, marketing and certification? What are the social and economic benefits?
- What steps in the certification process require further institutional support and the development of skills and knowledge?

The specific objectives of this study are to:

- appraise key factors and constraints in managing certification schemes by farmers' organizations;
- appraise the costs incurred by farmers' organizations in implementing inspection and certification procedures;
- identify the capabilities farmers need in order to comply with certification scheme procedures;
- appraise the costs and benefits for farmers involved in organic production, marketing and certification;

- identify the main constraints in the certification process that require further institutional support and the development of skills and knowledge for farmers and farmers' organizations.

The case studies selected were: (i) on organic fragrant rice for export, 2 case studies from Thailand in Chapter 1 and one case from India in Chapter 2, all complying with Internal Control System (ICS); and (ii) on organic fruits and vegetables for local markets (Ecovida Network) in Brazil using Participatory Guarantee System (PGS) in Chapter 3; and on organic fruits and vegetables for export and/or domestic markets in Hungary and Czech Republic, in Chapters 4 and 5 respectively, to illustrate compliance with third party certification systems as individuals. An analytical synthesis report based on the case studies has been published as AGSF Occasional Paper 16 "Organic Certification schemes: managerial skills and associated costs".

**CHAPTER 1**  
**Organic jasmine rice farmers**  
**in the northeast of Thailand**

By **G. Vitoon**  
Green Net-Earth Net Foundation  
Thailand



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## Acronyms

AAN	Alternative Agriculture Network-Thailand
ACFS	National Office of Agricultural Commodity and Food Standards-Thailand
ACT	Organic Agriculture Certification Thailand
B	baht
BAC	Bioagricert
BCS	German organic certification body
BRFO	Bak Rueva Farmer Organization-Thailand
CRC	Capital Rice Company Limited-Thailand
CSA	community-supported agriculture
CWA	Chai Wiwat Agro-Industry Company Limited-Thailand
DOA	Department of Agriculture Thailand
EU	European Union
FFS	Farmer Field School(s)
GNEN	Green Net-Earth Net
ICS	Internal control system(s)
IFOAM	International Federation of Organic Agricultural Movements
KRAV	Swedish organic certification body
NGO	Non-governmental organization
NOAC	Northern Organic Agriculture Committee-Thailand
OMIC	Japanese organic certification body
PRRS	Parn Rice Research Station -Thailand
PTD	Participatory technical development
RFC	Rice Fund Organic Agriculture Cooperative-Thailand
SWOT	Strengths, weaknesses, opportunities and threats analysis
TOPS	Top Organic Products and Supplies Company Limited- Thailand

Exchange rate 2005: US\$ 1 = Thai Baht 40



## Executive summary

Rice farming predominates in Asian agriculture. Organic rice farming has received increasing interest from both the public and private sectors in Asia as a feasible organic agriculture development project.

Thailand started its organic rice project in the mid-1990s, involving private companies and development non-governmental organizations (NGOs). In 2004, an estimated 13 899 ha of farmland was under organic management, representing about 0.067 percent of total farmland. Organic rice is estimated to cover about 8 349 ha – or 60 percent – of organic farmland. Most organic rice farms produce the famous jasmine fragrant rice for export to the European market. The European Union (EU) market for organic jasmine rice is estimated to be about 6 779 tonnes per annum.

Conversion to organic rice production is technically less complicated than for other crops, but organizing certification for hundreds of small-scale producers in a single project is quite challenging. Growers' group certification can help to reduce certification costs for third party external certification, but requires the project operator to assume certain responsibilities and hence costs, especially for implementation of the internal control system (ICS). However, there are also benefits associated with organic production and implementing ICS.

This study analyses the costs and benefits of organic growers' group certification at two levels: the farmers' organization and the farmer. Case studies were chosen based on criteria that included undertaking organic certification with an internal control system and exporting organic rice to European countries. The two selected cases are the Top Organic Products and Supplies Company (TOPS) Limited (with 133 farmers) and the Bak Ruea Farmer Organization (BRFO) (with 200 farmers). The costs and benefits identified are shown in the following table.

Quantitative studies on the two cases show that the total costs at the farmers' organization level for setting up organic certification exceed the benefits for the initial and ongoing phases. The costs are much higher in the initial phase, i.e., 2 289.66 baht (B) per farmer for BRFO and B 4 286 for TOPS, and reduce significantly afterwards, i.e., B 585 for BRFO and B 225 for TOPS. At the farmer level, organic production certification has net benefits of B 14 191 for BRFO and B 6 301 for TOPS.

Appropriate intervention strategies suggested to reduce the costs in the start-up phase are:

- improving the efficiency of ICS (reducing implementation costs);
- organizing ICS training jointly (to share overhead costs);
- providing financial support for organic projects in the initial set-up phase.

**Summary of costs and benefits in organic certification**

	Direct	Indirect
Farmers' organization level		
Set-up costs	Training Documentation for ICS Initial ICS implementation	Conceiving the project Developing production technology
Ongoing costs	Ongoing training Ongoing ICS Certification fees	Ongoing technology development
Benefits	Knowledge and skills in ICS management Knowledge in organic production technology	Quality improvement for farm produce Improvement in general planning (supply chain)
Farmer level (production)		
Costs	Investment in building infrastructure Soil rehabilitation Possible yield reduction	Attending meetings and training Additional labour in compost, green manure Record-keeping
Benefits	Reduced cash expenditures on chemical fertilizers and pesticides Additional income Sale of crop by-products Animals and animal by-products	Health benefits Soil improvement Food security Self-confidence Increased biodiversity
Farmer level (certification)		
Costs	Direct financial costs Record-keeping	--
Benefits	Premium prices received	--

## The setting for organic rice production in Thailand

### ORGANIC AGRICULTURE

Thailand is predominantly an agriculture-based country. A large proportion of the population derives its livelihood and income from the agriculture sector. With a favourable climate and well-developed agricultural processing facilities, Thailand is among the top ten agricultural exporters in the world. Its main export commodities, such as rice, pineapple, baby maize, shrimp and chicken, account for a large part of world trade supplies.

Organic agriculture has become a major policy theme for agricultural development in Thailand since the Taksin administration came to power three years ago. Organic farming was made a priority on the national agenda, to promote safe food and exports. Many government authorities have initiated projects and activities centred on promoting organic farming, but very few specifically organic projects have yet been implemented.

Organic farming is not a recent phenomenon in Thailand. Local farmers have practised traditional farming for hundreds of years. Such practices have been developed and enriched through farmers' knowledge of local agro-ecology and environmentally sustainable ways of farming. The introduction of the green revolution in the 1970s did not remove all traditional farms, and many resisted this unsustainable technology package.

In the early 1980s, many farmers and local non-governmental organizations (NGOs) came together to establish the Alternative Agriculture Network (AAN) to foster sustainable agriculture activism in Thailand. AAN provides a discussion forum for experience sharing and policy advocacy for sustainable agriculture, including organic farming. It represents the organic and sustainable agriculture movement in Thailand.

NGOs were early pioneers in the organic project. Aiming to promote sustainable farming practices, NGOs under the AAN umbrella organized organic conversion programmes and developed organic farming technologies. Some NGOs also initiated fairtrade programmes for domestic and/or export markets. Their main targets were small-scale producers and marginalized farmers. AAN saw the importance of organic certification and forged cooperation with consumer and environmental movements to establish a national organic certification body in the mid-1990s.

The mainstream business sector also saw the business opportunities in organic trade, and initiated several organic projects. Many businesses converted part of their production to organic farming and launched organic trade initiatives. Their projects were often large-scale and exclusively for contracted trading partners. In the last few years, several new organic projects have been initiated and are now important actors in the Thai organic movement.

## **ORGANIC PRODUCTION**

Thai organic agriculture is still in the early stages, although there are signs that the movement may be about to take off. So far, development has been largely in the hands of farmers and the private sector, with government support lagging behind. The development of organic production has capitalized on the country's strengths by focusing on organic rice and vegetable production. The majority of organic producers are family farms organized under growers' group programmes or organic projects.

Most organic agriculture in Thailand is crop production, especially rice, vegetables and fruits. A few operators work with wild products, such as honey and herbs for tea, and there is one certified organic shrimp producer. No organic livestock production yet exists.

Several producers' groups produce organic rice, mostly jasmine rice. Two producers are in Chiang Rai, one in Surin, three in Yasothorn and one in Khon Kaen. The organic rice is sold by two main traders: the Capital Rice Co. Ltd. and the Green Net Cooperative. Most of the rice is exported (mainly to European markets) and only a small quantity is sold locally.

Vegetables are the second most important organic crop, especially fresh vegetables and baby maize. The majority of fresh vegetables are sold in Thailand, but all the baby maize production is exported.

In 2004, an estimated 13 899 ha of farmland was under organic management. This represented about 0.067 percent of total farmland. Organic rice was estimated to cover about 8 349 ha, or 60 percent, of organic farmland.

### **Domestic regulation and certification**

Since being accredited by the International Federation of Organic Agricultural Movements (IFOAM) at the end of 2001, Organic Agriculture Certification Thailand (ACT) is the first and only Thai organic certification body that provides internationally recognized organic certification services. Established in 1995, ACT is an independent private certification body. Its members include producers' organizations, consumer groups, NGOs, environmentalists, academics and the media. ACT's standards include crops, wild product harvesting, processing and handling, but its current certification covers only organic rice, vegetables, beans, wild plants and wild honey. ACT-certified operators are spread out throughout Thailand. In 2001, ACT started a regional inspection and certification service for organic producers in other Southeast Asian countries. This means that organic producers in the region have access to internationally recognized inspection and certification services from a local organization.

There is a local organic certifier based in Chiang Mai: the Northern Organic Agriculture Committee (NOAC) is run by a coalition of producers' organizations, NGOs and consumer groups. It currently certifies about 20 producers in Chiang Mai province.

Several foreign certification bodies operate in Thailand. These include Italy's BioAgriCert (BAC), Germany's BCS, the United Kingdom's Soil Association, Ecocert, and Japan's OMIC.

## THE ORGANIC MARKET

No studies on the size of the domestic organic market in Thailand have been conducted. The nearest is research carried out by the Thai Farmers' Research Center of the Thai Farmer Bank from 20 to 25 November 1996. This survey interviewed 780 consumers in Bangkok about their interest in health food, and estimated the health food market in Thailand at B 2 300 million/year.

On the domestic market, only organic fresh vegetables and cereals (mainly rice and beans) are available. No imported organic produce is sold in Thailand.

Thailand is still in severe economic recession, and the domestic market continues to shrink. As a result, almost all certified organic products are currently exported, with only small amounts sold in the domestic market. Several environmentally friendly and hygienic products are available, and consumers often confuse these with organic products because their labelling and publicity presents them as "health products". Such products are currently sold in three channels: supermarket chains, specialized shops, and via direct marketing (membership). Several producers' groups sell their organic products locally, as well as to direct marketing members, but this is only on a very small scale.

Supermarkets sell organic and/or health products in the same way as conventional products, i.e., from the same shelves. Only for product promotions or other special occasions are organic and health products displayed separately. The main organic products sold through supermarkets are fresh fruit, vegetables and rice. No supermarket carries out explicit publicity campaigns on the availability of organic and health products.

Organic foods are one of the main features of specialized shops, but owing to the limited assortment of organic products, these shops also carry many conventional health food items. Organic products are common in these shops, but still lack clear identification or labelling to separate them from other products. Buyers at these shops often assume that all their products are "green and/or healthy".

Direct marketing is another channel for organic products, but currently involves only fresh vegetables. There are two distinct concepts of direct marketing: one based on community-supported agriculture (CSA), and the other on a commercial home delivery model. Each of these two schemes has different logistic and management mechanisms, but generally customers receive regular packs of vegetables, normally once a week, at a designated location, often their homes or offices.

### Organic rice market

Organic rice is marketed through three channels: dedicated organic distribution; conventional rice traders; and fairtrade networks. Almost all organic rice is sold to industrialized countries, mainly in the European Union (EU) and the United States. Smaller amounts are sold in Asia, for example, in Hong Kong, Singapore, Thailand and China. The marketing of organic rice faces several constraints, including low volumes of handling, which make costs higher, and low consumer awareness of the value of organic rice.

Organic rice is a booming business, especially in Asia. Most projects are organized as growers' groups with internal control systems (ICS) in place to verify the compliance of individual members, who are small-scale producers. The certified licensee can be a farmers' organization, a private company, an NGO, or a large-scale individual farm owned by a farmer or private company.

Organic rice projects organized as development projects by non-profit NGOs are normally oriented to domestic markets. They often receive grant funding support for providing farmers with extension, milling, packing and market distribution services. Initiatives from the business sector, mainly from companies already operating in the conventional rice business as exporters or mill operators, are often targeted to export markets in the EU or North America, where the organic market is growing rapidly. Depending on market requirements, organic rice farming can be certified according to local, internationally recognized or importing country standards.

As well as in Asia, organic rice is also grown in several countries in Europe and North America. Italy is a major grower and exporter of organic rice, especially the short-grain risotto rice used mainly in Italian cuisine. The southern United States also grows some organic rice, which is sold mainly in domestic markets, but also in the EU.

Several organic rice projects are spreading out across all of Asia. Although no statistics are available, organic rice production and trade are believed to have expanded rapidly in the last few years, thanks to the efforts of development NGOs. Almost all of these projects are aimed at domestic markets, so either they are not subject to any kind of external certification or they are certified by local standards only. They may however be monitored and guaranteed by NGOs working with local producers' groups.

The producers in the case study produce jasmine rice for export to EU markets, so the following discussion concentrates specifically on the EU market for organic jasmine rice.

As for many other import products, no specific statistical estimates of EU markets for organic jasmine rice or organic rice in general are available. One way of estimating the market is to look at conventional market statistics. From the available information for 2004, total Thai rice exports to the EU were about 410 207 tonnes, but only 83 307 tonnes was fragrant rice, i.e., 20 percent. If this was the total size of the Thai rice market in Europe, then organic rice would be only a fraction of this market. One way of determining the organic market share is to look at the market share of other organic foods in conventional food markets. Table 1 shows that the average market share of organic cereals in the food markets of selected European countries is about 8.1 percent. Based on this average figure for the organic market share, the size of the organic jasmine rice market in Europe can be estimated at about 6 779 tonnes/year.

The EU imposes import taxes on all imported rice in order to support rice farmers in Italy, Spain, Portugal, France and Greece. Organic jasmine rice from Thailand is subjected to 264 and 416 euro import taxes for brown and white rice, respectively. This tax is comparatively high, because the 100 percent first grade white jasmine rice, FoB, sells for about 330 euro/tonne in Bangkok. However, the import tax affects both conventional and organic jasmine rice so is not directly relevant to the organic rice market. The EU has decided to abolish import taxes on rice gradually, reducing them to 20 percent in September 2006 and totally by September 2009. This will help to stimulate rice imports from Thailand and sales of rice in the EU, as the rice will be up to 50 percent cheaper than it is at present.

**Table 1. Organic cereal markets in selected European countries**

Country	Approximate sales growth rate/year, 1993–1997 (%)	Current share of total domestic food market (%)
Austria	100	2
Belgium	25	n.a.
Denmark	10	3.5
Finland	20	5
UK	n.a.	0.2
Greece	70	15
Italy	20	35
Sweden	50	1.5
Switzerland	60	2.9
Average	44.375	8.1375

Source: Michelsen *et al.*, 1999.

The high EU import taxes for white rice, in comparison with brown rice, are to support EU rice mills. When the import tax has been abolished, the composition of rice imports into the EU will also change, as EU rice mills may no longer be able to compete with rice mills overseas.

## POLICY ENVIRONMENT

The Thai government has initiated its own organic standards and certification service. Draft organic crop standards were prepared by the Thailand Institute for Scientific and Technological Research, the Department of Export Promotion, the Ministry of Commerce and the Ministry of Agriculture and Cooperatives. The draft standards were passed on to the Department of Agriculture (DOA) on 17 September 1999. DOA internally reviewed the draft and organized a public meeting for comments (11 May 2000). The final draft was adopted on 18 October 2000 as the first national organic crop standards. It is important to note, however, that the process of drafting the standards did not involve stakeholder organizations, especially producers' and consumer organizations.

In 2002, the National Office of Agricultural Commodity and Food Standards (ACFS) completed national production and processing guidelines for organic crop, livestock and shrimp production. The guidelines are for use in national organic accreditation. In 2004, ACFS launched the organic accreditation programme, but so far only one local organic certification body has applied for accreditation.

Organic farming has been a core policy item of the Thai government for the last few years. Despite this recognition, however, it receives little concrete support from central government. Many national and local authorities have initiated organic projects independently, focusing on either farmer training or research. Because of a lack of coordination, many of these efforts have not led to the expansion of organic farming or the enlargement of the domestic organic market.

### **Case study on organic rice projects**

Organic rice production in Thailand began in the early 1990s. Two parallel initiatives from the private sector and NGOs introduced organic rice farming to northern and northeastern regions, respectively. Both of these produce organic jasmine rice, the well-known Thai fragrant rice.

Since then, many new producers have started organic jasmine rice production, mainly in the northeastern region. Jasmine rice is a local variety and is not very responsive to fertilizers. It can be cultivated only when the plant has become photosensitive for flowering. Almost no serious pest infestation is reported for jasmine rice in Thailand, and it is a relatively easy crop to convert to organic farming. According to a survey conducted by the Earth Net Foundation and Green Net (GNEN), about 8 349 ha of farmland in Thailand was certified for organic rice production in 2004.

### **Organic rice production**

Cropping begins in May after the first rainfall. Farmers plough their land to get rid of weeds, incorporating weed residues into the soil and leaving the fields so that the residues decompose. After decomposition, a second ploughing is carried out to loosen the topsoil and flatten the field to regulate the water level. Traditionally, water buffaloes were used for all land preparation, but increasingly small ploughing machines are used.

Rice seedlings are prepared during land preparation and transplanted into the field from June to August. Rice is an annual crop and takes about 90 to 120 days to mature. The grain is left to dry in the field before harvesting, which begins at the end of November and lasts until December. Very few farming activities occur after the rice is harvested as there is insufficient water during the dry season, but in areas with irrigation, farmers may plant legumes or cash crops (e.g., peanut or sward bean) and some cultivate vegetable crops during the winter season (December to January), when there are few pests of vegetables.

Rice is cultivated once a year, so there are few pest infestation problems. The main pest reported by farmers is the freshwater crab.

Organic rice fertility management relies on animal and/or green manures, including:

- chicken and cow dung;
- green gram (*Vigna radiata* L.) sown with the rice;
- sesbania (*Sesbania rostrata*) sown early in the rainy season;
- sward bean (*Canavalia ensiformis*) sown early in the rainy season, or after the rice harvest as a rotation crop.

There is no intercropping as rice farming is semi-aquatic. Crop rotation is very limited as no irrigation is available during the dry season. Perennial trees (which can withstand drought and water logging) are found scattered throughout the fields, and maintain some biodiversity on the farm. Some farmers plant bushes or trees along the boundaries to encourage biodiversity and create buffer zones, but many of these plants do not survive the dry season.

In the rare cases of rotation, legume crops such as sward bean or peanut are planted after the rice harvest. For farmers with access to a pond or well, vegetables such as Chinese cabbage are grown for family consumption and local markets (mainly in villages) after the rice harvest.

Harvesting is done by hand using a sickle. Threshing is also performed manually, although combine harvest machines are used increasingly. In such cases, the risk of mixing with conventional products is high if the machine is not properly cleaned before switching to organic crops. Organic farmers are instructed to clean threshing machines before threshing organic paddy. The paddy is bagged in special bags dedicated to organic paddy only. These are then transported to the village purchase point.

### **The producers in the study**

#### ***Top Organic Products and Supplies***

The Top Organic Products and Supplies Company Limited (TOPS) is a subsidiary of the Capital Rice Company Limited (CRC), a registered Thai company. Established in 1977, CRC is the largest rice exporter in Thailand, accounting for 13 percent of the total 7.86 million tonnes of Thai rice exported every year. Jasmine rice exports account for only about 4 percent of CRC's total export earnings. A CRC rice trading partner in Italy, the Riseria Monferrato Company Limited, saw a business opportunity in organic jasmine rice and encouraged CRC to start organic rice farming in 1991.

CRC works with several local rice mills, one of which – Chai Wiwat Agro-Industry Company Limited (CWA) – was chosen to be part of the organic rice project. CWA provides extension services to targeted groups of farmers selected by CRC and organizes milling of the organic grain.

Riseria Monferrato selected BAC as the Italian organic certification body to provide certification services to the project.

In 2003, CRC formed TOPS as a subsidiary company to be responsible for its organic business; TOPS now handles the organic rice project. As well as organic jasmine rice, TOPS is also involved with organic coffee, coconut milk and shrimp.

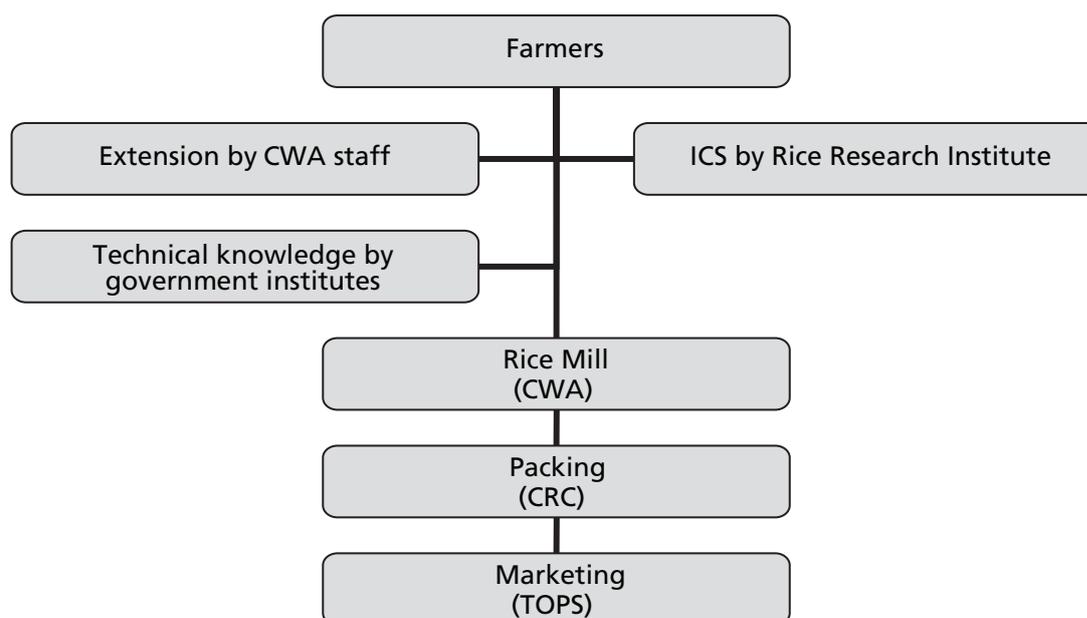
The organic rice producers supplying TOPS are located at the border of Chaing Rai and Payao provinces in the northern region of Thailand. The producers were selected because they had rice fields in Thung Lor, which is a flatland area covering about 1 920 ha of rice fields. CRC and BAC selected Thung Lor as a suitable area for organic rice farming because the land is fertile and the area has not been exposed to intensive pesticide use.

Organic farmers in Thung Lor are organized into three subgroups according to the location of their homes: Ban Sri Jom Jaeng Organic Rice Group, Ban Keng Organic Rice Group, and Organic Rice Group 2000. The splitting of the producers into subgroups was mainly for extension and management purposes so as to allow quality control measures at the subgroup level. Details of the groups are shown in Table 2.

**Table 2. Background information on TOPS producers**

	Ban Sri Jom Jaeng Organic Rice Group	Ban Keng Organic Rice Group	Organic Rice Group 2000
Year of group formation	1992	1992	2002
No. of farmers	36	50	47
Area (rai)	176	256	240

The subgroups organize extension support for their members with assistance from project staff. Group leaders are trained by project staff in organic rice techniques, which they pass on to other group members. Leaders are also responsible for organizing other support services such as study trips, compost making, and green manure seeds. Leaders organize paddy collection from group members, undertaking simple weight checks and quality testing before transporting the paddy to the project storage facilities at the rice mill. The leaders are elected by group members for a two-year term and are paid by the project (about B 0.02 to 0.05/kg of delivered organic paddy).

**Figure 1. TOPS organic rice project**

A special characteristic of the TOPS organic rice project is its unique relationship with government research institutes. Production technology is developed by the Parn Rice Research Station, and many Ministry of Agriculture and Cooperatives agencies provide additional free services to the organic project, including on-farm extension, monitoring and control of farm production and mill operation.

Once the paddy has been milled by CWA in Chaing Mai, it is sent to TOPS in Bangkok for packing. TOPS subcontracts CRC to pack its organic rice, but carries out the marketing itself. TOPS currently sells organic rice locally under the Great Harvest and Tai Tai brands, as well as exporting overseas, mainly through its Italian trading partner Riseria Monferrato.

### **The Bak Ruea Farmer Organization**

The Bak Ruea Farmer Organization (BRFO) is a registered producers' group, incorporated in 1972. In 1999, an NGO started working with BRFO and introduced the organic rice farming concept to its farmer members, but the first farms were not certified until 1999, under the Yasothon Farmer Network's organic project. By 2002, the certified membership of Yasothon Farmer Network had become too large and it decided to split into three projects, one of which is managed by BRFO.

BRFO is located in Mahachanachai district, Yasothon province in the northeastern region of Thailand. As well as owning a rice mill that processes organic rice, BRFO also has an organic conversion scheme to support its members in converting to organic rice production. The number of BRFO organic farmers increased significantly in 2002/2003, but slowed down in 2004. It currently has 244 farmer members certified as organic rice producers, with a total land area of 1 083 ha certified.

BRFO's organic rice project is part of the larger national organic network of GNEN, which helps to develop the capacity of BRFO extension staff and sets the project's ICS. Currently, three of the five extension staff working with BRFO are employed by GNEN, as is another staff member working in quality control at the rice mill.

At the beginning of each year, farmers contact BRFO expressing their interest in joining the organic rice project. Staff compile a list of farmers. An initial workshop is then organized where prospective farmers are informed about the project's background and the requirements of organic agriculture (e.g., the principles of organic farming, organic standards and certification, product quality, producers' organizations). Farmer participants are asked to consult their families before making decisions. This is important because women rarely attend this first meeting, but normally have influence over the decision to convert to organic production. At the following meeting, the number of prospective farmers may have decreased, because only those who are really interested in the project attend.

Participatory technological development for organic farming is then organized. The Farmer Field School (FFS) approach is based on participatory adult learning methodology and is designed to provide participating farmers with opportunities to make systematic observations of actual field conditions, to mobilize local knowledge for appropriate technological intervention, and to experiment such technology in the fields.

An FFS is organized during the cropping season, when participating farmers meet regularly (normally once a month in BRFO's FFS) to learn about the agro-ecosystem management of a selected field, which is the "field school". This field is normally divided into two plots: one conventional and the other organic.

During the FFS agro-ecological analysis session, farmers observe the organic crop in its local conditions and compare it with their own fields. This exercise is done in small groups to facilitate active participation and group development. Each small group discusses and analyses crop conditions and then makes organic management recommendations for the FFS. At a plenary, the groups present their findings and suggestions and the facilitator synthesizes all the recommendations made.

These recommendations are tested in the field, and the farmers observe the results at the next FFS session. In this process, farmers have an opportunity to share their indigenous knowledge of organic farming and learn about the different organic management alternatives applicable to their local situations.

As well as field activities, the FFS facilitator also organizes group building activities to strengthen producers' organizations. In addition, farmers can acquire new knowledge on various issues during special topic sessions, which cover issues of general interest, such as compost production, or issues critical to the project, such as organic standards and certification requirements.

As each FFS session is organized for half a day regularly throughout the crop season, participating farmers can accumulate basic technological knowledge of organic farming by completing the season-long FFS course. This methodology is a much more effective learning process for farmers than conventional training methods, where farmers attend several days of training lectures.

When participating farmers are interested in testing additional techniques that cannot be incorporated into the FFS, participatory technical development (PTD) activities are organized. Farmers must first identify and prioritize problems, and then analyse causes and possible techniques to be explored. When the producers have selected techniques to evaluate, they must plan experimental designs and field trails on BRFO members' own fields. The results are presented to the group for collective learning.

Before the paddy harvest, staff visit all farms and make yield estimates. On the basis of these estimates, special paddy bags are distributed to the farmers so that they can pack the organic paddy after threshing the grain.

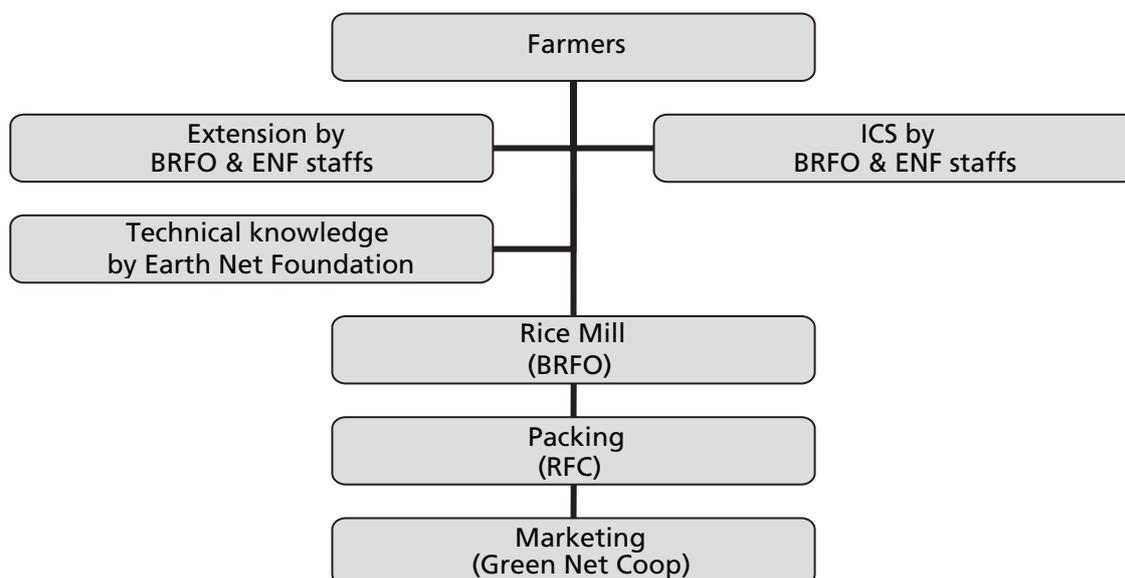
BRFO buys organic paddy from its members according to an agreed premium price, which is set in consultation with Green Net Cooperative. The paddy is stored at BRFO facilities and the Green Net Cooperative instructs BRFO to mill it according to sale orders. BRFO delivers milled rice to the packing facility in Surin province, which is operated by the Rice Fund Organic Agriculture Cooperative (RFC), subcontracted by Green Net Cooperative to pack the organic rice. All of the organic rice from BRFO is exported by the Green Net Cooperative.

The two projects have similar mechanisms for cooperating with other stakeholders. Table 3 summarizes their structures and relationships with stakeholders.

**Table 3. Stakeholder relationships in the selected case studies**

	TOPS	BRFO
Extension services	Subcontracted to CWA, with assistance from government agencies	BRFO, with support from GNEN
ICS	Subcontracted to government agencies	BRFO, with support from GNEN
Storage and milling	Subcontracted to CWA	BRFO
Packing	Subcontracted to CRC	Subcontracted to RFC
Marketing	TOPS	Green Net Cooperative

Figure 2. BRFO organic rice project





## Methodology

The main methodology for conducting this study comprised the following activities.

### LITERATURE REVIEW

A literature review was conducted to gather existing information on organic rice farming and trade. There are very few research papers available on this subject from either Thailand or internationally; no specific statistics were found on world organic rice production and trade. Statistic information was available for organic grain and/or cereals only. Lack of direct statistics, however, does not necessarily imply low interest in the subject because there is a vast literature on other aspects of organic rice, such as production technologies, fairtrade rice and market promotion. Even without direct quantitative information, there is sufficient literature to draw general conclusions on production and market characteristics.

### SELECTION OF CASE STUDIES

The case studies were selected by considering organic rice projects in Thailand that satisfy the following criteria:

- undertake organic certification with an ICS;
- export organic rice to European countries;
- involve small-scale farmers.

After the first round of screening, eight organic rice projects qualified as possible case studies. Seven of these were development-based, and one was a private commercial project. Six, including the private commercial project, were producing organic jasmine rice. The private commercial project and one development-based project were chosen.

Access to detailed information was another factor considered when making the selection. As the time for the project was short, it was necessary to choose a case study that already had good background documentation. Once a preliminary selection had been carried out, the author contacted the project and asked for collaboration.

### GATHERING OF FIELD DATA

After the literature review, key questions were developed with the project to guide the collection of general information. The first data gathering covered the overall project structure and management, from farm production to marketing, and the structure of the ICS. A first draft of the report was prepared and submitted to FAO for comment.

The gathering of field data was then organized by interviewing responsible people and farmers and cross-checking with available records. Discussions were held with stakeholders in order to identify alternative ways of supporting farmers' organizations in managing certification procedures.

### **WRITING OF THE REPORT**

After the field data had been gathered, the information was analysed and the report written. Comments and suggestions on the first draft were incorporated. This final report covers an overview of the main conclusions and recommendations from the case study.

## Background on organic certification

### SCHEME, STANDARDS AND OTHER REQUIREMENTS

Organic certification for rice production is similar to that for any other organic crop. One concern that is more specific to rice is water management, especially in terms of pesticide and fertilizer contamination. This is the only difference between organic rice and other plant crops regarding certification.

The projects investigated are certified by two organic certification bodies: ACT, a local Thai non-profit foundation established in 1995, which received IFOAM accreditation in 2000; and BAC, an Italian company established in 1994 and accredited by IFOAM since 1996.

The main differences in the standard requirements of the two projects regard the allowance of parallel production of jasmine rice. This is when a farmer grows the same crop organically and non-organically at the same time.

**Table 4. Organic certification requirements, ACT and BAC**

Issue	ACT	BAC
Rice seed	Organic rice seed required	Organic rice seed required
Parallel production	Not allowed; other rice varieties can be grown conventionally if there is clear difference in the physical characteristics of the varieties	Allowed: conventional jasmine rice must be in fields separated from the organic fields
Conversion time	12 months (minimum); 24 months for exports to the EU	24 months
Recertification for EU market	Through KRAV (Sweden)	Direct by BAC

As well as organic standards, both the study projects also adopted the growers' group certification scheme. Growers' group certification schemes support small producers, who coordinate their own handling and marketing, by giving them access to organic certification as a group. Group certification covers all relevant activities within the group, from farm production to processing and marketing. The group may be organized by a farmers' organization, an NGO or a marketing company that is responsible for the project and will be the licensee and holder of the organic certificate. Individual producer members are not certified directly and do not have organic certificates. Producers cannot sell their produce as certified organic products to other buyers, because they are suppliers to the group, and not licensees.

The operators of growers' groups take responsibility for the production of the group's members, so they need to develop an ICS mechanism to ensure that members' production complies with the organic standards applied. An external inspector assesses and evaluates the

effectiveness and functionality of the ICS. If it is working properly, the inspector may reduce the intensity of inspections by sampling a selected number, instead of all farm units. This reduces the costs for external inspection and certification.

### **SUPPLY CHAIN RESPONSIBILITIES**

As both projects were certified as growers' groups, their chains of custody are similar. They start with individual farmers who join together as members of a growers' group. The project is responsible for organizing the ICS to ensure its members' compliance with organic standards. The ICS also provides training and may supply organic inputs to participating farmers. Approved farmers are listed. An external certification body can then inspect and evaluate the project and approve the list of farmers for organic production. It is the project's responsibility to maintain the approved farmer list and inform the certification body when there is a significant change in the project.

When the paddy is harvested, the project is responsible for organizing the purchase of organic paddy from the farmers on the list. Special paddy bags are distributed to organic farmers so that they can store the organic paddy after threshing. The project is normally responsible for acquiring and distributing these bags.

The paddy purchase will have to go through sampling and quality screening processes in the same manner as conventional paddy. After the purchase, the paddy has to be stored in containers and separated from conventional paddy.

When required, the stored paddy is withdrawn for milling. The mill can be part of the project operator or a subcontractor hired by the project operator. The mill staff must perform cleaning procedures before switching from non-organic to organic milling. This normally involves running the machine for 30 minutes to 1 hour with no paddy (to allow the non-organic paddy and rice left in the milling machine to come out) and then milling a small batch of organic paddy, which is separated out as non-organic milled rice. The organic paddy can then be milled. All these cleaning and milling steps are recorded.

The milled rice is packed by the project operator or a subcontractor. The packing unit may be located at the mill or in another location. If in another location, transportation must be organized. Packing into final consumer packages is the final step of organic rice handling and processing before the rice is marketed. The project operator is responsible for ensuring the integrity of organic rice throughout this stage.

**Table 5. Responsibilities of the farmers and the project**

	Farmer responsibility	Project responsibility
Production level	Producing rice in compliance with organic standards	Implementing an ICS to check farmers' compliance with organic standards
Post-harvest	Handling the harvested rice to avoid mixing with non-organic rice	Providing bags for organic paddy and checking the separation of threshing and post-harvest handling
Processing	None	At own mill or a subcontracted mill

### Setting up and maintaining an organic certification scheme

There are many similarities between setting up an organic project and setting up the organic certification scheme for a project. Much of the work is interlinked and overlapping. The following gives a step-by-step description of the activities organized at the beginning of an organic project.

#### Set-up stage

**Conceiving the project (planning and identification):** In any organic project, the planning stage is a critical step that must be undertaken at the very beginning and that involves such activities as:

- site survey to find a suitable area for the organic project;
- assessment of production;
- assessment of producers and their organization;
- identification and selection of stakeholders;
- design of project activities;
- identification of supply chain actors;
- selection of production technology.

**Training:** Training for project staff and producers is important and should cover several topics. For instance, producers need to be trained on production technology and organic requirements, while project staff must acquire skills in producer training as well as ICS. The training curriculum should be something like the one shown in Table 6.

**Table 6. Training curriculum for organic project**

Trainees	Training curriculum
Farmers	Organic soil fertility management Organic pest management Organic standards and certification requirements
Project staff	Additional to topics for farmers, and in greater depth: - ICS documentation - ICS farm monitoring and report writing - training skills

**Setting the ICS structure and documentation:** The ICS is a documented system to ensure producer compliance with organic standards. The very first step in setting up the ICS is to identify the relationships among different actors and how they are linked. The basic structure should include the overall responsible body, which is the licensee of the external organic certification body; the body that will be responsible for implementing ICS activities; the body that will be responsible for processing and handling; and the producer members. All of these players, even though they are not all integral parts of the same body, need to have contractual agreements to ensure that they agree to accept the requirements of the organic certification body, as well as to be accountable to the project holder (licensee). If the body responsible for processing, handling and/or internal control is external to the project holder, subcontract agreements must be drawn up to regulate the relationships.

While training is ongoing, the project needs to set up the ICS documentation system. This includes form designing, developing the ICS manual, designing a file system of grower

members, and developing simplified organic standards for farmers' reference. The contractual agreements with producers and subcontractors must be signed.

**Initial ICS implementation:** After preparation of the set-up phase, the project is ready to operate. At this stage, it should be clear which farmers are interested in participating. The project then collects background information on the farmers' fields and farm management. The extent of farm background information varies from one certification body to another, but normally includes the name and address of the farmer, the farming area of each field, a field history and a field map. Ideally, farmers sign a contractual agreement with the organic project at this stage. This basic farm information is crucial as it provides a basis for other ICS activities. If correctly documented, the information can be used for many years. Often, however, field staff's lack of skill and experience leads to inadequate collection of basic farm information, resulting in the need to recollect information at a later stage.

On completing this background information, the project needs to implement the ICS activities for farm monitoring and farmer approval. These must follow the protocols and procedures required by the external certification body. Farm monitoring requires a visit to each farmer's fields and the checking of farmers' compliance with organic standards at least once a year. These visits need to be documented and a decision must be taken to approve and enlist all individual farmers whether or not they are in the organic project. Monitoring needs to include assessment of organic production, contamination risk, use of prohibited inputs, and evaluation of farmers' knowledge about organic farming. At the end of each year, the organic project must produce a report that summarizes information on the ICS activities and their results. This annual report is to be submitted to the external certification body.

**Production technology development:** For successful implementation of an organic project, it is often necessary to develop appropriate production technology that is suitable to the needs and conditions of prospective producers. Different crops have different production problems, which require appropriate production technology. As a general rule, soil fertility and pest management techniques are the two production technologies that need the most attention.

**Preparing for external inspection and certification:** After completing all prerequisite ICS activities, the project is ready to apply for organic certification. Contacting and choosing an appropriate organic certification body is a critical decision as it has serious implications on future recertification costs. As a harmonized organic guarantee system is not yet in place, an organic project needs to know the primary market for its produce, and where future markets may be, so that it can decide which organic certification body to use. The most straightforward solution is to use a well-recognized organic certification body in the importing country. Alternatively, the organic project may choose to work with a local or more accessible certification body, which can provide inspection services that are acceptable to the predominant certification body of the importing country, so that recertification is relatively uncomplicated. A thorough investigation and comparison study need to be done in order to make an informed decision.

Once selected, the organic project must prepare the application and supporting documents as required by the certification body. This needs care, as inaccurate information may delay or

add extra costs to the project. If the project chooses to work with a foreign certification body, documents will need to be translated.

Some certification bodies offer pre-inspection assessment visits, with or without extra fee charges. This pre-inspection visit is a method to help the applicant (in this case the organic project) identify weaknesses and gaps related to organic certification so that it can correct these before the official inspection visit.

Frequently, an organic project will need to undergo important structural changes after the pre-inspection or the first official inspection. To avoid unnecessary time loss and increased expenses, some organic projects ask a consultant expert to help them develop the organic project.

### **Maintenance**

**Ongoing training:** Continuous improvement is critical for project success and sustainability. All personnel, not just field staff, need to undergo regular training, at least annually. The training should include topics on:

- organic standards and recent changes in standards and certification requirements;
- ICS;
- practical skills in farm monitoring;
- weaknesses of the ICS as identified by recent external inspections.

**Ongoing ICS:** The two basic components of the ICS – farmer training and farm monitoring – need to be carried out every year. For established members, the intensity of activities may be gradually reduced, subject to risk analysis, but for recent members, the work must be repeated frequently.

**Ongoing technology development:** This differs from one project to another; an organic project may involve ongoing technological development to improve farm productivity and/or reduce production costs. Technological development contributes indirectly to the maintenance of organic certification as it helps farmers to manage their farms in better compliance with organic standards, and hence reduces the risk of fraud.

### **REQUIRED MANAGEMENT SKILLS**

The managerial skills required for each activity are complicated. When put together they create a heavy workload. Many of these skills are often lacking among the managers responsible for organic projects in developing countries. The following are the main managerial skills required for the implementation of an organic rice project.

#### **Project management skills**

Project management skills are perhaps the first and most important skills needed for implementing organic projects. Project management includes planning, implementation and monitoring of activities, as well as management of personnel and finance. The coordination of various activities at different levels is not easy, particularly when the operation is subject to additional organic standards and certification requirements. For instance, the manager must be aware that the organic rice needs to be handled in a way

that avoids commingling with non-organic rice, from right after harvest until the packing stage, and that the organic rice must be clearly identifiable at all stages. This means that the project must provide special bags to store the newly harvested paddy, specific warehouses (or at least specific areas) for storage, and documentation to follow and identify the status of the rice at each handling stage.

As well as this complicated planning, implementation is also challenging. Owing to ignorance or lack of understanding, responsible staff may implement the plan incorrectly. One of the key success factors is therefore to train project staff so that they have good knowledge and understanding of organic requirements and can ensure the smooth operation of the organic project.

### **Recording and documentation skills**

Modern management involves a lot of information management. Information management involves system design (e.g., selection of the information to be collected, by whom and how) and system maintenance (e.g., updating, storing and reporting). Specific to organic projects, certain information is required, such as field histories, farm maps, farm input records and farmer agreements. This means that the organic project manager must have skills in form designing (and redesigning), data collection (mainly from farmers), and record-keeping systems. Again, staff training on data collection and record-keeping is critical, especially the former because accurate and up-to-date information is a key requirement of organic certification. Record-keeping systems become an important issue when the project expands and has to deal with a large volume of information. Good recording systems do not have to be computerized, but should allow easy access and retrieval of information.

### **Skills in verifying organic compliance**

All organic projects with ICS must have an internal mechanism to ensure and verify that producer members comply with the relevant organic standards and certification requirements. The top managerial level does not need to possess these skills, but must be aware of their importance and provide sufficient support and resources for the responsible staff to implement this work effectively. Secondary managers and field staff, however, do need these skills, as they are responsible for implementation. These skills include knowledge of the practical implications of organic standards, and technical skills in farm inspection, interviewing and report writing. A newly established organic project often needs to organize external assistance for training. Training on these skills must be annual, because organic requirements may change and/or the project may learn of weaknesses through external inspection.

## **STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT) ANALYSIS OF FARMERS' ORGANIZATION**

### **Strengths**

The benefits of having farmers' organizations manage organic certification, in comparison with management by exporting organizations, can be divided into two main areas. The first of these is related to the knowledge and managerial skills that the farmers' organization gains from being

responsible for certification. As seen in the previous description, knowledge and skills acquired can be useful for other aspects of organizational development. The other area of benefit regards the business protection of the farmers' organization. When the organization manages certification, it also holds the licence of organic certification. This means it can sell the organic produce wherever it gets the best trading conditions, such as price or terms of trade. It can also switch from one exporter to another if it is not satisfied with the existing relationship. An ICS requires coordinated marketing of all farmers' produce, which gives the farmers' organization better control over its products.

In addition, a farmers' organization that manages its own organic certification can adopt internal control measures and practices that are more appropriate to local conditions. This means that the ICS is likely to be more effective and efficient than when it is managed by an exporter.

### **Weaknesses**

When a farmers' organization manages its own certification, it is also responsible for the certification costs. As can be seen in the previous discussion, when the direct and indirect certification costs are added together, they can be quite substantial. Many farmers' organizations have too few human and financial resources to manage organic certification well. In such cases, a farmers' organization has to allocate its scarce resources to supporting the certification process, possibly diverting them from other more useful purposes.

Even when it has sufficient resources, a farmers' organization may not give high priority to organic certification in its resource allocation. Organic certification, especially ICS, involves much documentation, which is often seen as mere bureaucracy and undeserving of much attention.

Communication is another common weakness in farmers' organizations. The language used within the certification system is very formal, and foreign to many farmers' organizations. The jargon and technical terms of certification are difficult to understand and often create confusion among the people directly involved in certification, let alone farmers' organizations in remote areas of developing countries. In their quest to define the terms in their regulations, certification authorities sometimes make simple words, such as compost, meaningless to many farmers. Even basic communication tools may be lacking in many farmers' organizations. Certification is often communicated through documents. Mailing services in some developing countries are not very effective, and many certification bodies use e-mail communications. In remote areas of many developing countries, e-mail is still not widely available, and there are many obstacles to e-mailing, such as power cuts, out of service Internet servers, e-mail spam and computer viruses, which make communications very difficult for all concerned.

### **Opportunities**

Continued growth in the demand for organic products provides an incentive for farmers to convert to organic farming. International traders will be searching for larger producers' organizations that can supply larger volumes of organic produce of good quality and at competitive prices. The emergence of social responsibility also means that importers prefer to buy directly from farmers' organizations rather than through conventional exporters.

### Threats

One of the critical threats for farmers' organizations managing their own organic certification is the formalization of growers' group certification. At present, ICS-based growers' group certification is recognized as an effective way of certifying small-scale producers. It allows the compliance of each producer member to be verified and monitored by the internal mechanism, hence reducing the need for external certification bodies to inspect each producer individually. Formalization of the ICS tends to focus on the separation of functions and conflicts of interest, and means that the ICS and the producers' organization cannot be managed by the same body. This means that the ICS would have to be detached from the farmers' organization or certified body. The independency requirement implies that farmers' organizations will not be able to control their own certification, and encourages the replacement of ICS by independent, third-party certification schemes.

The lack of international harmonization of organic certification also puts a burden on certification bodies and certified operators, which have to satisfy several different certification schemes. Certified operators have to develop increasingly complex ICS and management systems to cope with the different, sometimes conflicting, standards and certification requirements of importing countries. Scarce resources within farmers' organizations have to be diverted to support this increasing bureaucracy.

The increase of certification fees, especially when certification bodies have to obtain multiple accreditation, will place further financial stress on all certified operators. Resource-poor operators, especially farmers' organizations, will be at a further disadvantage.

**Table 7. SWOT analysis of management of organic certification by farmers' organizations**

<b>Strengths</b> Knowledge and skills acquired Ability to change and choose exporters Adoption of measures and practices appropriate to local conditions	<b>Weaknesses</b> Limited human and financial resources Communication problems
<b>Opportunities</b> Organic trade expanding, with competitive prices and social responsibility	<b>Threats</b> Formalization of ICS Lack of international harmonization Certification fees

## Costs and benefits at the farmers' organization level

### COSTS TO FARMERS' ORGANIZATIONS

The setting up and management of organic certification incur costs, which must be borne by someone. Theoretically speaking it does not matter who in the production chain pays these extra costs because they will be passed on to the next entity on the chain, and eventually added to the price of the consumer product. Different projects may therefore have different arrangements among producers, producers' organizations and operators (either rice mills or exporters) for who should first bear the additional costs. For example, organic certification under TOPS is managed by private rice mills, while certification fees are paid by exporters. In the case of BRFO, the certification management and local certification costs of ACT are borne by farmers' organizations, while export certification is paid by Green Net Cooperative, the farmers' exporting organization. BRFO has a policy to collect fees from farmer members to recover certification costs. BRFO and its members receive higher incomes compared with TOPS, because they are also responsible for certification costs.

The costs of managing an organic certification scheme with an ICS can be divided into direct and indirect costs. The costs at set-up and during the ongoing phase are also slightly different. Table 8 shows the breakdown of organic certification management costs.

**Table 8. Costs of setting up and maintaining organic certification**

	Direct	Indirect
Set-up	Training Documentation for ICS Initial ICS implementation	Conceiving the project Production technology development
Maintenance	Ongoing training Ongoing ICS Certification fees	Ongoing technology development

### BENEFITS FOR FARMERS' ORGANIZATIONS

The benefits of organic certification for farmers' organizations can also be divided into direct and indirect benefits.

**Table 9. Benefits of organic certification for farmers' organizations**

Direct	Indirect
Knowledge and skills in ICS management	Quality improvement of farm produce
Knowledge of organic production technology	Improvement in general planning (supply chain)

### **Knowledge and skills in ICS management**

Knowledge and skills acquired in ICS are a non-monetary benefit for farmers' organizations managing their own organic certification. Quantifying this benefit is difficult because once the basic knowledge is acquired, it remains with the farmers' organization. Ongoing training adds new knowledge, so the value of knowledge is linked to the costs of acquiring it. Benefits can be quantified as fractions of the training costs. For instance, a large part of the costs of knowledge acquisition through training are logistic (estimated at 40 percent), so the actual value of knowledge will be no more than 60 percent of total training costs. In addition, the capacity to absorb new knowledge is normally limited; an estimated maximum of 60 percent of training is absorbed. The real value of the skills acquired from implementing the ICS will therefore be only 20 percent of total ICS implementation costs, because implementation has much larger logistic costs and the absorption capacity is low.

### **Knowledge of organic production technology**

Knowledge of organic rice production technology is another non-monetary benefit. The methodology to quantify this knowledge benefit is similar to that for ICS management knowledge. However, the acquisition of production knowledge has lower logistic costs and the absorption capacity is higher. It is likely that the benefits of production knowledge to a farmers' organization could be as high as 60 percent of the total costs.

### **Quality improvement of farm produce**

Quality improvement of farm produce is normally reflected in price premiums when the produce is sold. It would be double-counting to have a separate figure for this benefit, as it is already included in the price premium of the organic paddy.

### **Improvement in general planning (supply chain)**

Improvement in general planning is another non-monetary benefit that is difficult to quantify. Improvements can be seen in the efficient support of farmer members in terms of inputs, knowledge training and buy-back schemes. The project will be able to make a close estimate of the total supplies of organic paddy from its members. The project will also be able to plan the storage needed and the cash flow more accurately. These help to minimize unnecessary losses, which are estimated at about 0.1 percent of total production.

## **BRFO CASE STUDY**

### **Costs to BRFO of organic certification**

**Training during the set-up phase:** Three BRFO staff members were trained by GNEN as part of a larger organic competency development programme, with financial support from international donor agencies. The training programme had two main curricula: one on participatory extension (i.e., FFS), and the other on ICS. The total training budget per person was estimated to be about B 15 000/year. Training for the start-up phase was repeated for two years.

**ICS documentation during initial phase:** BRFO utilizes the ICS documentation system developed by GNEN. The overall cost of developing this model is estimated at about B 100 000, as it is an accumulation of knowledge and experience from GNEN's involvement in organic certification for many years. The costs for BRFO to have access to this model were about B 10 000.

**Table 10. BRFO's costs for setting up and maintaining organic certification (Thai Baht/2005)**

Cost	Year 1 (B)	Year 2 (B)	Year 3 (B)	Year 4 (B)	Total (B)
Training during set-up phase	45 000	45 000	0	0	90 000
ICS documentation	10 000	0	0	0	10 000
Initial ICS implementation	207 200	178 800	0	0	386 000
Conceiving the project	10 000	0	0	0	10 000
Production technology development in the initial phase	8 333	0	0	0	8 333
Ongoing training	0	0	35 000	35 000	70 000
Ongoing ICS	0	0	132 000	132 000	264 000
Ongoing technology development	0	20 000	20 000	20 000	60 000
Total costs	280 533	243 800	187 000	187 000	898 333
Average cost per farmer (200 farmers) for 4 years					4 491.66
Average cost per farmer (200 farmers) per year					1 122.91
Certification fee for BRFO per farmer (ACT certification)					625.00
Certification fee for GNEN per farmer (ACT and KRAV certification)					1 125.00

**Initial ICS implementation:** At the start, ICS implementation involves the initial training of farmers interested in joining the project, farm visits to prepare farm information, and the first farm inspections. Costs consist of staff time and operating expenses. Staff were estimated to spend about 80 percent of their time in the first year, and 70 percent in the second year for initial implementation. Staff salaries were B 6 500/person/month. The expenses were estimated to be about B 20 000 in the first year, and B 15 000 in the second year.

**Conceiving the project:** Project conception is part of the overall planning. The costs include project design, project programming, and the set-up of a support system. These were estimated to be about B 10 000.

**Production technology development in the initial phase:** Information on production technology was supported by GNEN, which gathers information from various sources, especially literature reviews and seminars. The information was estimated to be worth about B 50 000, but because it was shared with other organic rice producers' organizations, the cost for BRFO was estimated to be about B 8 333.

**Ongoing training:** GNEN organizes most ongoing training, which includes extension methodology and ICS management and skills. In order to address the weaknesses of the ICS, the training content varies from year to year, depending on the outcome of both internal and external assessments. Annual training is normally scheduled for two to three days, and may involve all the staff and other responsible people at BRFO. The annual cost was estimated to be about B 35 000 TBT.

**Ongoing ICS:** ICS must be revised every year. The main costs of this are staff salaries and operating expenses. The time of the three staff engaged in the ICS is estimated to be about 50 percent of their workloads. Expenses are estimated at about B 15 000/.

**Ongoing technology development:** BRFO uses a PTD methodology for ongoing technology development. The average cost of PTD at BRFO is about B 20 000/year.

**Certification fees:** BRFO's organic certification fee is about B 125 000/year, which it pays to ACT. Certification includes farm production, as well as handling and processing (e.g., storage and milling). Green Net Cooperative also has an ACT organic certification licence for packing and export, and KRAV certification for EU markets.

### **Benefits to BRFO of organic certification**

**Knowledge and skills in ICS management:** BRFO invested B 90 000 in the first two years to acquire ICS knowledge; the value of the ICS management knowledge acquired by BRFO is estimated to be worth 36 percent of these total investment costs, i.e., B 32 400, for 200 farmers (B 162/farmer). Ongoing training from year 3 onwards added another B 12 600 to the knowledge value (B 63/farmer). Regarding ICS skills, BRFO should acquire benefits worth 20 percent of ICS implementation costs (from year 3 onwards), totalling B 26 400/year (B 132/farmer\$/year).

**Knowledge of organic production technology:** BRFO invested B 8 333 in year 1 to acquire organic rice production knowledge from GNEN. The estimated value of the knowledge it gained is about B 5 000 (B 25/farmer). Ongoing technology development added another B 12 000 to the knowledge value (B 60/farmer).

**Improvement in general planning (supply chain):** The farmgate income for BRFO was estimated to be about B 155 050/farm. The improvement in general planning should save an estimated 0.1 percent loss of this income, or about B 155/farmer.

**Table 11. BRFO's costs and benefits for setting up and maintaining organic certification (Thai Baht/2005)**

	Costs		Benefits	
	Set-up (2 years) (B)	Maintenance (B)	Set-up (2 years) (B)	Ongoing (B)
Direct	486 000 (2 360)	167 000 (835)	32 400 (162)	39 000 (195)
Indirect	18 333 (91.66)	20 000 (100)	-	31 010 (155)
Total	504 333 (2 451.66)	187 000 (935)	324 000 (162)	709 010 (350)

## **TOPS CASE STUDY**

### **Costs to TOPS of organic certification**

The TOPS organic project is quite different from that of BRFO. Farmers' organizations are not directly certified and are relatively more dependent on external supports, such as the local rice research organization, for technology development and ICS. For the purposes of comparison with BRFO, however, all the costs of external organizations performing work for farmers' organizations are included in the following analysis, as though they were costs to the farmers' organizations themselves.

**Training during the set-up phase:** CWC has only one staff member working for the organic rice project as a field coordinator. All farmer members are inspected and certified by staff of DOA and/or the Parn Rice Research Station (PRRS), both of which are government agencies. Inspection serves as an internal control mechanism for the project's ICS. Internal control staff were trained by BAC, at an estimated cost of about B 60 000 for the first year and B 45 000 for the second.

**ICS documentation during the initial phase:** TOPS uses the ICS documentation system developed by BAC, the cost of which was included in the certification fee. There was only a small cost of about B 3 000 for document translation.

**Initial ICS implementation:** Initial ICS implementation involves the training of farmers interested in joining the project, farm visits to prepare information and the first farm inspections. ICS is implemented by PRRS and DOA in collaboration with the CWC field coordinator. Costs consist of PRRS, DOA and CWC staff time, and operating expenses. Estimated staff needs were 100 percent of one staff member's time for PRRS/DOA and 70 percent of one staff member's time for CWC. For the second year onwards, the staff time was reduced to 50 percent of one person's time for PRRS-DOA and 60 percent for CWC. Staff salaries were estimated at about B 12 500/person/month. Total expenses were estimated at about B 20 000 in the first year and B 15 000 in the second.

**Conceiving the project:** Project conception is part of the overall planning. The costs include project design, project programming, and the set-up of a support system. These were estimated to be about B 30 000.

**Table 12. TOPS' costs of setting up and maintaining organic certification (Thai Baht/2005)**

Cost	Year 1 (B)	Year 2 (B)	Year 3 (B)	Year 4 (B)	Total (B)
Training during set-up phase	60 000	45 000	0	0	105 000
ICS documentation	3 000	0	0	0	3 000
Initial ICS implementation	275 000	185 000	0	0	460 000
Conceiving the project	30 000	0	0	0	30 000
Production technology development in the initial phase	25 000	0	0	0	25 000
Ongoing training	0	0	0	0	90 000
Ongoing ICS	0	0	45 000	45 000	90 000
Ongoing technology development	0	25 000	25 000	25 000	75 000
Total costs	393 000	255 000	70 000	70 000	878 000
Average cost per farmer (133 farmers) 4 years					6 601.50
Average cost per farmer (133 farmers) per year					1 650.38
Certification fee per farmer (BAC certification)					1 127.82

**Production technology development in the initial phase:** Information on production technology was supported by DOA and PRRS. DOA provided general information on organic rice farming, while PRRS conducted special field trials to verify the appropriateness of general production technology for local conditions. DOA's information cost nothing, as it was very general and costs were shared with other organic rice producers. PRRS research was

more specific to the project, and the estimated value of the initial PRRS organic rice farming technology was about B 25 000.

**Ongoing training:** No ongoing training is organized for farmers or staff working on ICS.

**Ongoing ICS:** ICS must be revised every year. The main costs are staff salaries and operating expenses. The DOA/PRRS staff time engaged in the ICS is estimated to be about 50 percent of the workload of one person. CWC staff time is estimated to be the same. Annual expenses are B 15 000.

**Ongoing technology development:** The project has no internal ongoing technology development, but relies on support from PRRS. PRRS research is not specific to the project, which uses only 25 percent of PRRS's results. PRRS has an annual research budget for organic rice of about B 100 000 (excluding staff salaries and research infrastructure). The cost of this item to the TOPS project is estimated to be about B 25 000.

**Certification fees:** There are no certification fees for farmers' organizations because the TOPS project has only one certification licence for export. The cost of organic certification by BAC is about B 150 000/year. Certification includes farm production, as well as handling, processing (e.g., storage and milling) and packing.

#### **Benefits to TOPS of organic certification**

**Knowledge and skills in ICS management:** TOPS invested B 105 000 in the first two years for acquiring ICS knowledge; the value of the ICS management knowledge acquired by TOPS was estimated to be worth 36 percent of these total investment costs, i.e., B 37 800 (B 284/farmer). There is no ongoing training and therefore no additional benefits. Regarding ICS skills, TOPS should acquire benefits worth 20 percent of ICS implementation costs (from year 3 onwards), totalling B 9 000/year (B 68/farmer\$/year).

**Knowledge of organic production technology:** TOPS invested B 25 000 in the first years for acquiring organic rice production knowledge from DOA and PRRS; the estimated knowledge value to TOPS was therefore about B 15 000 (B 113/farmer). Ongoing technology development added another B 15 000 to the knowledge value (B 113/farmer).

**Improvement in general planning (supply chain):** The farmgate income for TOPS was estimated to be about B 121 408/farm. The improvement in general planning should save an estimated 0.1 percent loss of this income, or about B 121/farmer.

**Table 13. TOPS' costs and benefits for setting up and maintaining organic certification (Thai Baht/2005)**

	Costs		Benefits	
	Set-up (2 years) (B)	Maintenance (B)	Set-up (2 years) (B)	Ongoing (B)
Direct	568 000 (4 270)	45 000 (338)	52 800 (397)	24 000 (180)
Indirect	55 000 (413)	25 000 (188)	-	16 146 (121)
Total	623 000 (4 683)	70 000 (526)	52 800 (397)	40 146 (301)

## Capacities needed by farmers

### AT THE FARM LEVEL

Individual farmers are responsible for managing organic production until the produce is delivered to the farmers' organization or trader – i.e., they are responsible for all activities, including farm production, harvesting and post-harvest handling. The undertaking of these activities must comply with organic standards and the requirements of the certification body.

For organic rice farming, farmers must adopt several management practices, such as ploughing back straw (instead of burning it), growing green manure, using organic rice seed and seedlings, managing soil fertility, adopting preventive pest management, and making and using compost from farm residues.

Knowledge of production management is specific to each cultivation system. Crop type, variety, geographical and climatic conditions, and even the prevailing cultural and social conditions can have an important influence on how farms are managed. Organic farming technology does not prescribe a solution that all farmers can adopt and imitate. Rather, each farmer must learn to apply the general principles of agro-ecology to her/his specific conditions. In addition, these conditions may change from one year to the next, and farm management needs to respond to these changes. A continuous learning process is a critical factor for the success of organic farmers. The learning process should address the following topics as a minimum:

- soil fertility management;
- preventive pest management and pest control;
- prevention and control of external contaminants.

In addition, farmers are required to keep records of the farm inputs used in production, as well as harvest records. To do this, farmers need to have skills and capacity in weight measurement and writing, as well as in record filing. Weight measurement is often problematic because when they purchase or use farm inputs, such as manure or compost, farmers rarely check the weight, although they may count local units such as bags or cartloads. Converting local measurement units to a common system can be confusing and is time-consuming. Training must be ongoing if new farmers are joining an organic project every year.

### Soil fertility management

For effective soil fertility management, organic rice farmers need to have knowledge and capacity in the following areas:

- the soil situation, such as soil type, level of soil fertility, soil problems;
- nutrients needed to cultivate crops;
- sources of organic fertilizer allowed for use in organic farming;

- composting techniques that use locally available organic materials;
- short- and long-term soil fertility improvement strategies;
- appropriate timing for the application of organic fertilizers;
- choice of green manure appropriate to local farming conditions.

### **Preventive pest management and pest control**

Pests are normally a major problem for organic rice farming because the agro-ecosystem of rice farms is very complex, consisting of a large group of natural enemies that help control the pest population. The pest–predator balance will be upset when non-discriminative pesticides are sprayed. The key strategy of preventive pest management in rice farming is to avoid all pesticides and encourage natural enemies by providing them with sufficient breeding and living space and alternative food sources. This can be done easily by leaving natural areas around the farms undisturbed and keeping patches of natural vegetation within rice fields, especially along the earth bunds of fields.

New skills that farmers need to learn and acquire include:

- identification of pest and beneficiary insects;
- understanding of the dynamics of pest–predator equilibria;
- the properties of botanical pesticides, i.e., discriminative or selective effects;
- the life cycle and characteristics of key natural pest enemies.

### **Prevention and control of external contaminants**

The peculiarity of rice plants is their ability to grow in aquatic conditions. The continuous flooding of rice fields is mainly for purposes of weed control. Rice farmers often need to allow water to flow through their fields to neighbouring fields downstream. Rice fields in lowland areas are particularly subject to annual temporary flooding. The rice field landscape is often continuous with fields adjacent to each other. Organic fields are often surrounded by conventional fields, with small buffer areas between them. The spraying of pesticides or herbicides for conventional farming may drift into organic fields, causing contamination.

Organic farmers may adopt measures to prevent these possible contaminants through assessing the risks and implementing appropriate prevention controls. The annual temporary flooding of the rice fields, normally before the start of the cropping season, is usually considered low-risk because conventional farmers do not use any prohibited substances, such as chemical fertilizers, pesticides or herbicides, at this time as farming activities have not started. Soon after the annual flooding, however, conventional farmers start to use prohibited substances, and organic farmers must ensure that earth dikes are large and strong enough to prevent the flow of contaminated water into the organic fields. When neighbouring conventional farmers spray their fields with prohibited substances, organic farmers must install buffer zones to prevent drift. This can be achieved by planting buffer crops of a different kind or variety to the crops intended for certification. The produce of the buffer crop must be separated from the organic produce and cannot be sold as organic.

If intake water has to pass through conventional fields, it may be necessary to grow dense plants to filter the contaminated water, and part of the land will have to be set aside for this purpose. Alternatively, farmers may grow other non-trade crops to use as buffer/filter crops.

This allows farmers to maximize land use while preventing drift and water contamination. It is necessary to select plants that are acceptable to the certification body.

### **AT THE MARKETING LEVEL**

Marketing refers to all handling after farmers have delivered the organic paddy to the producers' group. Generally, marketing involves paddy storage, milling, packing and trading. Certification management is another part of marketing.

Storage management for organic paddy is similar to that for conventional crops, but organic paddy must be stored separately from non-organic paddy and the paddy supplied by each farmer must be identified to allow product traceability. Identification and separation during storage are much easier in larger storage facilities.

Before packing, rice needs to be cleaned, sorted and polished. Some companies use sophisticated machinery, including full-grain sorting, grain colour sorting and rice polishing machinery, while smaller operators may work manually. The use of sophisticated machines requires higher management capacity than manual operations do.

The packaging of organic rice is normally different from conventional rice. Conventional rice is usually subject to fumigation or pesticide treatment before packing in order to prevent the occurrence of rice storage pests such as rice weevil and rice moth. Organic rice cannot be exposed to such chemicals, so needs special methods of packing and treatment before packing. Normal methods used for organic rice include gas treatment (carbon dioxide or nitrogen) and vacuum packing. After such treatment, rice is packed in airtight bags to prevent infestation by storage pests; airtight bags also preserve the quality of the milled rice better. This packaging process starts with choosing the appropriate technology, machinery, equipment, packaging materials and packing activities – all of which require good knowledge and capacity.

It is difficult to envisage farmers' organizations being fully involved with organic rice marketing, because this requires management capacities that are very different from those currently possessed by farmers' organizations.



## Costs and benefits at the farm level

### PRODUCTION

Organic production has direct and indirect costs and benefits at the farm level. Table 14 gives a breakdown of the costs and benefits that may be incurred by an organic farmer.

**Table 14. Costs and benefits of organic production at the farmer level**

	Costs	Benefits
Direct (monetary)	Investment in building infrastructure Soil rehabilitation Possible yield reduction	Reduction in cash expenditure on chemical fertilizers and pesticides Additional income Sale of crop by-products Animals and animal by-products
Indirect (non-monetary)	Attending meetings and training Additional labour in compost, green manure	Health benefits Soil improvement Food security Self-confidence Increased biodiversity

### Costs of organic rice production

**Investment in infrastructure:** This can include improvements to the earth dikes of organic fields to prevent drift and contamination, creating shade for compost, constructing fences to prevent animals from grazing, and applying green manure to organic rice fields during the dry season.

**Soil rehabilitation.** This is mainly soil fertility improvement through the use of organic materials, compost or green manure. Some organic materials are free of charge but may need labour for collection and transport. Some materials need to be bought, such as compost starter, animal manure and minerals (rock phosphate, lime, dolomite). There are also the indirect costs of labour to prepare, transport and apply these inputs in organic fields.

**Possible yield reduction during initial conversion period:** This can occur when appropriate production techniques are not available or known by the farmer. Technology for organic rice production is available and quite widespread in Thailand, but there are still cases where organic rice farmers complain about yield losses. These are due either to bad rainfall or weather patterns, which negatively affect all rice farmers, or to poor management of soil fertility on the part of farmers, which can be the result of lacking attention and commitment to the organic soil fertility techniques proposed by extension staff, or of lacking access to sufficient organic materials.

**Costs associated with attending meetings and training.** These are indirect costs and normally depend on the number of activities organized by the project, the requirements for attending and the timing, for example, whole-day activities or only in the evening. Meetings and

training provide farmers with new knowledge and skills that they need for organic production, so these costs can be outweighed by the benefits.

**Additional labour requirements:** These are mainly for preparing organic fertilizers (e.g., compost, green manure), pest management (e.g., manual weeding, botanical pest control) and buffer zone management, and vary from farm to farm and from year to year. The additional labour can be calculated through comparison with the labour required on nearby conventional farms with similar agro-ecosystem conditions.

### **Benefits of organic rice production**

**Reduced cash expenditure for chemical fertilizers and pesticides:** This is the most direct and immediate benefit. Depending on the amount used in conventional production, the cash cost reduction for organic farmers can be significant because most farmers have to borrow money to purchase inputs. The costs of borrowing money, both formally and informally, can be quite high.

**Price premiums:** Organic produce normally obtains higher prices than conventional produce, but the level of premium varies from one project to another and there is no fixed minimum. If a farmer produces cash crops as well as rice, these too could carry price premiums.

**Sale of crop by-products:** This is not common in organic rice because rice farms have few by-products of commercial value.

**Integration of animal husbandry in production:** This is less of a benefit in developing countries, where most farmers are too poor to have livestock production on their farms and there is no market for organic livestock products. Farmers who can afford to keep livestock do not gain any livestock benefits from organic crop production.

**Lower risk of exposure to pesticides:** This is especially relevant because rice farmers have to work long days in rice fields, where they stand in water contaminated with pesticides. Rice fields are also an important food source, where vegetables and animals (mainly fish from natural sources) are caught for family consumption. Organic rice fields thus provide safer and healthier food.

**“Darker and softer soil”:** This is the benefit most frequently mentioned by organic farmers. It can be attributed to the ploughing back into the soil of organic matter, such as rice straw and stalks. The animal and green manure that farmers apply also adds organic matter to the soil. All these contribute to improving the soil’s physical structure, as decomposing organic matter adds humus.

**Lower dependence on agrochemicals:** Conventional agriculture may give short-term gains in production but these cannot be sustained without increasing the use of agrochemicals. Organic farming provides more diverse varieties of safe food to farming families. Among socially and economically disadvantaged families, where food insecurity is likely to be a problem, organic farming can increase farm production while reducing the resources and inputs needed.

**Understanding of the farm’s agro-ecosystem:** This is also a challenge for organic farmers, who need to understand the specific agro-ecosystems of their own farms and develop production strategies appropriate to the conditions. There is no prescribed solution to organic

farm management that all farmers can adopt. Finding their own solutions gives farmers greater control over their production processes and contributes to their self-confidence. Self-confidence is important for ongoing sustainable development.

**Cessation of agrochemical application:** The avoidance of synthetic fertilizers and pesticides means that fewer harmful substances are added to the local ecosystem, contributing to the maintenance of a balanced ecology. This contributes to increased animal diversity in the rice ecosystem. Farmers notice an increase in natural pest enemies such as spiders, birds and fish in rice fields. Fish in rice fields come from natural sources.

## **ORGANIC CERTIFICATION**

### **Costs of certification**

**Direct financial costs:** Depending on how the organic project is organized, individual farmers may be asked to share the financial costs of certification. These costs can be at a fixed level or vary according to such parameters as size of farm and value of crop sales. Of the case study projects, only BRFO has a policy of collecting certification fees from its members.

**Record-keeping:** This is a requirement for organic producers. Details of the farm inputs used during production, as well as harvest details, should be recorded and, if possible, appended by other documents, such as purchase receipts and delivery notes. Record-keeping for rice farming is normally minimal because most farmers use fewer than five inputs in each production cycle. However, farmers do not like paper work and find it difficult to measure the quantities of inputs used, remember which fields the inputs were used on, find records, and record details. (Although most farmers are literate, writing is still not an easy task.) The burden of record-keeping can be viewed as a cost, owing to the extra effort for farmers, but such costs are very small, especially for organic rice farming with its very few inputs. Record-keeping for other crops, such as vegetables and fruits, can be much more demanding and complicated.

### **Benefits of certification**

One of the main direct benefits of certification is the possibility of earning premium prices. Without certification, it is difficult to sell organic rice at higher prices than conventional produce. Organic certification allows produce to be sold in organic markets that normally offer higher premiums.

## **MARKETING**

As the farmers' organization is responsible for marketing organic rice, and the individual farmer is not directly involved, there are no costs or benefits for individual farmers at the marketing level. The indirect involvement of individual farmers is through shared ownership of the farmers' organization. When the organization increases its income from organic rice sales, and thus makes higher profits, such profits may be distributed to farmers as dividends.



## Conclusions and recommendations

From the case studies, it is quite clear that the benefit of organic certification for farmers' organizations are negligible. The costs are much higher in the initial set-up phase (of two years), but after this they reduce significantly. At the farmer level, it is likely that there will be negative affects in the set-up phase and benefits afterwards (Table 15).

**Table 15. Net benefits of setting up and maintaining organic certification (Thai Baht/2005)**

	Farmer organization level		Farmer level	
	BRFO (B)	TOPS (B)	BRFO (B)	TOPS (B)
During set-up phase (2 years)	- 2 289.66	- 4 286	-	-
After set-up phase	- 585	- 225	14 191	6 301

The two case studies had different approaches to dealing with the costs of setting up and maintaining organic certification by farmers' organizations. Some of BRFO's costs were subsidized by GNEN, while TOPS relied on government agency support. The two projects also used different support mechanisms to start and continue certification. Owing to the limitations of this study, the costs and benefits of marketing organic rice by farmers were not included, but it is likely that the positive benefits of these would be high enough to offset the costs at the farmers' organization level. Such benefits would arise only after the two-year conversion period for organic rice production.

Suggested intervention strategies to reduce costs in the set-up phase are:

- improving the efficiency of ICS (reducing implementation costs);
- organizing ICS training jointly (to share the overhead costs);
- providing financial support to organic projects during the initial set-up phase.



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**CHAPTER 2**  
**Organic basmati rice farmers**  
**in the northern India**

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## Acronyms

APEDA	Agricultural and Processed Food Export Development Authority -India
BIO-Inspecta	Swiss organic certification agency
ECOCERT	German organic certification agency
EM	Effective microorganism
EU	European Union
ICS	Internal control system
Ifoam	International Federation of Organic Agricultural Movements
IMO	Swiss organic certification agency
INDCERT	Indian organic certification agency
NGO	Non-governmental organization
NOP	Norms for Organic Production-India
NPOP	National Programme on Organic Produce-India
Rs	Indian rupee(s)
SGS	Swiss organic certification agency
SKAL	Netherlands organic certification agency
USDA	United States Department of Agriculture

Exchange rate 2005: US\$ 1 = Rs 44



## Executive summary

The project covers the foothills of the Himalayan range, also called the Tarai region. This area is characterized by upland and lowland cascades. Interaction between the topography of the land and the River Ganges and its tributaries drove the evolution of the area's ecological system. The entire region can be visualized as a deep "C" shape, with lowlands in the curve and highlands towards the ends. The project area lies towards the lower part of the curve, in the region's lowlands.

These lowlands are very fertile and produce good yields of paddy without the need for excessive fertilizer use, etc. Only the tall variety of traditional basmati paddy is cultivated in this low-lying region because the level of standing water does not permit the cultivation of dwarf varieties of paddy or any other crop.

In 2001, Sunstar's agriculture consultant visited this and other basmati growing areas in north India. Informal organic cultivation has been going on in these lowlands for 20 to 25 years, and Sunstar enrolled 100 farmers for the 2001 crop season, covering a combined area of 600 ha. Over the following two years, the company expanded its operations by enrolling more farmers under the organic cultivation programme. For the 2004 crop season, the Sunstar project covered a total area of 1 250 ha.

- Yields range from 2 to 3 tonnes/ha.
- There have been varying responses to pest attack and the incidence of disease.
- Farmers maintain diaries recording their day-to-day farm activities. The diaries are verified against visual inspections by agricultural officers and supervisors and extension officers.

### CERTIFICATION

The company uses the certification schemes of two agencies: SGS and ECOCERT. For the first three years of the project (2001 to 2004), SGS was appointed as certifying agency; from 2004 onwards, ECOCERT was appointed alongside SGS to undertake the organic and DEMETER certification schemes.

### CERTIFICATION COSTS

During the first years of the project (2001 to 2004), the total costs incurred under various heads were as follows:

- Total set up and certification costs for 2001= Rs 2 338 500, for 600 ha;
- Total operational and certification costs for 2002 = Rs 5 170 000, for 900 ha;
- Total operational and certification costs for 2003 = Rs 4 175 000, for 1 250 ha;
- Total operational and certification costs for 2004 = Rs 2 310 510, for 1 250 ha.

There has been an overall improvement in the quality of organic produce, and Sunstar now distributes certified and standard seeds on interest-free credit. Adoption of approved agronomic practices has improved the quality and health of the soil.

The average premium over the market price given to farmers is from 10 to 25 percent, depending on the organic status of the farm, the quality of the produce and the prevailing market price in the crop year.

The project team in the area is also examining and developing indirect benefits for farmers in the form of extension services to provide guidance, technical knowledge, capacity building etc.

## **DOCUMENTATION**

The process is carried out at two levels:

1. the farm level (project office);
2. the processing unit office for internal control systems.

Contracts with farmers cover a period of five years. The decision-making process involves the mutual consent of both parties (Sunstar and the farmers).

The adoption of better agronomic practices and improved technical knowledge through Sunstar's extension team has improved the quality and yields of produce.

A comparative study was undertaken by visiting farms with non-organic paddy cultivation and those with organic cultivation. Although the costs of manuring were higher for organic than non-organic farms, the overall costs of farming operations were Rs 1 156/ha higher for non-organic farms. The total costs for non-organic cultivation were about Rs 20 693/ha, compared with Rs 19 537/ha for organic cultivation.

The reasons why organic costs are nearly as high as non-organic paddy cultivation are related to the greater manual labour required for weeding and manuring and the lower yields of organic paddy.

## **SURVEY OF FARMERS AND MARKETS**

Areas of land cultivated varied from 0.6 to 16 ha, encompassing small, medium and large farmers. The literacy of farmers was very low; nearly all of them were below high school level, with many not even at primary level. Poor literacy among farmers could impede their capacity building to organize and manage organic certification requirements as farmers' associations.

For farmers in the region, farming is their main income-generating activity. Most of the farmers surveyed had financial support facilities or crop loans from banks (national and cooperative

banks, farmer credit schemes, cooperative societies) with interest rates varying from 9.5 to 12 percent per annum.

Most organic farms are in an organic belt, where surrounding and neighbouring farming areas are also under organic cultivation. In fact, Sunstar's strategy was to extend the project area to neighbouring farms, to minimize the risk of contamination from non-organic culture from adjoining farms.

The domestic market for organic basmati is in its rudimentary stages in India, with a high latent demand among some consumer segments, primarily based on health consciousness. It is imperative for the establishment of an organic food system in India that awareness campaigns at all levels of the supply chain for organic food commodities be undertaken, focusing on consumers' benefits from buying organic products.

The selling price ratio of basmati versus conventional paddy is about 100:140 (depending on the variety). Yields of organic basmati paddy are reported to be lower than those of conventional basmati. Decreased yields are offset against the higher prices attained by farmers selling their organic basmati paddy to Sunstar.

Small farmers are interested in adopting group certification schemes because they are less expensive than individual farmer schemes. The certifying agency uses different parameters to grant organic stability certificates to farmers and groups of farmers.

During the survey, it was reported that there is far less demand for organic basmati in the world market than there is for conventional basmati; what demand there is is concentrated in European markets.

## QUALITATIVE ANALYSIS

Qualitative analysis was carried out by analysing observations made during interviews with project farmers regarding the following parameters. Responses indicated that organic cultivation brings an overall improvement in the parameters.

Qualitative parameters	Improvement status
Crop by-products	Same as under conventional farming
Animal feed	Same as under conventional farming
Animal by-products	Same as under conventional farming
Inventory changes	Faster; the company collects produce from farmers within two weeks
Social networking	Improved
Food security	Improved; the premiums paid by the company add to purchasing power
Self-confidence	Higher
Biodiversity	Improved in the long term
<b>Soil</b>	<b>Improved in the long term</b>



## The setting for organic rice production in India

### THE STUDY AREA

The project covers the foothills of the Himalayan range, also called the Tarai region. This area is characterized by upland and lowland cascades. Interaction between the topography of the land and the River Ganges and its tributaries drove the evolution of the area's ecological system. The rivers' changing course over hundreds of years has exposed many zones for cultivation on what used to be the river bed, especially in the lowlands. The underground water table in the region is so high that water oozes out and covers the lowlands for most of the year; only basmati paddy can be cultivated on these lands.

The lowlands are fertile and fetch good yields of paddy, with little need for fertilizer. Only the traditional basmati paddy, which is tall, can be grown in this low-lying region; standing water levels do not permit the cultivation of higher-yielding, improved basmati varieties, which are dwarf. The fertility of soil in and around these lowlands is quite high, and substantial applications of fertilizers – as are made in other parts of the country with less-fertile soil for basmati paddy cultivation – would trigger off high vegetative growth, which in turn would lead to crop lodging resulting in loss of produce and lower yields. Thus, these lowlands are under organic agriculture, making them good candidates for Sunstar's regional programme for certified organic cultivation. One of the ecological benefits of this region's organic cultivation is that populations of natural pest predators have survived, so pesticides and insecticides are rarely used in crop cultivation practices.

In 2001, an agriculture consultant appointed by Sunstar Overseas Ltd visited this region and other basmati growing areas in north India. Informal organic cultivation has been going on here for 20 to 25 years, and Sunstar enrolled 100 farmers for the 2001 crop season, covering a combined area of 600 ha. An agriculture extension team was posted in the project area to impart technical knowledge and support to farmers growing organic basmati according to European Union (EU) standards (EEC 2092/91). The company appointed SGS India Pvt. Ltd as the inspection and certification agency for organic paddy cultivation.

The crop cycle on uplands consists of wheat, sugar cane and paddy. On lowland and periphery land adjoining the uplands (monocrop), basmati was under cultivation long before the project was set up. All of the project area is in the monocropped lowlands, but the project proved so successful that upland farmers are also interested in adopting organic farming on their farms as part of the self-replication of organic culture in the region.

In this area, agronomic practices before the project were very similar to those required for certified organic farming, but some farmers nearer the uplands applied fertilizers – urea,

DAP and zinc. The quantities of fertilizer applied per hectare on these farms are negligible compared with fertilizer applications in other agrizones of the country.

Before the project, common cultivation practice was to sow paddy and leave it without monitoring. This practice was prevalent for the following reasons:

- Being fertile, most of the lowlands do not require fertilizer applications.
- The waterlogged land permits the cultivation of long paddy varieties, so farmers are disinclined to put extra efforts into monocropping.
- Waterlogging prevents farmers from reaching their land during the crop season, thereby removing the possibility of using pest control measures such as spraying.

At the farmer level, organic cultivation poses some difficulties regarding crop rotation cycles, which have to be improved on those that have been traditionally followed for years. Agronomic practices have to be oriented towards mechanized organic cultivation, including initiating the natural process of immunizing cultivated crops through enhanced supplements in the form of natural agri-inputs. The study holds that the cultivation of organic basmati is more remunerative to farmers and more beneficial to the region's ecology than conventional basmati cultivation.

The selling price ratio of basmati compared with conventional paddy is about 100:140 (depending on the variety). The cost of cultivating organic basmati is reduced by the avoidance of synthetic fertilizers, growth promoters and insecticides.

The yield of organic basmati is reported to be lower than that of conventional basmati, but decreased yields are offset by the higher prices attained by organic basmati. Through using biofertilizers and natural growth agents, better yield levels could be achieved, but these would have to be gauged against the costs of natural inputs.

The issue of certification costs affects farmers' willingness to cultivate organic basmati. In this regard, small farmers are inclined to adopt group certification schemes, as these are less expensive than individual farmer schemes. The dynamics of certification costs are difficult to assess because the cost of certification depends on many factors, including the client's demands. The inspection and certifying agency takes various parameters into account during the inspection and audit of organic farms.

The most important parameters used by certifying agencies to grant organic status to farms revolve around soil constituent status, water use for irrigation and agri-inputs applied. In this direction, technology for preparing biofertilizer and the use of other organic inputs are being disseminated and promoted by the extension agencies of State agriculture departments, universities, non-governmental organizations (NGOs) and private entrepreneurs in India.

During the study, participants raised many issues regarding the distribution network for agri-inputs, but owing to the lack of a consolidated database on the agencies involved in supplying agri-inputs, no concrete information on this aspect was gained. The government is in the process of formulating and establishing a national organic agri-input supply framework.

From respondents' observations during the survey, it was established that a number of NGOs are promoting organic agriculture in India, but there are no consolidated data on these NGOs for contacting them.

The government has been working out plans and allocating budget to promote organic produce in India for several years. A number of studies and programmes on organic produce are in the pipeline to consolidate the framework and data at the farm, processing, institutional, exporter and market levels. The Agricultural and Processed Food Export Development Authority (APEDA) has developed a National Programme on Organic Produce (NPOP), which has led many farmers interested in organic farming to seek certification. The programme has also simplified the certification mechanism, making it easier for the farming community to adopt. It has also increased awareness of organic farming procedures and practices among farmers, extension workers and development organizations in India.

A coordinated mechanism covering all the government departments and organizations promoting organic agriculture has to be envisaged so that a consolidated database can be made available at one platform agency in the country, in order to help the formulation of integrated strategies to promote organic agriculture.

#### **MARKETS: TRENDS IN LOCAL AND EXPORT DEMAND**

The domestic market for organic food in general, and organic basmati in particular, is still rudimentary in India, with high latent demand among some consumer segments, primarily based on health consciousness. Although many companies plan to enter the organic basmati market and have been allocating budgets to promote this concept among consumers, awareness has not reached the level necessary to induce business enterprises to change to organic production systems.

In 2003/2004, India's total area under organic certification was about 2.5 million ha, with a total of about 6 472 tonnes of exported products from 35 product categories. The major states producing and exporting organic produce in India are Jammu and Kashmir, Punjab, Haryana, Uttaranchal, Rajasthan, Madhya Pradesh, Chattishgarh, West Bengal, Orissa, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu and Kerala.

The major organic items exported are tea, pineapple, spices, honey, rice, sesame seeds and walnuts. The main countries importing India's organic produce are Germany, France, Italy, the Netherlands, the United Kingdom, Belgium, the United States, Canada, Australia, New Zealand, Israel and Dubai.

During the survey, it was reported that there is very low demand for organic basmati in world markets, and most of that demand is in Europe. One exporter described organic basmati market as a "fad" market. A number of study respondents were of the view that brand building could be a strategic tool in the promotion of organic basmati, but finding leadership for such an approach depends on the market's recognition of organic produce.

Most respondents rated health parameters as the main factor inducing consumers to purchase organic basmati. Many organic producers in India are therefore trying to brand their organic products along that orientation.

The organic agriculture produce market in India is disorganized and requires in depth study and data collection regarding demand, production and exports. Overall, organic cultivation is growing by 20 percent a year in India, with organic basmati increasing by 10 to 15 percent. Even farmers who are not associated with a company or farmers' organization are influenced by local market demand and adopt organic farming in a process of self-replication.

The total quantity of conventional basmati exported from India in 2002/2003 was 710 292.21 tonnes, with a value of about Rs 20.63 billion.

Exporters engaged in organic basmati in recent years report that demand on the world market is not increasing. In this regard, it is suggested that consumer behaviour studies be undertaken to obtain insights into people's dietary habits and buying attitudes. Some respondents even drew analogies between organic basmati – a healthy and ecofriendly food – and some well-known brands of soft drink. They felt that it would not be feasible to establish an organic products market in India on the basis of health and environment issues, because soft drinks were still sold and purchased in India even though it had been disclosed that they contain high pesticide residues.

During the study, many companies expressed their apprehensions about the difficulty of establishing domestic market demand for organic basmati because of consumers' lack of faith regarding the genuineness of product quality claims.

The government is promoting organic farming and markets in India through policy interventions, institution building for standardization, and market promotion. Recently, it has designed an organic logo, which will be used on all organic produce in the country. Various government channels are being streamlined to promote the organic produce market; for example, Khadi Gram and Udyog are promoting organic produce.

It is imperative for the establishment of an organic food system in India that intensive awareness campaigns at all levels in the supply chain of food commodities be undertaken, focusing on consumers' benefits from buying organic products. Many issues have to be explored in order to establish organic foods in people's dietary habits. Some of these issues were raised during discussions with study respondents.

## **MAIN STAKEHOLDERS**

The main stakeholders in organic agriculture in India are:

- farmers and farmworkers;
- staff of Sunstar (the processing and export company);
- agri-input suppliers (of seeds, biofertilizers, etc.);
- inspection and certification agencies;
- importing countries and their enterprises;
- consumers;
- exporting countries.

The functions of stakeholders are as follows:

- Farmers are responsible for the production of certified organic produce.
- Processors and exporters are responsible for the coordination of farming activities, the procurement, processing and export of organic produce and the coordination of inspection and certification processes.
- Inspection agencies conduct inspections and grant certification.
- APEDA accredits certifying agencies, develops and implements organic standards and policies, and develops marketing and export activities for organic products.
- The importing country verifies the declarations in documents sent by the exporting country. The inspection agency in the importing country conducts inspection for importers' certifications and further value adding, according to standards in that country.

## **STANDARDS AND POLICY REGULATION**

To guide the development of legislation on national standards for organic products, APEDA has established NPOP, which covers accrediting standards for certification agencies in India, certifying procedures and the costs of certifying organic farms. It is compatible with Codex, EU and International Federation of Organic Agricultural Movements (IFOAM) organic standards.

### **Certification schemes in place**

Sunstar uses the certification schemes of two agencies SGS and ECOCERT. For the first three years of the project (2001 to 2004), SGS was the certifying agency; from 2004 onwards, ECOCERT was appointed alongside SGS to provide additional certification under the DEMETER standards for biodynamic farming.

APEDA is the nodal organization that accredits certification agencies for the organic inspection of farms and produce in India. It undertakes annual audits to renew accreditations, and represents one of the government's first steps to control organic agriculture certification. Inspection and certification charges are regulated to some extent, and charges for farmers' groups are also being calculated.

The following certification agencies are active in India;

- IMO, Switzerland;
- SGS, Switzerland;
- ECOCERT, Germany;
- SKAL, the Netherlands;
- INDOCERT, India (accredited to BIO-Inspecta, Switzerland);
- NATURLAND (private organic standards).

SGS and ECOCERT inspect organic farms and processing units for compatibility with international organic standards in the EU, the United States and other countries where organic produce is exported.

DEMETER is a private standards agency for biodynamic agriculture. For DEMETER certification, farms have to certify organic according to EU standards and must have carried out biodynamic agriculture for a specified minimum period.

The charges made by European inspection agencies working in India can be obtained from their head offices in Europe, in the currency of the country concerned. SGS has been operating in India since long before organic certification was started and quotes its fees in Indian rupees. Its charges are also lower than those of other agencies because of the subsidies and grants it receives from the Government of Switzerland, where it is incorporated and has its head office. SGS costs are also reduced because it has vast infrastructure and a large labour force trained in inspection and certification.

## Methodology

The Terms of Reference of the study entailed that the Sunstar research team adopt the following methodology.

### **STUDY PURPOSE, OBJECTIVE AND APPROACH**

The research explored whether the organic farming certification process can be adopted by farmers at their own level. Its objective was to appraise certification costs for farmers and farmers' organizations involved in organic Indian basmati rice.

Four entities were involved— Sunstar Limited (as a farmers' organization), farmers, trade bodies (government and private) and certifying agencies. The flow of interaction among these entities included secondary data collection, a survey and such methods as focus groups, in-depth interviews and group discussions.

### **SAMPLE AND QUESTIONNAIRE DESIGN**

A case study was undertaken in Uttranchal, India, with Sunstar being studied as a farmers' association carrying out the certification procedures for organic farming.

Farmers were issued with questionnaires exploring the management and financial capabilities that need to be developed for establishing organic certification procedures at the farmers' association level. These questionnaires used an open-ended format and simple wording to gather general information about farmers' crop cultivation, family backgrounds and economic conditions. More detailed information was also sought on farmers' management of organic farming, focusing on their economic capacity to undertake organic certification procedures themselves.

Questionnaires for export and domestic market agencies (both government and private) sought insights into the market potential for organic produce. Questions were designed to cover as many issues as possible related to the business environment of the organic basmati rice market.

In addition, Sunstar's management model for certification procedures carried out by farmers' associations was studied, focusing on the capabilities required, the costs accrued by each level/ activity of the procedure, and the benefits obtained.

The collected data were processed and analysed. The resulting recommendations and conclusions are presented in this report.

## **RESEARCH APPROACH: FLOW CHART OF ACTION PLAN**

### **Part A**

Data on markets and prices (primary and secondary potential, trends, size, pattern)  
NAFED, MOA, MOC, APEDA, ASSOCHAM, FICCI, etc.  
INTERVIEWS USING QUESTIONNAIRES

### **Part B**

Data/observations about the economics of farmers' organizations (costs and benefits of certification)  
SUNSTAR LIMITED MANAGEMENT MODEL (UTTRANCHAL)  
QUESTIONNAIRE  
SITE VISIT AND RELEVANT DOCUMENTS STUDIED

### **Part C**

Data on farm-level activities (economic aspects: costs and benefits)  
SAMPLE OF FARMERS SELECTED IN UTTRANCHAL  
QUESTIONNAIRE  
FARM SITE VISIT AND RELEVANT DOCUMENTS STUDIED

### **Part D**

Information on certifying activities (requirements vs. costs and benefits)  
CERTIFICATION AGENCIES  
INTERVIEW AND SECONDARY DATA COLLECTION

## Management skills needed by farmers' organizations

### ADMINISTRATIVE

The administrative skills for inspection, documentation, verification and record keeping can be demonstrated by proper maintenance of the following records.

#### Documentation

This process is divided into two levels:

- project office (farm level);
- processing unit and export office (internal control system [ICS]).

#### Project office (farm level):

- List of farmers
- Farmers' files
- Field maps
- Agreements
- Crop-related documents
- Sowing plans
- Field map for each crop season
- Pre-harvest status of the crop
- Monthly crop management checklist
- Procurement records
- Estimated yield per hectare for each farm
- Soil and water testing records
- Agri-input purchasing record
- Agri-input distribution record for each farm
- Animal information.
- Organic system plan (legislative and operational)
- Internal audit records (annual reports and checklist)
- Farmers' training and meeting records
- Photographs of the project
- Daily reports of supervisors and agriculture officers.

#### Processing unit and export office (ICS):

- Sowing plans and estimated yields
- Internal audit reports
- Agreements with farmers (original)
- Weekly project reports

- Purchase policy for organic paddy
- Farmers' field maps
- Dispatch and distribution of agri-inputs
- Project office files (correspondence)
- Organic certification documents:
  - correspondence with inspection agency
  - organic standards
  - audit reports and certificates
  - inspection agency's analysis reports of soil, water and crop
  - non-compliance report file.

Farmers keep diaries recording their day-to-day farming activities. Many farmers lack literacy skills, so diaries are designed for recording farm activities in farmers' own languages and ways. Diaries are checked and verified during regular inspections by supervisors and Sunstar officers.

Crop contracts with farmers last for five years. Clauses include crop type to be cultivated, pricing, purchasing policy, terms of payment, additional premiums, responsibilities of Sunstar and the farmer, and conditions for non-compliance and termination of contract. Decision-making at all levels of crop planning, cultivation and procurement involves the agreement of both parties (Sunstar and the farmer). Regular discussions between the company and farmers focus on the use of agri-inputs, disease and pest attacks, soil fertility, crop management, etc.

The adoption of better agronomic practices through the technical knowledge imparted to farmers by Sunstar has improved the quality of crop produce and yields. These factors have in turn helped to improve farmers' negotiating capacity, allowing them to sell their organic produce at better prices because they know that it is of higher quality.

## **SOCIAL AND ECONOMIC FEATURES**

Farmers who joined the project at its outset had been practising organic farming for four years when the survey was carried out. Those who joined later were in their second or third year.

The areas of land under organic cultivation varied from 0.6 to 16 ha, encompassing small, medium and large farmers.

The literacy status of the farmers was poor; most of them were below high school level and many were not even at primary level. However, many of them had some – albeit limited – writing capacity. On a more positive note, most of the next generation have attained high school-level education, and some are college graduates.

Poor literacy among farmers could impede their capacity building for organizing and managing the requirements of organic certification as a farmers' association.

For the farmers of the region, farming is the main income-generating activity. Most of them have cattle (cows, buffaloes) for home consumption, but a few of them reported selling milk for a few months a year.

## SOIL MANAGEMENT AND PRODUCTIVITY

- The practice of mulching to conserve soil moisture is not prevalent in the region.
- To improve soil fertility, compost is applied every three years. In addition, biofertilizers supplied by the company are applied in conjunction with compost as follows:
  - phosphate-dissolving bacteria: 3.75 kg/ha;
  - Azatobacter: 3.75 kg/ha;
  - primary effective microorganisms (EM: 3 litres/ha.
- On some patches of land, natural fertilizers are also applied. Sunstar is carrying out trials to develop agri-inputs suitable for the project area, such as natural rock phosphate and natural zinc.
- Farmers collect the ingredients for compost from their own sources; if they own cattle, they can use farmyard manure, otherwise they purchase it from other farmers.
- Sunstar has been supplying selected farmers with earthworm cocoons for making vermi-compost.
- Farmers have been using biofertilizers since the project began four years ago.
- On monocrop land (under the organic project) farmers cultivate organic paddy and, in some cases, Egyptian clover (berseem) as a green manure and animal feed. Berseem matures in December and is harvested at least twice (with 15 days between harvests) before being harrowed back into the soil to prepare the land for paddy sowing. After the paddy harvest, weeds and berseem grow in the fields, providing another source of green soil manure. At some farms, Sunstar is promoting Susbania (Dancha) as a green manure crop.
- Boundaries are not planted, but organic farms require larger boundaries than non-organic ones do. Fences are about 0.6 m high and 0.9 m wide, and organic farms have to be separated from non-organic ones by a buffer zone 2 m wide. Buffer crops are harvested, packed and labelled separately and sent to Sunstar as buffer crop produce.
- Most organic farms are in the organic belt, where neighbouring farming areas are also under organic cultivation. The project aimed to extend organic farming to neighbouring farms to minimize the incidence of cross-contamination from non-organic cultivation.
- Productivity ranges from 2 to 3 tonnes/ha and varies across the area of a single farm. Farmers apply more compost in less productive areas of their farms to increase productivity. Land slope and height also vary in many farms, providing scope for farmers to grow different varieties of paddy depending on the different levels of surface water on their land. Thus, basmati, pusa and dehraduni basmati (type III) are often all grown on the same farm in areas of different land heights and slopes.

On land where chemical fertilizer was applied in the past, some properly managed organic farms can improve yields within about three years of introducing organic techniques; however,

many other farms on such land have not yet increased their yields. A comparison between yield patterns on farms under long-term organic cultivation and those on farms where synthetic fertilizers were applied in the past could be a future research topic.

### **PEST ATTACK AND DISEASE CONTROL**

There have been varying responses to the issue of pest attack. The farms located on the periphery of the lowlands (Dhaba land), towards the uplands had a history of synthetic fertilizer application prior to converting to organic farming and reported lower incidences of pest and insect attack under organic farming compared with when their farms were under non-organic farming. The absence of synthetic fertilizers does not increase the incidence of pests and insects. On the other hand, lowland areas with no history of synthetic fertilizer application reported unchanged patterns of insect and pest incidence before and after introducing organic farming.

The company has a separate line of operations and management for storing, processing, handling, packing and delivering organic rice to markets. The capabilities required at each of these levels are mentioned in subsequent sections.

#### **Seed treatment**

- 1 litre of secondary EM solution is mixed with 1 000 litres of water. Prior to sowing, seeds are immersed in this solution for 24 hours. The seeds that have sunk are then sown, while floating seeds are discarded.

**Preparation of secondary EM:** Secondary EM solution is sprayed as a biofertilizer. It is prepared as follows:

- 1 litre of primary EM is converted into 20 litres of secondary EM by mixing it with 16 litres of water and 3 litres of molasses.
- The solution is then stored in a barrel for a week prior to use.

#### **Fertilizer management**

During the survey, it was found that farmers often did not know the names of biofertilizers and other agri-inputs, in spite of the project extension team's attempts to keep them informed. Farmers were also unenthusiastic about using the organic inputs delivered to them by the project team, and tended to recall them by the colour of their packaging and the texture of the material.

The fertilizers listed in Table 1 are used – not simultaneously – at application rates that depend on soil conditions and the crop being cultivated; costs of cultivation therefore vary from farm to farm. Vermi-compost, green manure and compost are also required to replenish the soil and make up for the nutrients consumed by the crop.

### EM compost making

- 400 kg of farmyard manure is mixed with 600 kg of green matter (plants, leaves, legumes, crop residues, etc.) to form eight layers. Each layer is sprayed with secondary EM solution and then left for one month to ferment.

### POST-HARVESTING

Organic produce has to be stored separately from other produce to avoid cross-contamination. Storage must be clean and dry so that moisture levels do not generate infestations in the organic produce. Organic produce has to be handled and packed with the utmost care, using clean bags (heads and hands must be covered during packing). Organic paddy is processed separately from conventional paddy to avoid cross-contamination.

**Table 1. Organic fertilizers**

Crop	Substance/ input	Composition/active ingredients	Source/supplier/ manufacturer	Approved for use
Basmati	Ecoderma	Antagonistic fragus Trichoderma viride 1 x 10 <sup>8</sup> x 8 CFU/g 1.0% W/W	Margo Bio Control Pvt. Ltd. (IMO-certified)	Yes
	EM	Microbial inoculant Lactic acid bacteria Actinomycetis Photosynthetic bacteria Yeast	Marple Orgtech (I) Pvt. Ltd. (ECOCERT-certified)	Yes
	ECONEEM	Azadirachtin (0.30%)	Margo Biocontrol Pvt. Ltd. (IMO-certified)	Yes
	Biofertilizer	Ujjala (phosphate dissolving microorganism) Annapurna (azosprillum, azobactor, nitrogen-fixing microorganism) Natural gypsum (agri- grade anhydrous calcium sulphate) Natural rock phosphate (mines)	Myodlphia Bio-Tec Research Myodlphia Bio-Tec Research Rajasthan State Mines & Minerals Ltd. Rajasthan State Mines & Minerals Ltd.	Yes Yes Yes Yes

This is a general list of fertilizers used in organic cultivation in the project area; farmers do not have to apply all of them. Applications vary from farm to farm.

Paddy is collected for processing soon after harvesting, so farmers do not need to undertake any special post-harvest pest and insect management. The harvested paddy arrives at Sunstar in sacks and is stored under tarpaulin, away from other produce.

At the factory, in-process sample checks are carried out during cleaning of the paddy for organic processing. Samples are also analysed to ensure that they do not contain microbiological or other unwanted matter. Processed rice should be delivered in clean, preferably new, containers. Deliveries should follow a fast logistics system, because delaying the produce might generate weevils or other infestations. Every year, 5 to 7 percent of total export supplies are lost to infestation problems.

## Costs of certification for farmers' organizations

### SET-UP COSTS

During 2001, Sunstar hired an agriculture consultant to identify suitable locations for organic basmati cultivation. Visits were made to basmati cultivation areas in north India, and a survey of farmers and traders was undertaken.

The costs accrued are shown in Table 2.

**Table 2. Costs of the farmer and trader survey (Rs, 2001)**

Item	Duration	Costs/month (Rs)	Total cost (Rs)
A) Survey to identify project location	4 months	30 000	120 000
1) Salary of consultant		20 000	80 000
2) Transport and accommodation	8 months		
B) Other project set-up costs		30 000	240 000
1) Salary of consultant		5 000	40 000
2) Transport and accommodation			480 000
Total			

After completion of the survey, agriculture staff were recruited to set up the project in the project area. Table 3 shows the costs of this in 2001.

**Table 3. Costs of project team (Rs, 2001)**

Item	Number	Salary(month (Rs)	Months	Total cost (Rs)
Agriculture officer	1	6 000	8 months	80 000
Agriculture supervisor	1	4 000	8 months	
Travel and daily allowances		3 500	8 months	28 000
Office rent, electricity, stationery, etc.		2 500	8 months	20 000

During the first year, 100 farmers with a total of 600 ha were selected for organic cultivation. The legal costs of establishing contractual agreements with the farmers are shown in Tables 4 and 5.

**Table 4. Legal costs of contracting 100 farmers (Rs, 2001)**

Item	Rate (Rs)	Total cost (Rs)
Legal adviser	Fixed = 10 000 Variable = 4 000	14 000
Court stamp papers, notary and other expenses	100 per farmer	10 000

**Table 5. Certification costs (Rs, 2001)**

Activity	Workdays	Rate (Rs)	Total cost (Rs)
Application/registration			15 000
Documentation review	Half	15 000	7 500
Registration audit	2	15 000	30 000
Six-month survey (annual after first year)	1	15 000	15 000
Soil and water sample analysis		54 000	54 000
Inspectors' transport and accommodation		10 000	10 000
Total			131 500

### Costs of farm conversion

These are the costs incurred by farmers while they convert their farms to organic production, and before they produce certified organic produce that can be sold at higher prices in the market. The conversion period for project farms was three years before a farm could be certified as organic. During this period, farmers cultivated according to organic standards, but had to sell their produce at non-organic prices. Farmer therefore incurred additional costs without obtaining higher prices.

Sunstar estimated these costs using a model of 600 ha, and paid a premium to project farmers calculated as 10 percent of the total cost of paddy purchased. This came to a total of Rs 1.55 million.

### Total set-up costs

Total set-up costs, including miscellaneous expenses of Rs 25 000, came to Rs 480 000 + 128 000 + 24 000 + 131 500 + 1 550 000 + 21 000 = Rs 2 338 500.

## OPERATIONAL COSTS

### Second year of project

After setting up the project infrastructure in 2001, the costs incurred in subsequent years were operational costs. During the second year of the project – the first year of operations, 2002 – Sunstar enrolled an additional 90 farmers with a total area of 300 ha. The operational costs are shown in the following tables, based on 900 ha and about 190 farmers.

**Table 6. Staff expenses (Rs, 2002)**

Item	Salary/year (Rs)
1 business head	
1 agriculture adviser	
2 supervisors	
2 agriculture officers	1 000 000
Transport, stationery, office rent, electricity and other expenses	500 000
Annual farmers' meetings and training, festival gifts and awards to farmers, etc.	500 000
Total	2 000 000

**Table 7. Certification expenses (Rs, 2002)**

Item	Workdays	Rate/workday (Rs)	Total (Rs)
Conversion audit	2	15 000	30 000
Sample analysis		25 000	25 000
Transport and accommodation		15 000	15 000
Total			70 000

During this year, Sunstar paid 15 percent premiums to farmers enrolled in 2001 and 10 percent to those enrolled in 2002.

**Table 8. Premiums paid in project's second year (Rs, 2002)**

Premium	Total (Rs)
To 2001 farmers: 15% of paddy purchase	2 250 000
TO 2002 farmers: 10% of paddy purchase	850 000
Total	3 100 000

The total operational costs in 2002 were therefore Rs 2 000 000 + 70 000 + 3 100 000 = Rs 5 170 000.

### Third year of project

In the project's third year – 2003 – Sunstar enrolled another 110 farmers with a total land area of 325 ha. The costs shown in the following tables are therefore based on about 275 farmers and 1 250 ha.

Operational expenses for this year were Rs 2 million.

**Table 9. Certification costs (Rs, 2003)**

Item	Workdays	Rate/workday (Rs)	Total (Rs)
Full organic audit	4	15 000	60 000
Sample analysis		25 000	25 000
Transport and accommodation		15 000	15 000
Total			100 000

**Farm conversion:** During the third year, Sunstar paid premiums of 23 percent to farmers enrolled in 2001, who had now attained the status of certified organic farms. This meant that Sunstar could export their produce as certified organic at higher prices. The premium paid to these farmers is therefore not calculated in the conversion costs. Sunstar also paid 15 percent premiums to farmers enrolled in 2002 and 10 percent to those enrolled during 2003.

**Table 10. Premiums paid in project's third year (Rs, 2003)**

Premium	Total (Rs)
To 2002 farmers: 15% of paddy purchase	1 175 000
To 2003 farmers: 10% of paddy purchase	900 000
Total	2 075 000

The total operational costs in 2003 were therefore Rs 2 000 000 + 100 000 + 2 075 000 = Rs 4 175 000

#### Fourth year of project

In 2004, Sunstar appointed ECOCERT as a certifying agency, as well as DEMETER for the EU, Bio-Suisse and the United States Department of Agriculture (USDA) Norms for Organic Production (NOP). Certification costs were spread over a period of one year.

Operational expenses in 2004 were Rs 2 million. Consolidated certification expenses were incurred for both SGS and ECOCERT certification.

**Table 11. Certification costs for ECOCERT (Rs, 2004)**

Item	Workdays	Rate/workday (euro)	Total (euro)
Farm inspection	3.5	300	1 050
Travel time	1	300	300
Report preparation	1.5	530	795
Follow-up	1.5	300	450
Total			2 595 (Rs 150 510)
Transport and accommodation			25 000 Rs
Grand total			175 510 Rs

1 euro = Rs 58.

**Table 12. Certification costs for SGS (Rs, 2004)**

Item	Workdays	Rate/workday (Rs)	Total
Full organic audit	4	15 000	60 000
Sample analysis		25 000	25 000
NOP/USDA		35 000	35 000
Transport and accommodation		15 000	15 000
Total			135 000

The total certification costs were therefore Rs 175 510 + 135 000 = Rs 310 510.

The total operation costs in 2003 were therefore Rs 2 000 000 + 310 510 = Rs 2 310 510.

### **Costs for storage, processing, transport and organic sales**

These costs were calculated by comparing the costs for organic basmati with those for conventional basmati.

- The labour costs for processing, packing and marketing are 40 percent higher than for conventional produce.
- The marketing costs for organic basmati are also higher because the annual export quantities are lower. For example, it costs about Rs 1 million to participate in an organic food fair, which can generate average orders of no more than Rs 10 million a year. This is much less than the orders that are generated through participating in conventional food fairs.
- The international market depends on developing good relationships with buyers and requires prompt deliveries. A highly professional approach is needed when contacting prospective buyers for orders.
- The logistics for managing deliveries of organic rice are very important. Clean, preferably new, containers should be used and first-class shipping lines. Freight costs are therefore 20 to 25 percent higher than those for conventional rice exports. These higher costs also reflect the need for direct deliveries rather than the use of transshipment routes. Direct routes minimize delays, which could generate infestation, etc. in the organic produce, thereby spoiling its quality.
- Every year, about 5 to 7 percent of total export supplies are lost to infestation problems.
- At present, the domestic market for organic basmati (and other organic produce) is very small; farmers' groups therefore need to export their organic basmati in larger quantities.



## Costs of organic cultivation for farmers

### FINANCIAL ISSUES

Most of the farmers surveyed had finance facilities or crop loans from national and cooperative banks, farmer credit schemes or cooperative societies. Interest rates varied from 9.5 to 12 percent per annum. (Interest rates on unsecured loans from commission agents varied from 24 to 36 percent per annum.)

Most crop loans were spent on the following items, which have been divided into two categories:

- *Organic*: Fuel and wages for labourers (transplanting, weeding and harvesting). Sunstar supplies farmers with seeds and agri-inputs on interest-free credit.
- *Non-organic*: Fertilizers, pesticides, weed killers, seeds, fuel and wages for labourers.

The average sums borrowed were Rs 4 000/ha/year for organic and Rs 9 000/ha/year for non-organic paddy cultivation.

Most cultivation activities were carried out by family members, but sometimes wage labourers were also hired (local and from outside the state). The wage rate in the region is Rs 80 per day, and in some areas farmers pay labourers in kind – 25 percent of the produce – for performing all activities from transplanting to harvesting.

**Table 13. Costs of agricultural implements (Rs, 2005)**

Machine	Present cost (Rs)	Cost 10 years ago (Rs)	Cost 15 years ago (Rs)
*Tractor and accessories	350 000	225 000	140 000
Pump set	20 000	8 000	5 000

\* Most tractors are bought with loans.

Project farmers obtained seeds and other agri-inputs (biofertilizers) on interest-free credit from Sunstar, which deducted these costs from what it paid the farmers for their organic paddy.

### Costs of loans for organic compared with non-organic paddy cultivation

The average loan for non-organic farming was Rs 9 000/ha/crop cycle. That for organic farming was Rs 4 000/ha/cycle. The average interest rate on loans was 10 percent, giving loan costs of:

- Rs 900/crop cycle for non-organic farming (on monocropped land);
- Rs 400/crop cycle for organic farming.

### Farming issues -Organic farming

Organic fertilizers (see Table 14) are applied to maintain soil fertility and prevent nutrient loss after several crop cycles. Soil nutrient status varies from farm to farm within the project area, so biofertilizer applications also varied. The calculations in Table 14 are based on the average costs of biofertilizer.

At certain periods no fertilizers at all are applied to paddy crops (depending on soil conditions and the crop being cultivated), so the total cost of organic fertilizing given in Table 14 has been reduced by Rs 1 000/ha.

**Table 14. Fertilizing costs for organic farming (Rs, 2005)**

Item	Dose (kg/ha)	Cost (Rs/kg)	Total cost (Rs)
Photosynthetic bacteria	3.75	55	206.25
Azotobacter	3.75	55	206.25
EM solution	3	120	360
Natural rock phosphate	125	7	875
Vermi-compost	450	2.5	1125
Gypsum	500	1.25	625
Zinc	7.5	18	135
Ecoderma	0.15	230	34.5
Seed	15	34	510

Farmers prepare vermi-compost themselves, but Table 14 quotes its market price. Farmers tend not to purchase vermi-compost, however, even when they do not have access to their own supplies.

Land preparation for paddy cultivation in the project area starts at the end of April, and seedlings are transplanted at the end of June. The monsoon arrives at the end of July, providing considerable supplies of water for the rest of the cultivation period. Water requirements from April to June are met by irrigation. Irrigation continues after July, to ensure that the crop has adequate standing water, but is far less frequent than in areas of India with low or medium rainfall – three to four compared with 15 to 20 times.

Because of the natural soil fertility, far less fertilizer/manure is needed for paddy cultivation in the project area than in other parts of the country. The application rates in Table 14 are therefore lower than those for elsewhere in India.

**Conclusion:** The depreciation costs of agricultural implements, including tractors, were factored into the tractors and pump sets rented for farm preparation, puddling and irrigation (see Table 15).

In Table 14, total labour costs for fertilizing were Rs 160. The total cost of fertilizing was therefore Rs 3 077 + 160 = Rs 3 237/ha. In Table 15, total labour costs for farm operations were Rs 15 900. Annual interest costs were Rs 400/ha. So the total cost of farm operations for organic paddy cultivation was Rs 19 137 + 400 = Rs 19 537/ha.

**Table 15. Farm operation costs for organic farming (Rs, 2005)**

Activity	Cost (Rs/ha)	Frequency	Cost/workday	Total cost (Rs)
Farm preparation (tilling)	600	7 times		4 200
Puddling	1 500	1 time		1 500
Transplanting	2 000	1 time	25 days at Rs 80/day	2 000
Weeding	1 600	2 times	20 cays at Rs 80/day	3 200
Irrigation	600	3 times		1 800
Harvesting (cutting, threshing and loading)	3 200	1 time	40 days at Rs 80/day	3 200

### Non-organic farming

In Table 16, total labour costs for fertilizing were Rs 720/ha. The total cost of fertilizing was therefore  $\text{Rs } 4\,773 + 720 = \text{Rs } 5\,492/\text{ha}$ . In Table 17, total labour costs for weeding were Rs 6 800 (weeding is done once with weed killer and once manually). Annual interest costs were Rs 900/ha. So the total cost of farm operations for non-organic paddy cultivation was  $\text{Rs } 19\,793 + 900 = \text{Rs } 20\,693/\text{ha}$ .

**Table 16. Application costs for non-organic farming (Rs, 2005)**

Item	Application (kg/ha)	Cost (Rs/kg)	Total cost (Rs)	Workdays
Fertilizers				
DAP	125	9.6 (Rs 480/50 kg)	1 200	2
Urea	125	5.75 (Rs 287/50 kg)	718.75	
Zinc	25	18 (Rs 180/10 kg)	450	
Micronutrients	2	125	250	2 (for spraying)
Insecticides				
Furadon	20	50	1000	1
Endosulphan	1.5	200	300	2 (for spraying)
Weed killer	2.5	150	375	2 (for spraying)
Seed	15	32	480	

**Table 17. Farm operation costs for non-organic farming (Rs, 2005)**

Activity	Cost (Rs/ha)	Frequency	Cost/workday	Total cost (Rs)
Farm preparation (tilling)	600	7 times		4 200
Puddling	1 500	1 time		1 500
Transplanting	2 000	1 time	25	2 000
Weeding	1 600	1 time	20	1 600
Irrigation	600	3 times		1 800
Harvesting (cutting, threshing and loading)	3 200	1 time	40	3 200

**COST: BENEFIT RATIO FOR FARMERS**

The project is in its early stages in the region, so the costs of organic basmati are likely to come down over the next few years, as yields increase. The cost: benefit ratio incorporates both quantitative and qualitative indicators.

**Table 18. Quantitative analysis**

Conventional paddy farming	Organic paddy farming
Average yield = 26.25 Q/ha	Average yield = 22.5 Q/ha (after 2–4 years of organic farming)
Selling price = Rs 1 300/Q	Selling price = Rs 1 300/Q
	Average premium = Rs 250/Q (paid by company to farmers)
Total amount received = Rs 34 125/ha	Total amount received = Rs 34 875/ha

Q = quintal (1 quintal = 50.8 kg).

**Berseem (Egyptian clover) as a green manuring crop**

This crop is cultivated after the paddy harvest and after the water in the fields has dried up. The crop is used mainly as green cattle feed and green manure for the farm. It is also sold to generate income at a rate of Rs 250/tonne.

Berseem is harvested three times a year. The first cutting is done in January and the second 15 days later. The yield per harvest is 15 tonnes/ha. The cost of harvest was 45 workdays at Rs 60 per day and the total yield 45 tonnes/ha/year. An average of 15 tonnes/ha was used for self-consumption every year and the rest was sold on the market. The revenue from berseem was therefore  $45 \times \text{Rs } 250 = \text{Rs } 11\,250/\text{ha}/\text{year}$ .

**For organic cultivation** the total revenue was  $\text{Rs } 34\,875 + 11\,250 = \text{Rs } 46\,125/\text{ha}/\text{year}$ . The total cost of cultivating organic paddy was  $\text{Rs } 19\,537 + 8\,100 = \text{Rs } 27\,637/\text{ha}/\text{year}$ , so the cost: benefit ratio for the organic farmer was 100: 167.

**For non-organic cultivation** the costs were Rs 20 693/ha. Berseem cost an additional Rs 8 100/ha, so the total costs of paddy cultivation were  $\text{Rs } 20\,693 + 8\,100 = \text{Rs } 28\,793/\text{ha}/\text{year}$ . The revenue from non-organic paddy cultivation was Rs 34 125/ha. The revenue from berseem was Rs 11 250/ha, so the total revenue from non-organic cultivation was  $\text{Rs } 11\,250 + 34\,125 = \text{Rs } 45\,375/\text{ha}/\text{year}$ . The cost: benefit ratio for non-organic farming was therefore 100: 157.

- In order to have compatibility for comparison of the two cropping patterns, non-organic farmers growing paddy and berseem in rotation were selected.
- In parts of the project area, on the periphery of the lowlands, non-organic farmers grow berseem after the paddy harvest because the land is unsuitable for a second crop owing to the very high water table. Other parts of this peripheral land are under monocropping.

The calculations show that the cost: benefit ratio for organic paddy is higher than that for non-organic paddy. When the qualitative benefits of organic cultivation are added to the cost: benefit ratio, the ratio increases. After several years of organic cultivation, paddy yields increase, increasing the cost: benefit ratio yet again.

## OTHER BENEFITS OF ORGANIC PADDY CULTIVATION

Table 19 presents the benefits of cultivating organic paddy that farmers mentioned in interviews. The responses indicate an overall improvement resulting from organic cultivation in the region.

**Table 19. Benefits of organic paddy cultivation**

Qualitative parameter	Improvement status	Remarks
Crop by-products	Same as for conventional farming	Used as green manure and in compost production
Animal products	Same as for conventional farming	Difficult to assess increases in milk yield or quality
Animal feed	Same as for conventional farming	Berseem cultivation provides a readily available additional feed for animals
Social networking	Improved	Organic farmers' shared crop interests encourage them to network more
Self-confidence	Improved	Technical support, continuous monitoring and evaluation, supply of agri-inputs on interest-free credit and, above all, the premiums the company pays to organic farmers build a team culture between the farmers and company
Economic status	Improved	The premiums paid by the company increase farmers' purchasing power
Inventory changes	More rapid	Assured and timely sales to the company, which collects produce from farmers within two weeks of harvest
Increased biodiversity	Improved	Organic cultivation helps to maintain the ecology's natural balance, thereby helping to conserve biodiversity
Soil improvement	Improved by long-term organic cultivation	Organic practices improve soil quality
Food security	Same as for conventional paddy	The switch to organic cultivation has not decreased yields greatly because the area was effectively under organic culture before the project

- There is better quality control of produce through Sunstar's distribution of certified standard seeds to farmers. Proper agronomic practices have improved not only the quality of produce, but also the health of the soil. Capacity building of farmers for better handling and cleaning of produce has also contributed to improving overall quality.
- Organic farmers benefit not only from better prices for their produce, but also from soil improvement, development of the area, etc. They also benefit from capacity building in agronomic practices and sustainable use of local natural resources, and from improved awareness of agriculture-related issues regarding the crop quality and yield and soil fertility.
- Premiums and payments for produce are paid in a timely way, which improves the economic status of poor farmers in the region.
- Sunstar's interest-free supply of seed and agri-inputs also boosts farmers' economic status.

- The project team also provides indirect benefits to farmers in the form of extension services to provide guidance, technical knowledge, capacity building, etc.
- At the start of the project, non-organic farmers criticized farmers who adopted organic methods. Over time, however, improved soil and crop yields and other benefits from Sunstar – such as seed and biofertilizer supply, as well as the premiums paid over market price – have helped the organic farming community to gain confidence.

### Challenges and solutions

Given the illiterate background of rural people in the region, the project team faced initial reluctance from the farming community about adopting organic farming systems. Traditional attitudes about cultivation practices, combined with social and cultural factors increased this resistance.

**Table 20. Challenges in setting up project infrastructure**

Related to the project team	Establishing social networking Marketing the organic concept among illiterate farmers Formulating low-cost agri-inputs (seeds, biofertilizer, etc.), application methods and technology (for compost, EM, compost preparation, etc.)
Related to farmers	Sustainable use of agri-inputs, emphasizing local resources Difficulties in understanding and adopting the concept at the outset Initial drop in crop yields Criticism from family and non-organic farmers at the outset

**Table 21. Factors for project success**

Strengths	Monocropped land Full control of agricultural activities Strong agri-input distribution and supply system Assured sales Improved soil Better farm management Greater sales margins than conventional crop Easily adapted technology (socially oriented)
Opportunities	High potential for extending the project Farmers' acceptance of the biodynamic concept after the success of organic farming in the region

### CONCLUSION

The prevalence of informal organic cultivation in the region dates back for decades, and helped the establishment of formal organic culture. The strategy of providing bonuses, incentives and margins over market prices of paddy contributed much to project success.

## Recommendations

### **AGRI-INPUT SUPPLY AND TECHNICAL AND TRAINING SERVICES**

The project extension team should give greater emphasis to building farmers' knowledge about the organic farming concept, including names and details of various agri-inputs. State agricultural extension teams, agriculture universities, development organizations, NGOs, etc. should support the socializing of this concept among farmers.

The poor literacy rate of farmers participating in the project was reflected in their weak capacity to establish and maintain the documents and records that would be necessary for group organic certification as farmers' organizations. It is recommended that groups of educated farmers be formed to investigate the management of farmers' group certification, with training from state agriculture departments, agri-business management institutes, Sunstar and others.

More training should be provided to increase understanding of the utility of biofertilizers and other manures and their role in enhancing organic crop yields; farmers continue to view synthetic fertilizers as the best way of increasing yields. Farmers should undertake exposure visits to agriculture universities, development organizations and NGOs as part of programmes to demonstrate organic cultivation projects.

It is highly recommended that information about the supply of agri-inputs (biofertilizers, organic seeds) be generated for all of India because a lack of such information impedes farmers from undertaking organic farming. A proper framework for the agri-input supply system should be envisaged by state trading bodies, development organizations and state agriculture departments.

In-depth market research studies on organic products should be undertaken to gauge their potential so that higher prices can be leveraged for organic products, thereby benefiting everyone in the supply chain – including the farmers. It is recommended that stakeholders, particularly state trade promoting bodies, undertake studies of various organic production issues.

A network of institutions, universities and government agencies should be formed to provide extension and infrastructure support to the organic movement in India.

### **CERTIFICATION ISSUES**

The group certification scheme could be promoted among organic farmers because it is less expensive than individual farmer schemes owing to economies of scale. Government departments and development organizations should promote this mechanism.

There are many accredited organic certification agencies in India, with APEDA as the nodal agency established by the Ministry of Commerce. Farmers' groups could consult APEDA regarding the selection of certification agencies and the charges for certification processes.

### **PROJECT MANAGEMENT ISSUES**

The project extension team should ensure that farmers receive market price information, including the payment of premiums, so that farmers can enjoy maximum benefits.

Sunstar should pay for the paddy it purchases within the time stipulated so that farmers benefit from timely payments.

Sunstar should collect paddy within the period stipulated to avoid farmers' holding of organic paddy, which may lead to degradation of its quality.

Sunstar should develop benefit schemes for groups of farmers to build their sense of belonging to a network of organic farmers.

The extension team should build farmers' understanding of documentation and record keeping of farm activities.

Farmers should be taken on exposure visits to farms that produced good yields during the previous year. This would help them to understand the importance of better agronomic practices.

**CHAPTER 3**  
**Horticultural farmers participating in the**  
**ECOVIDA Agro-ecological Network in Brazil**

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## Acronyms

R\$	Reais
AECIA	Ipê and Antônio Prado Ecological Farmers' Association
AOPA	NGO providing technical assistance to ecological farmers and farmers' groups
ASSESOAR	NGO providing agro-ecological research and technical assistance
ECOCITRUS	NGO supporting ecological fruit growers
EMATER	Governmental Agency for Technical Assistance and Rural Extension Services
EMBRAPA	Brazilian Centre for Research and Training in Agriculture
EU	European Union
FFV	Fresh fruit and vegetables
FNMA	National Environment Foundation
FUNDEPEC	Agriculture Development Fund of São Paulo State
GAO	Organic Agriculture Group
IBD	Biodynamic Institute
NGO	Non-governmental organization
NI	Normative Instruction
PESAGRO	Agricultural Research Institute of Rio de Janeiro
PNMA	National Environment Policy
PRONAF	Programme to Support Family Farming
SWOT	Strengths, weaknesses, opportunities and threats analysis

Exchange rate 2005: US\$ 1 = R\$ 2.5



## Executive summary

Organic markets in the developed world have witnessed outstanding growth over the last decade, encouraging a large number of farmers to convert to organic agriculture. Consumers willing to buy organic products demand that they are indeed organic. Certification is a way of ensuring the integrity of organic food from seed to shelf. However, certification costs and procedures can prevent small-scale farmers in the developing world from reaching markets. Alternative certification schemes might offer farmers opportunities to overcome such constraints.

This report assesses the economic and managerial aspects of participatory certification through an alternative scheme implemented in southern Brazil. Through the ECOVIDA Agro-Ecology Network, Brazil's lead organization in participatory certification, a sample of 82 farmers from 16 farmers' groups were selected to appraise the capabilities needed and the costs incurred by farmers in complying with defined certification standards and procedures.

Similar to the situation in many developing countries, organic certified production in Brazil has exhibited rapid growth. Taking into account conventional and participatory schemes, certified land accounts for nearly 800 000 ha. Even though nearly 50 percent of this land is pasture, it still represents a significant land mass. Fruits and vegetables, sugar, coffee and grains such as maize and soybean are the main products. Such development can be explained by a favourable policy and institutional environment at the state level and by expanding export and national markets. The long-lasting work done by the agro-ecological movement has driven policy changes and the expansion of local markets.

Most organic producers are small-scale and highly diversified, providing a large number of fruits and vegetables to local and regional markets. However, the largest area is farmed by large-scale producers who specialize in a few crops and are connected to export companies. Both types of producer process part of their production to provide juices, wines, brown sugar cane or coffee to the markets. Nearly 80 percent of Brazil's organic production is located in the southern states.

The ECOVIDA network integrates more than 2 300 farmer families and their farmers' groups, 25 support organizations, 15 consumers' cooperatives, eight market enterprises and seven agro-industries in the southern states of Santa Catarina, Rio Grande do Sul and Parana. The criteria for selecting farmers' groups consider type of participation in the value chain (production, processing and/or marketing), targeted markets (local and regional) and geographical representation.

In participatory certification, the basic unit of decision-making is the nucleus, which comprises a group of farmers and consumers with support from non-governmental organization (NGO) technicians. Within the nucleus, an ethical council provides inspection, monitoring and evaluation and advice to farmers. For a farmer to be accepted in the certification process

of a nucleus, a request should be submitted to the ethical council of another nucleus. Compliance mechanisms for organic standards are delivered through training activities and group discussions. Farmers suspected of not complying with the farmers' group rules may be excluded from the network.

Critical bastions of this scheme are the identification of suitable technologies that involve farmers and technicians, and the development of alternative markets through confidence building between farmers and consumers. For these objectives, the managerial skills needed by farmers and supportive organizations are diverse and challenging. First, research on appropriate technologies should deal with the potentials and constraints in each farm setting. This demands expert knowledge from farmers, and also technological development and training methodologies from the supportive organizations. Second, to promote sustainable market relationships, farmers should organize collective sales and learn via marketing planning and quality control; the organization should provide tools on organizational aspects of the legal framework and the setting of certification norms.

The costs of participatory certification are associated with organic quality assurance and capacity building activities. For farmers, organic certification implies introducing agro-ecological technologies, participating in training and farmers' organizations, supporting monitoring and inspection systems and setting up farm accounting systems. At the farm level, costs are categorized into production, marketing and certification activities. Nearly 54 percent of costs support marketing activities, about 35 percent production, and 11 percent certification. Harvesting and post-harvest activities are counted as part of marketing, as they are difficult to analyse separately. They account for nearly 50 percent of the marketing costs, with transport accounting for another nearly 20 percent. Pest and disease control accounts for 46 percent of production costs, owing to the high demand for manual labour; fertility (mainly manure) management follows, at 39 percent. Certification costs should be analysed carefully, as they include not only fees, but also training and strengthening of associated activities.

The cost: benefit analysis at the farm level is positive and high for the total sample (2:14), although some farmers' groups are below average.

It is difficult to segregate the certification costs incurred by supportive organizations from the costs of other activities. Participatory certification is not only embedded into broader activities aimed at the enlargement of agro-ecological principles and practices, but is also undertaken in partnership with other institutions. Figures from an NGO show that of an annual budget of about US\$27 000, more than a third will be spent on developing training manuals, another third on technological development and action-research, and the remainder on establishing new farmers' groups and strengthening existing ones.

Farmers' perceptions of the benefits of organic agriculture consider more than the increases to their own incomes. Contributing to healthy eating, increasing farm biodiversity and improving the farm resource base are viewed as being just as important as premium prices or gaining skills in farm decision-making.

In general, the main constraint that farmers face is the lack of suitable agroprocessing technologies and marketing strategies to diversify their product portfolio. This requires

investments and the development of suitable partnerships with universities and research centres in order to adapt available technologies to organic products; otherwise small-scale economies may hinder the opportunities for developing agribusinesses. Farmers also see the increasing presence of supermarkets in organic markets as an opportunity, but one that involves high market risk that might destroy the previous market linkages and networks already set up.



## Organic agriculture in Brazil

### PRODUCTION

Certified organic farms in Brazil have experienced rapid growth. In 2001, there were approximately 275 576 ha of certified farms, representing about 0.8 percent of total agricultural land area (Vossenaar and Wynen, 2004). This had increased to 803 180 ha by 2003, when there were an estimated 14 000 organic producers (Lernoud, 2005). Nearly 45 percent of this area was organic pastures. When compared with the initial base of 700 farms with some kind of organic certification in 1997, these figures outline a rather rapid expansion. Organic production is calculated to be expanding by between 30 and 50 percent a year (Lernoud, 2005).

Most organic producers – 90 percent – are small family farmers linked to associations and/or social movements. Small producers are usually highly diversified, providing a large number of vegetables and fruits for local and regional markets. Exceptions to this are the small agroforestry enterprises, for which certification provides access to export markets for organic exotic fruits and palm heart (Pacheco *et al.*, 2002). Certification is relatively easy for small farms, because they are managed with natural production practices. The case is very different for large industrial producers – 10 percent of the total – that are more specialized and are connected to private companies for exports. They focus on fresh tropical fruits such as mangos and grapes, processed fruits such as orange juice, brown sugar cane, coffee, or grain such as soy and maize.

Several conditions favour the rapid expansion of organic farmers: the promulgation of national legislation on organic standards, the setting up of both public and private certification bodies and agencies, and support from local governments through training and technical assistance. The main economic conditions pushing this trend are the attractive price premiums in export markets and the rapid growth of domestic demand. The high cost of chemical inputs, most of which are imported, might also be influencing the rapid adoption of organic agriculture.

Fruits, sugar cane and palm heart stand out with nearly 50 percent of the certified organic crop area. This figure may be explained by the extractive management systems that are commonly used in the production of these crops. The greatest numbers of producers are in soy, vegetables and coffee. These crops are mainly cultivated in family agriculture-based systems with low external inputs. To supply the great demand for organic soy in the European Union (EU) and Japan, organic productive systems are being tested in small-scale farms (Pacheco *et al.*, 2002).

It is expected that the livestock sector will have more dynamic growth in the near future, with herd rearing in large pasture areas, especially in Brazil's southern states to respond to the growing export of organic meat. Currently the organic herd size is estimated at 210 000 livestock, occupying nearly 420 000 ha.

Approximately 80 percent of Brazilian organic production is found in the southern and southeastern states. In these states, the government has established policies to limit the use

of agrochemicals, prompting the increase of organic farms. For instance, in Santa Catarina, the number of organic farmers increased from about 100 in 1999 to more than 2 000 in 2001 (Prata Neves, Filho and Ormond, 2004).

## **MARKET**

The reported size of the Brazilian organic market varies according to the source used. According to certified bodies, it ranges from US\$250 million to US\$300 million, depending on system productivity and the commercial margins applied by wholesalers. According to these sources, about 85 percent of Brazilian organic production is exported, especially to Europe, the United States and Japan. The remaining 15 percent is distributed in the domestic market (Prata Neves, Filho and Ormond, 2004). Major export crops are coffee, orange juice, soybean and sugar, and a number of other products are also exported.

Internal markets are very dynamic and involve a wide number of actors and marketing systems. Some of these systems involve direct selling at fairs, in streets or via home delivery or sales to farmers' associations and cooperatives. For instance, the Porto Alegre twice-weekly fair gathers more than 300 producers and thousands of consumers. Large markets include retailers, processing industries or restaurant and hotel chains. The internal market is still considered unexplored, however, and has great potential. A potential market is represented by the 35 million people in the middle to upper class, who are increasingly aware of health concerns, as witnessed by a "light" and "diet" market estimated at US\$1.3 billion (Prata Neves, Filho and Ormond, 2004).

The driving force prompting changes is the recent entrance of supermarket chains and wholesalers into the internal organic markets. Most of these outlets are limited to sales of fresh produce, but increasingly they also include processed food with added-value such as pre-cleaned vegetables and ready-to-eat salads. For instance, organic products represented 5 percent of the fresh fruit and vegetables (FFV) sales of the Pão de Açúcar group, the country's largest wholesaler network with a turnover of reais (R\$) 11.7 billion in 2002 (Guivant, 2003). Agreements with the three biggest certification bodies, Instituto Biodinâmico (the Biodynamic Institute – IBD), Fundação Mokiti Okada and Fundo de Desenvolvimento de Pecuária do Estado de São Paulo (Agriculture Development Foundation of São Paulo State – FUNDEPEC), facilitated the launching of a quality guarantee seal for perishable (not necessarily organic) food. Indicative of this organic trend is the fact that although nearly half of national organic produce is consumed in São Paulo and nearby cities, there is still great potential for market development. Processed organic foods include ground and instant coffee, sugar, mixed cereals, jam, juices and canned fruits or vegetables. Competition from imported organic processed products is difficult because of the price differential.

## **FINANCING MECHANISMS**

Traditionally, credit agencies did not consider organic agriculture an eligible activity. Some government and private banks are now making credit available to organic farmers under various schemes. One example is the Bank of Brazil, which provided nearly US\$5.9 million of credit

to certified farmers in 1999. Certification from an accredited body provides collateral for credit approval. Loans may cover maintenance and investment costs.

The Bank of the Northeast established a credit programme to support environmental conservation activities through a green fund in 1996. Organic agriculture projects, including certification, are eligible for this green fund. Payment conditions are flexible depending on project characteristics. Other services such as training and technical assistance may also be covered by the credit. The Brazilian Development Bank has also been financing organic projects through traditional credit lines.

Another official financing mechanism that promotes the adoption of alternative agriculture is Fundo Nacional do Meio Ambiente (the National Environment Foundation – FNMA), which was created in 1989 as the Ministry of Environment's financial agent for implementing the National Environment Policy (PNMA). FNMA supports environmental projects proposed by communities, such as agroforestry initiatives to recover deteriorated areas. Since its origin, it has invested about US\$30 million in the country (see [www.mma.gov.br/fnma/capa/fnma.html](http://www.mma.gov.br/fnma/capa/fnma.html)).

An important project in Paraná in southern Brazil aims to apply ecological management principles to the vast Paraná river basin that feeds the Itaipú dam. This involves recycling, resource management, environmental education and organic agriculture programmes for thousands of villages and towns. The large bi-national organization that runs the dam and is responsible for basin management is called Project Agua Boa (Good Water Project) (Lernoud, 2005).

NGOs, such as WIDAR, and the government Programme to Support Family Farming (PRONAF) provide small loans for organic conversion. This year, PRONAF announced a 50 percent increase in loans for organic agriculture and agroforestry enterprises.

### **Technical assistance and research**

Research funds have recently become available for projects addressing organic agriculture. In 1992, the Brazilian Centre for Research and Training in Agriculture (EMBRAPA) converted a ranch and a research farm to organic status. This project is run in collaboration with the EMBRAPA Soil Center, the Agricultural Research Institute of Rio de Janeiro (PESAGRO), the Federal Rural University of Rio de Janeiro, and the municipality of Itaguaí. It provides training for post- and undergraduate students to prepare a new generation of agronomists and researchers and has attracted students from all over Brazil and abroad. The training facilities will now be expanded to include extension workers and lecturers at technical agricultural schools.

At the local level, NGOs in the ECOVIDA network provide technical assistance to farmers' groups working in organic production, marketing and processing. Sometimes NGOs are associated to universities and research institutions to undertake specific research programmes according to farmers' needs. The Governmental Agency for Technical Assistance and Rural Extension Services (EMATER) also provides technical assistance to farmers' groups in some municipalities, especially in southern and southeastern states of Brazil. During a previous intervention in Rio Grande do Sul, EMATER was oriented towards ecological agriculture in that state (Goncalvez, personal communication, 2005).

## **POLICY ENVIRONMENT**

The need for State regulation of organic production and marketing was first recognized in the mid-1990s. Such regulation has to cope with accelerating export market expansion and the proliferation of standards and certification systems. As a result, Normative Instruction (NI) 007 was signed on 17 May 1999, led by national organizations and coordinated by the Ministry of Agriculture. NI 7 defines organic systems and structures them into a national organic system comprising state and national committees. The role of the committees is to establish an accreditation system for private agencies responsible for the certification process and quality control of organic products. So far, accreditation rules have been discussed, but technical standards, rules and regulations applicable to organic products still need to be developed.

NI 006 of 10 January 2002 approved a glossary of terms related to the accreditation, certification and inspection of organic production, as well as criteria for accreditation and procedures for inspection and certification. The assembly of the first National Agro-Ecological Movement requested the Ministry of Agriculture to stall implementation of this normative because it excluded the participatory certification process, and the Organic Agriculture Group (GAO) was organized to discuss a new legal structure.

After a long discussion process in which diverse representatives of the agro-ecological movement and the public sector participated, GAO presented a new proposal, which became law in December 2003, with very few modifications. Although still pending regulation, Law 10 831 (published 23 December 2003) defines organic production along the value chain, and recognizes that different types of organic certification can exist and that certified free products may be sold directly, when subject to some control.

Recently, the National Department of Agriculture created the Organic Agriculture Sector Board as a consultant body for the Ministry of Agriculture. Organic agriculture has been defined as one of the five policy priorities, and the national organic movement is participating in creation of a policy to enhance the social organization of organic production (Chagas de Carvalho, 2004).

## Methodology

The study methodology comprised the following activities.

### **REVIEW OF SECONDARY INFORMATION**

During preparation of the report, available information on organic production, market trends and policies in Brazil was collected. It is difficult to find aggregated information on state-of-the-art organic production and the organic market in Brazil because official statistical data are lacking. Information instead comes from banks, certifying bodies, universities, NGOs and other agents with knowledge of the sector.

Calculations of the area, production and structure of the organic sector and of market tendencies are based on information collected from certifying bodies and summarized in papers available on the Internet. The ECOVIDA network provided basic information on the process and procedures of participatory certification and on how it has been considered in national organic legislation.

Documents on policies, procedures and rules governing the organic sector were collected from stakeholders in government institutions and from the ECOVIDA network.

### **DOCUMENTATION OF INTERVIEWS**

Intensive interviews were carried out to collect information from farmers' groups and other stakeholders in the ECOVIDA network. Farmers' groups were selected from three states where the ECOVIDA network has influence: Santa Catarina, Rio Grande do Sul and Parana. Farmers' groups were selected on the basis of such criteria as diversity of production and targeted markets, type of participation in the value chain and time involved in the network.

Research tools included standardized questionnaires and key questions developed for the farmers' group survey. Interviews were also carried with key people, such as the staff of NGOs and local and regional government institutions that provide technical support to farmers' groups. After collecting the data, the information was entered into a relational data management system for processing.

### **THE ECOVIDA NETWORK CASE STUDY**

The sample for the case study was selected from the ECOVIDA network, which integrates more than 2 300 farmer families and their farmers' groups, 25 support organizations, 15

consumers' cooperatives, eight market enterprises and seven agro-industries in the southern states of Brazil. The area of influence covers 170 municipalities in Rio Grande do Sul, Santa Catarina and Parana states. Organic produce is marketed through more than 100 ecological fairs and other alternative distribution channels, such as consumer and/or producer cooperatives and specialized stores.

Although the ECOVIDA network emerged only at the end of 1990s as a forum for the articulation of diverse stakeholders' views, agro-ecological practices were initiated at least three decades ago in the region. Associations of farmers producing according to agro-ecological principles increased in the late 1970s and started to participate in the construction of Porto Alegre Ecological Fair, in collaboration with other stakeholders such as consumers and ecological associations. This pioneering experience of marketing directly to final consumers is still considered a collective construction (Goncalvez, personal communication, 2005).

Farmers cultivate very diverse products for both self-consumption and sales. For analytical reasons, the study asked farmers to select only one product per farmers' group. Study results thus refer to the consensus of each farmers' group regarding the cost: benefit analysis and the managerial skills needed by farmers along the production, processing, certification and marketing chain of a specific product.

### **Associação dos Agricultores Ecologistas de Ipê e Antôni Prado (AECIA)**

This farmers' group is in the Serra nucleus and is located in the southeast region of Rio Grande do Sul. Its members produce fresh fruits and vegetables, as well as processed foods. The Serra nucleus was established in 2001 and currently comprises 16 groups of farmers. Technical assistance is provided by Centro Ecológico and EMATER Ipê.

Centro Ecológico's main activity is providing technical assistance to farmers' groups and individuals on the production, processing and marketing of agro-ecological products. Other activities include research in biodiversity management, strengthening of farmers' and consumers' organizations, training of trainers and participation in the formulation of public policies regarding rural development (Centro Ecológico, 2004).

Creating more producer and consumer cooperatives for organic products is a successful marketing strategy in this nucleus. Specialized stores have been set up in several municipalities to satisfy demand from the regional market. A quota system for associated partners covers the cooperative's administrative expenses.

For the study, the farmers from this group selected fresh vegetables such as cabbage, carrots and lettuce.

### **CAPANEMA**

This is a group of 25 farmers. Its main products are vegetables for local markets and soybean for export. This group is located in the southwestern region of Parana and is part of the Sudoeste nucleus, which associates 87 farmer families. Technical assistance is provided by ASSESOAR, an NGO with nearly 30 years of experience in agro-ecological research and technical assistance.

ASSESOAR accounts for 283 associated farmers in 16 municipalities in southwestern Parana. It provides research and technical assistance in farm management issues, including business planning, soil conservation, and pest management and diversification alternatives, as well as the planning and implementation of agroprocessing enterprises.

The main distribution channels for vegetables include specialized stores for ecological products and direct sales at twice-weekly municipal fairs.

For the study, farmers in this group selected fresh vegetables such as lettuce, cabbage and onions.

### **La Floresta**

This farmers' group comprises 17 families in the western region of Parana, close to the border with Argentina. All these farmers are engaged in agroforestry systems cultivating a diversity of food, medicine, timber and ornamental species. La Floresta belongs to the Agro-forestal nucleus, which has more than 200 members. Technical and organizational support is provided by the NGO AOPA.

AOPA's main areas of support comprise technical assistance to farmers' groups and individuals in the production, processing and marketing of agro-ecological products.

The main distribution channel for La Floresta farmers' group is the twice-weekly Curitiba ecological fair. Specialized local stores are also important distribution channels for processed bananas.

For the study, farmers in this group selected bananas, which are their main commercial product.

### **Mauricio Burmester do Amaral**

This group has 55 farmer members from the metropolitan area of Curitiba. Farmers cultivate mainly fruits and vegetables, which are either sold fresh or processed. As for La Floresta, technical and organizational support is provided by AOPA.

The Mauricio de Amaral group set up a nucleus that has been very active in establishing alternative distribution channels, such as ecological fairs in different municipalities, sales points in Curitiba, deliveries of processed ecological food to public schools, and deliveries of ecological baskets in poor neighbourhoods.

For the study, the farmers in this group selected fresh fruit (caqui) and vegetables (onion and lettuce).

**Table 1. Farmers' groups interviewed**

Nucleus	No. of members	No. of groups	Selected farmers' group	No. of farmers interviewed	Supportive NGO
Serra, RS	160	16	AECIA/Ferroupinha	10/4	Centro Ecológico
Vale do Caí, RS	80	3	Ecocitrus	15	ECOCITRUS
Sudoeste, PR	283	7	Capanema	15	ASSESOAR
Agroforestal, SC	204	21	La Floresta	10	AOPA
Maurício Amaral, PR	55	11	Various	32	AOPA
<b>Total</b>	<b>782</b>	<b>58</b>		<b>82</b>	

RS = Rio Grande do Sul.

PR = Paraná.

SC = Santa Catarina.

### ECOCITRUS

This is a cooperative NGO of ecological citrus fruit growers located in the Caí Valley in northeastern Rio Grande do Sul. ECOCITRUS has nearly 42 associated farm families, with another 150 partner families working on biofertilizers, production technology, processing and commercialization. ECOCITRUS belongs to the Vale do Caí nucleus of three subgroups; most ECOCITRUS member farmers are certified with this nucleus.

ECOCITRUS offers a large range of technical services such as production of compost and biofertilizers, agro-ecological research, social organization, technology generation, agroprocessing and commercialization. Its main financing mechanism is compost production through partnership with industries to transform industrial waste into compost. Income is generated from the fees paid by industries for the disposal of residues and from sales of compost to associated and non-associated farmers.

Approximately half of ECOCITRUS's orange production is marketed fresh at ecological fairs and supermarkets in Porto Alegre or Sao Paulo. ECOCITRUS also commercializes about 15 000 units of orange juice every month in supermarkets in Rio de Janeiro, Parana, Santa Catarina and Rio Grande do Sul.

## Participatory certification

### PRINCIPLES

The basic principles of participatory certification were developed through long-term collaboration among grassroots organizations in the agro-ecological movement. The principles are aimed at promoting farmers' sustainability and enhancing group empowerment, rather than developing market rules. Agro-ecological recovery, and equity between genders and between young and old people are essential for sustainability. Alongside these, participatory and mutually binding relationships are key issues in the creation of a new social concept. Strengthening relationships between producers and consumers to enhance local market development is crucial to the overall approach. These principles were endorsed by Brazil's Ministry of Agriculture with promulgation of NI 007/1999.

The first golden rule of participatory certification is the recovery and conservation of natural resources at the farm level, including minimizing the use of external resources. To optimize the use of natural resources, agricultural practices and management should be adapted to local conditions. At least 20 percent of the farm should be kept under native vegetation to protect watercourses and springs. The adoption of such soil management practices as zero or minimum tillage, crop rotation and organic fertilizers is also advisable. Integrated crop–livestock and agroforestry systems are also envisaged as suitable practices within this certification scheme. Farmers should follow a waste management plan and establish measures for restoring biodiversity. Clear separation of organic from conventional plots on the farm is mandatory, as is separation of the machinery and tools used for each. The inputs used for production, processing and distribution should be on the list of authorized inputs, otherwise their use requires authorization from the ECOVIDA Network technical committee.

A conversion plan should be established for the gradual conversion of all the farm to agro-ecological practices. This plan will vary from farmer to farmer, according to individual ecological, financial and technical conditions. Although the producer and regional centre should agree the conversion period in advance, a minimum of 18 months is considered sufficient for farmers who have never used synthetic inputs.

Labour standards emphasize the following of processes that use and value family labour. Should hired labour be required, workers' rights should be respected. Children and youth may collaborate with farm activities if doing so does not compromise their attendance and performance at school.

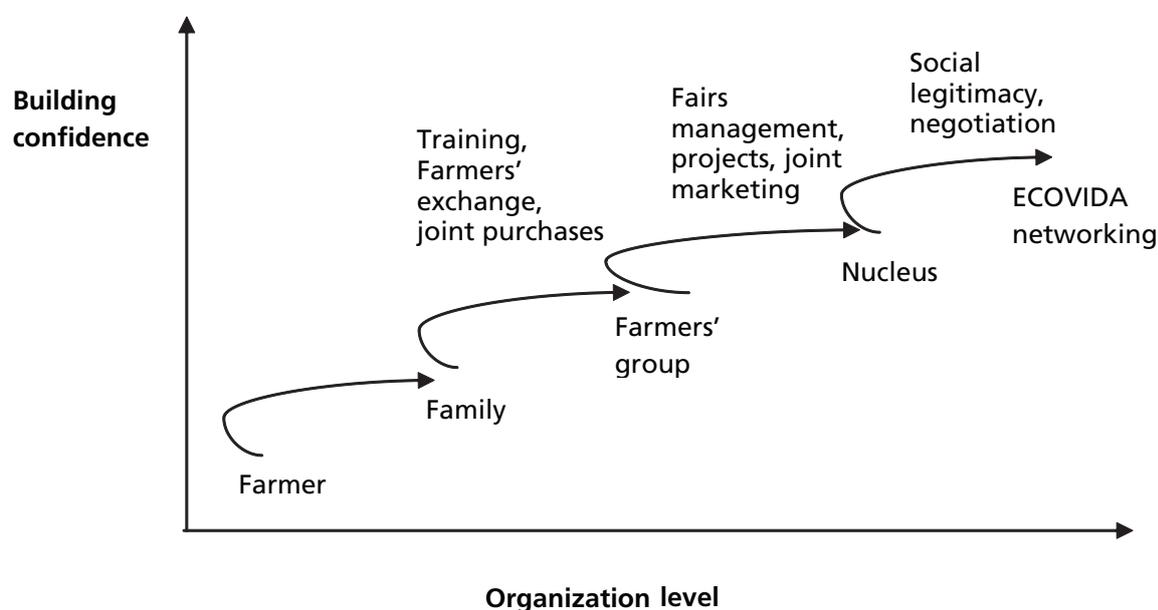
### STANDARDS AND PROCEDURES

The generation of consumer trust is the main aim of organic participatory certification schemes. As such trust is built through a participatory process, the definition of ecological

standards and the verification of procedures are jointly established by farmers and consumers. However, as indicated in Figure 1, the confidence building process starts with the assumption that farmers are telling the truth. Farmer exchanges and training broaden the quality assurance system to the local community level. It is worth noting that this process has been an empirical model for more than 20 years and is now used in the *Manual of participatory certification*.

The basic unit of decision-making in this development is the nucleus, which is made up of groups of farmers and consumers who decide when to admit new participants into the nucleus. Each farmers' group has to establish an ethical council as a technical decision-making body of technicians, farmers and consumers. The functions of the ethical council are inspection, monitoring, evaluation and advice to farmers in the nucleus. Ethical councils usually plan to visit at least three farmers a day, and should obtain fees for this activity.

**Figure 1: Confidence building through networking**



Source: Adapted from Meirelles, 2005.

As an initial step in the procedure, a request to include a new farmer in the group is submitted. This request should describe the farm and farm management characteristics. To ensure transparency, the request should be addressed to the ethical council of a different farmers' group. This council then visits the applicant farm and issues a report advising whether the new farmer can be accepted in the certification programme. The report includes an evaluation and, when necessary, an indication of the technical improvements needed. On acceptance, successful candidates are visited and monitored according to set procedures.

As well as acceptance rules, compliance mechanisms for organic standards have also been established. These are delivered through training activities such as field visits, farmer-to-farmer learning and group discussions to provide advice on good practices and farm management issues.

Should non-compliance with organic production or farmers' group rules be suspected, a farmer can be excluded from the network. Before exclusion, the ethical council of the farmer's own group follows a verification process. Farmers who have been expelled from the network can request new certification, and will be recertified if they provide evidence of having adopted the production and processing changes proposed during previous inspection visits. All farmers who comply with the requirements of participatory certification are authorized to use the ECOVIDA label, even when they are not part of the network.

### **Paperwork for certification**

Characteristics of the producer: Age, civil status, number of children, place of residence.

Farm description: Basic aspects related to soil, water and vegetation, history of the farm and geographical location.

Land-use map: Specifying organic (more than 18 months under organic management), transitional (less than 18 months under organic management) and conventional areas.

Crop production practices: The organic and conventional practices used, including types and origins of seeds, types and uses of fertilizer and pesticides, and soil management practices.

Animal production practices: The types of animals raised, feeding and veterinarian treatments, types of animal care, and treatment of manure.

Management of inputs and outputs: Use of inputs from within and outside the farm, storage management for conventional and organic products.

Processing: Processing and packing management to ensure separation of conventional from organic products.

Native vegetation and water management: Area under native vegetation, and water protection measures adopted.

Waste management: Treatment of solid and liquid waste.

Labour relationships: Health insurance systems, labour remuneration, children's attendance at school.

Market aspects: Sales of products and markets attended.

Transition plan for organic management: The process planned to establish organic production, with yearly priorities for the next three years.

Signature of the farmer:

Source: ECOVIDA Network, 2004.



## **Managerial capabilities needed by NGOs and farmers' organizations**

A basic principle underlying alternative certification is the reciprocal learning process between NGOs and farmers' organizations. Together they develop managerial skills that enable them to introduce agro-ecological principles while ensuring a quality system. Great emphasis is therefore put on training and empowering network participants to take active roles in valuing agro-ecosystems and developing suitable technologies, and to understand the certification process. Organizers need skills and knowledge in participatory research tools, design of training materials and training.

To plan and implement training activities, a set of managerial skills is needed because the final objective of the training is not only to enhance farmers' skills but also to empower them as civil actors. A broad approach, involving several different components is needed. Technological development is carried out through participatory research, which seeks to integrate farmers' knowledge and experience with agro-ecological principles. Managers also provide tools for organizational aspects, taking into account the legal framework, norm setting and certification procedures. In addition, managers must be able to enhance farmers' awareness of the importance of collective learning and identify alternatives ways of managing farmers' groups.

Specific subjects that develop farmers' skill-sets include soil fertility management, pest control, residue reduction at the production level, and identification of alternative distribution channels for marketing. Designing and implementing data collection and record-keeping complete the set of skills required. Above all, however, developing social responsibility is the key issue in the overall quality assurance system.



## Costs for NGOs and farmers' organizations

Segregating the costs of setting up and managing alternative certification from the costs of other NGO activities is quite a challenge. A first reason for this is that most alternative certification procedures have been in place for many years, having been introduced with the objective of broadening agro-ecology principles and practices. Second, the costs incurred in managing these activities can only be partially attributed to participatory certification, as they also serve other purposes. Third, several of these activities are undertaken in partnership between the ECOVIDA Network and other stakeholders, such as public extension agents, local leaders and other NGOs, and staff time and operating expenses are shared.

The costs in the following are estimates that were calculated as averages for the NGOs involved in the survey:

- *Establishment of a new farmers' group:* Among the duties that it is important to mention are research and literature review, development of technical knowledge and understanding of organizational and legal aspects. Annual costs for staff time and operation were estimated at US\$3 600.
- *Development and strengthening of farmers' groups:* Similar duties are required, so costs were also similar at US\$3 600.
- *Technological development:* The costs incurred related to participatory research, exchange of experiences, knowledge building of local conditions through farmer visits, inspection and participation in scientific events. Annual expenses were estimated at about US\$9 000.
- *Development of training manuals:* This comprises desk research, staff time and pre-testing. The estimated annual expenses were about US\$10 800.

**Table 2. Summary of costs for farmers' organizations (R\$/year, 2005)**

Item	Cost (R\$/year)
Establishment of new farmers' group	9 000
Strengthening of farmers' group	9 000
Technological development	22 500
Development of training materials	27 000
Total	67 500

### **STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT) ANALYSIS AT THE NETWORK LEVEL**

The main strength of ECOVIDA is its facilitation of a network that connects very diverse actors – farmers, consumers, NGOs, cooperatives, etc. Through such interdependent relationships, the network has been able to build social legitimacy. This strength is demonstrated by such achievements in the public arena as the inclusion of alternative certification in Brazilian legislation. Fundamental pillars of this influence are cultural diversity within the network and accumulated social capital resulting from the participatory learning process. These made it possible to build a certification scheme that is appropriate to the circumstances of small-scale farmers.

However, the available resources are insufficient to cope with the enormous demands that public recognition has brought, resulting in ineffective dissemination of information. An immediate consequence is the unequal level of training and knowledge among staff members. The fact that conventional certification does not recognize the participatory scheme also restricts farmers' access to certain markets.

Influencing public policies is a recognized way of promoting growth of the agro-ecology movement. Supporting other organizations and encouraging the development of other networks are also opportunities for the ECOVIDA Network to diffuse information on alternative certification.

The main threats and challenges faced by the network come from internal work pressures and the increased external demand resulting from public recognition.

**Table 3. SWOT analysis of the ECOVIDA Network**

<b>Strengths</b>	<b>Weaknesses</b>
Horizontal and interdependent relationships	Limited resources
Build up of social legitimacy	Lack of recognition from conventional schemes
Cultural diversity and accumulated social capital	Uneven information dissemination
Appropriateness to small-scale farmers	
<b>Opportunities</b>	<b>Threats</b>
Great influence in the public arena	Huge demand from inside and outside the network
Development of other networks	

## **Managerial capabilities needed by farmers**

### **FARM LEVEL**

The capabilities needed depend very much on the product type and stage of the value chain managed by each farmer. Given the diversity of farmers' activities, the managerial skills needed are also diverse. For instance, while some groups produce and sell fresh fruits and vegetables directly, others add value by processing, packing, loading, transporting and/or marketing processed products. Certification standards are required for each of these activities.

#### **Technological development**

At the production phase, managerial skills should be developed, particularly in adopting agro-ecological principles. Farmers should consider renewable resources that make use of on-farm resources and recycling. They should plan how to eliminate or minimize the application of agrochemicals or other materials, avoiding the overload of agro-ecosystems with nutrients. They should also identify how to manage soil and water resources in an efficient manner while reducing the use of fossil energy.

#### **Understanding agro-ecosystems**

Although most of the learning for adopting agro-ecological principles is done in groups through participatory methods, each farmer has to identify the specific production management suitable to her/his farm conditions. Factors influencing this management decision include crop type and variety, soil topography, water conditions, geographical location, and social and market circumstances. For fertility management, green and cow manure and allowed minerals perform better than competitive conventional alternatives. Soil management practices such as non- or minimum tillage combined with gentle rotation have also proved to improve soil fertility. Pest management and control rely mostly on applications of natural toxins such as ground-up plants and/or nutrients that balance nutritional disequilibria in plants, for example, ashes, lime or copper sulphate. Biochemical equilibrium in commercial and domestic crops reduces the number of applications required.

### **MARKETING LEVEL**

#### **Post-harvesting management**

The selection, cleaning, packing and transport of products to the market place are common practices for most farmers. Storage is not often utilized. Most of the farmers plan to harvest their vegetables periodically to sell as fresh produce at weekly markets. In only two of the cases analysed, did farmers also process vegetables and sell them bottled. Fruit growers also have various strategies for handling products after harvesting. Some sell directly at local fairs or to specialized organic stores in villages in the region. Others prefer to store their fruit during harvest in order to sell all their produce to regional retailers.

**Market planning**

Individual farmers' retail at weekly fairs is the most prevalent distribution channel. In this case, farmers make arrangements among themselves to maintain supplies of fresh fruits and vegetables all year round. This scheme may be combined with sales to specialized local stores or consumer cooperatives in the villages. Many consumer cooperatives and stores belong to the ECOVIDA Network through long-term relationships with producers. Supply to large-scale retailers is common for processed foods. For example, wine, grape juice, citrus juice, tomato extract and preserved vegetables are sold to the supermarket chains of Sao Paulo, Rio de Janeiro and Porto Alegre.

**Agroprocessing management**

Processing is carried out by individuals or collective enterprises. Examples of the former include wine production by two grape growers, vegetable canning by two vegetable growers, and caqui juice production. Among collective activities are the production of dried banana and the processing of concentrated orange juice by medium-scale enterprises. In these cases, farmers sell a portion of their orange or banana production to a cooperative, which processes and markets the concentrated juice or dried banana. Farmers receive dividends from sale of the produce as one of the benefits of belonging to the cooperative.

**CERTIFICATION LEVEL**

Alternative certification uses a participatory process to construct a development model that is based on the principles of a solidarity economy and respect for life. The following objectives are therefore very important: (i) adoption of ecological agriculture to sustain agro- and natural ecosystems; (ii) organization of small groups and small-scale processing enterprises to enhance the social and economic viability of small-scale farms; and (iii) search for alternative product distribution channels involving direct relationships with consumers.

**Alternative technology adoption**

The development of technological alternatives and managerial skills is fundamental to setting up alternative certification. NGOs in the network have accumulated a stock of technological alternatives to assist farmers. Instead of applying a set technology packet, every NGO researches the most appropriate technologies taking into account each farmer's interests and the particular potentialities and constraints of the farm setting. Technological supply is adjusted to suit the farmer, whose managerial skills in applying selected technologies properly are developed. Field visits, farmer-to-farmer learning and participatory discussions are used in this process.

**Organizational skills**

When setting up alternative certification, farmers participate in a learning process and acquire responsibilities within the farmers' group. The inclusion of a new member in the certification process should be endorsed by the local farmers' group, which submits an application form to the ethical council of another group asking for a formal inspection of the interested farmer. The interested farmer is aware that he/she has to contribute to the certification process by participating in various activities.

### Alternative distribution channels

Networking with consumers requires a long-term investment of time and knowledge of market opportunities. Although the supporting NGOs usually support farmers in the search for alternative channels, the sustainability of these linkages depends entirely on the farmers' availability to deliver their produce on time.

### COSTS AND BENEFITS FOR FARMERS

#### Production costs

The costs of organic production at the farm level vary slightly between the set-up and the maintenance phases. Each phase implies different management, investment and technological support.

#### Set-up costs

The following is a summary of the set-up costs. Fixed costs, such as land rent or insurance and payroll costs, are not included.

**Costs of conversion:** The conversion period has different implications for farmers according to their previous resource management systems. For farmers that used agrochemical-intensive systems, the costs may be high in terms of learning and financial resources to introduce organic inputs. As producers in the ECOVIDA Network were producing according to agro-ecological principles before certification, these costs were not significant for them.

**Soil rehabilitation:** The main measures taken by farmers include the use of perennial crops in intercropping patterns, green manure or compost to increase soil fertility. Purchases of green manure seeds (oats, pea, ervilhaca), manual cutting, transport of compost, purchases and applications of phosphates and calcareous rocks are the most significant costs.

**Yield reductions:** These are seldom reported because rather than being regarded as production losses, they are associated with different perceptions of food quality. For example, in conventional production, garlic and raspberries are irrigated with fertilizers before harvesting, which makes them heavier and more attractive than their organic counterparts. They may weigh a third more than organic produce, but the quality is likely to be lower.

**Investments in infrastructure:** These are very small, because the local physical characteristics and agro-ecological practices make little use of fences and stalls for livestock management, or of ditches and compost installations.

**Table 4. Summary of production costs at the farm level**

Set-up costs	Maintenance costs
Conversion	Fertilization management
Soil rehabilitation	Pest management and control
Yield reduction	Soil management
Investment in infrastructure	

#### Maintenance costs

**Fertility management:** To maintain soil fertility, farmers use various fertility practices. Poultry or cow manure is the most common, accounting for nearly one-third of the labour used and

more than half of fertilizer expenses. Farmers usually buy manure, and transport and treat it before application. The setting up of manure practices costs nearly a fifth more than their maintenance, mainly because it employs almost double the labour force. Set-up can also involve learning costs.

Many farmers cultivate crops such as oats and peas for green manure. The costs of these are related to purchases of seeds and cutting after cultivation. There are no significant differences between the set-up and maintenance costs for this. Calcareous, phosphate rocks and ashes are often used to correct soil acidity. In all these activities the use of machinery is common. The set-up of this practice costs almost 80 percent more for labour and 60 percent more for other expenses than its maintenance. Vermi-compost and agroforestry are very seldom practised in the region.

**Table 5. Maintenance costs for fertility management (R\$/ha/year, 2005)**

Activity	Farmers' participation (%)	Labour (workdays)	Inputs (R\$/ha/year)	Production costs (R\$/ha/year)	Investment (R\$/ha/year)
Green manure	50	3.1	16.6	70.6	
Manure	87.5	3.6	359.0	359.0	192.0
Calcareous	70	0.9	69.6	88.7	
Phosphate, ashes	70	0.7	41.8	56.2	
Palhada	19	3.7	17.0	89.2	192.0 (same)
Total		12.0	504.0	663.7	192.0

**Pest management and control:** Under organic production, pest control has to be based on cultural practices and mechanical and biological processes. The goal is to achieve ecological equilibrium between beneficial and predator organisms, which demands that farmers have great skills and knowledge regarding their own environment. Recommended practices seek to avoid major alterations or simplifications of ecosystems through the use of preventive measures.

**Table 6. Maintenance costs for pest management (R\$/ha/year, 2005)**

Activity	Farmers' participation (%)	Labour (workdays)	Inputs (R\$/ha/year)	Production costs (R\$/ha/year)	Investment (R\$/ha/year)
Manual weeding	62	11.6	17.6	233.1	
Mechanical weeding	68	3.8	0	96.4	67.06
Biofertilizer	37	1.5	43.6	75.6	
Lime	9	3.2	184.5	246.3	15.62
Copper sulphate	37	1.2	75.9	105.6	
Total		21.3	321.6	757.0	

Farmers use a combination of practices according to their needs and knowledge. Some farmers use manual and/or mechanical weeding. These practices are labour-intensive and employ about 75 percent of the total labour force for pest management, but only 5 percent of the purchased inputs. Natural substances used for pest control are usually prepared at the farm. Lime and copper sulphate are the most common fungicides, and also provide essential

nutrients that strengthen the plants' leaves and fruits without leaving toxic residues. These inputs account for nearly 80 percent of the expenses and 20 percent of the labour force for pest control. There are no differences between the set-up and maintenance costs, but farmers consider that they require more skills and knowledge to control pests under organic cultivation.

**Soil management:** Environment-friendly soil management practices have been in place for three decades in the south of Brazil. Awareness about soil deterioration motivated the rapid adoption of non- or minimal tillage regardless of farm size. This required the replacement of machinery and tillage stock, as well as the development of managerial skills. This technological change was favoured by the rapid growth of machinery service providers, and farmers' experience of the benefits to soil quality.

Very little labour is required because these practices are machinery-intensive. Most of the expenses are for fuel, oil and machinery depreciation or replacement. Investment costs are mainly to purchase tools. Farmers cultivating fruit trees or/and small plots of vegetables often practise soil stirring.

**Table 7. Maintenance costs for soil management at the farm level (R\$/ha/year, 2005)**

Activity	Farmers' participation (%)	Labour (workdays)	Inputs (R\$/ha/year)	Production costs (R\$/ha/year)	Investment (R\$/ha/year)
Direct tillage	33.0	2.7	65.6	103.6	
Minimum tillage	26.6	1.1	29.7	29.7	68.5
Rotation	53.0	2.8	9.4	61.9	
Rotative	20.0	1.7	28.9	28.9	
Total		7.7	133.6	224.1	

Table 8 summarizes production costs. It is clear that pest control costs the most in terms of labour force, while fertility management involves the highest expenses for purchased items. In general, pest control incurs the highest production costs at the farm level.

**Table 8. Summary of costs for organic production at the farm level (R\$/ha/year, 2005)**

Activity	Farmers' participation (%)	Labour (workdays)	Inputs (R\$/ha/year)	Production costs (R\$/ha/year)
Fertilization	12.0	504.0	663.7	192
Pest control	21.3	321.6	757.0	82.68
Soil management	7.71	133.6	224.1	68.54
Total	41	959.0	1 644.8	

### Marketing costs

Marketing costs include all activities from post-harvest and handling until the products reach the market place. Harvesting costs are also included in this analysis because farmers find it difficult to desegregate these from post-harvest activities. For instance, selection and cleaning are carried out during the harvest period. As all the produce is organic, selection involves only checking its physical quality; there are no conventional products to separate it from.

Packing of fresh produce is normally simple and may include the use of wood or plastic boxes, depending on the farm resources. No chemical preservatives are permitted. Packing for processed foods is more complex because only organic preservatives can be used. Packaging types should also comply with the standards established for conventional foods. The ECOVIDA label indicating that food has been organically produced usually goes with the enterprise seal.

**Table 9 Marketing costs for organic production**

<b>Set-up costs</b>	<b>Maintenance costs</b>
Investment in storage, packing, processing and transport facilities	Cleaning and selection
Development of marketing skills	Packing and storage
	Weekly transport to markets
	Loading and unloading
	Sales

Transportation facilities may be owned individually or collectively. Some farmers own small vehicles with which to deliver their products directly to Porto Alegre or Curitiba fairs or specialized stores. Some local government or church authorities support farmers' markets by lending small trucks at least once a week. Sales may be individual, but farmers share responsibilities for transport and attending sales according to defined rules. In collective sales, farmers take turns attending the group's stall at weekly fairs.

When setting up markets, learning costs and investments in infrastructure are the main items to consider. The development of marketing skills requires a long process of capacity building before results are achieved. Voluntary work is needed because the objective is not only to commercialize produce, but also to obtain fair prices for both producers and consumers. The necessary investments include trucks and pick-ups for transport, packing facilities and agroprocessing plants. These last can include sophisticated technologies such as the citrus fruit processing plant of ECOCITRUS or devices for wine production. They can also comprise artisan devices such as wood stoves, tins and packing facilities for dried banana production.

Within marketing costs, harvesting, selection and cleaning are labour-intensive activities that occupy more than half (58 percent) of the labour allocated to marketing. Other expenses are not significant (7.9 percent of the total for marketing). Transport and sales activities demand almost two-thirds (62 percent) of expenses other than labour. Among these are payments for stall rental at fairs, transport rental, fuel and oil, and personal allowances during fairs. Processing costs represent 11.5 percent of labour and 17.5 percent of other expenses.

**Table 10. Maintenance costs for marketing organic produce (R\$/ha/year, 2005)**

Activity	Farmers' participation (%)	Labour (workdays)	Inputs (R\$/ha/year)	Production costs (R\$/ha/year)	Investment (R\$/ha/year)
Harvesting	100	31.2	17.6	780.0	
Selection and cleaning	100	15.1	23.1	378.3	250.0
Storage	20	2.0	6.0	56.0	
Processing	40	9.5	87.3	323.5	1 108.0
Packing	67	9.6	60.0	300.0	326.0
Loading and unloading	67	8.7	0.0	218.8	
Transport and sales	40	5.4	318.0	451.8	429.3
Total		81.5	512.0	2 508.4	

### Certification costs

Activities involved in the certification process include training, establishing farmers' organizations, monitoring, inspection, and setting up accounting systems. These are carried out through visits, meetings, courses, field days, and other shared activities. Participatory approaches are used to identify knowledge sharing between farmers and technicians. All farmers have the opportunity to participate at various stages of the decision-making process for certification.

**Table 11. Certification costs**

Set-up costs	Maintenance costs
Establishing farmers' groups	Visits and inspection
Training in agro-ecological issues and networking	Monitoring and participation in social networking
Documentation	Ongoing training
Record-keeping	
Accounting systems	

In the participatory approach, most certification costs are for training and strengthening associative activities in terms of the time and expenses needed for visits, meetings, courses, field days and other activities. Although training and group organization account for most certification costs, these activities serve broader objectives than mere certification and would be carried out even if farmers were not certified. Through these activities, the ECOVIDA Network and associated NGOs underline the agro-ecological goals to build a socio-environmental development model. Paperwork such as record-keeping and accounting systems demands little of farmers' time and financial investment.

**Table 12. Certification costs per farmer (R\$/year, 2005)**

Activity	Labour (workdays)	Inputs (R\$/year)	Production costs (R\$/year)
Training	6.01	87.40	237.60
Group organization	5.84	71.00	194.30
Ethical Council/ECOVIDA Network	0.73	10.00	28.20
Record-keeping	0.42	0.00	10.50
Visits for certification and monitoring	1.16	14.70	33.60
Total	14.16	191.30	536.50

Of total production and marketing costs, certification costs account for approximately 11 percent of labour and other expenses. These activities incur costs for farmers' time, transport and subsistence when participating in training and organization activities, including visits to monitor and inspect other farmers' groups.

**Table 13. Summary of costs per farmer along the organic production chain (R\$/year, 2005)**

Activity	Labour (workdays)	Inputs (R\$/year)	Production costs (R\$/year)
Production	39.71	958.77	1 647.62
Marketing and processing	81.51	511.99	2 508.25
Certification	14.16	183.14	537.14
Total	135.38		4 693

### **COST/BENEFIT ANALYSIS**

The current study calculated the cost: benefit ratio by considering the revenue per hectare minus the cost per hectare. Revenue was calculated by multiplying total production, minus losses, by the market price. In cases where processing was involved, technical conversion factors were used, as well as the prices of processed products. All the data were obtained with the consensus of the farmers' group.

When fresh and processed products were involved, only the final figures are mentioned. These amount to R\$9 853/ha/year; in 11 of the farmers' groups the results were below this average, while in the remaining five groups they were above it. Only one farmers' group sold all of its products processed; seven sold fresh and processed; and the remaining eight sold only fresh produce.

Comparing the average revenue – R\$9 853/ha/year – with the average costs in Table 13 – R\$4 693/ha/year – the cost: benefit ratio is 2:14.

Other revenues, such as family consumption or income from lending farm resources, were not accounted for; neither were such costs as interest payments and repositioning of capital. The cost: benefit ratio was therefore based on gross margin analysis.

**Production benefits**

Farmers’ opinions about the benefits of organic agriculture considered more than increases to farm income. Non-economic benefits were ranked higher than financial ones. In particular, all farmers considered the production of healthy food as highly beneficial (Figure 2). Farmers were confident that they are contributing to a better quality of life, not only for themselves but also for the local communities.

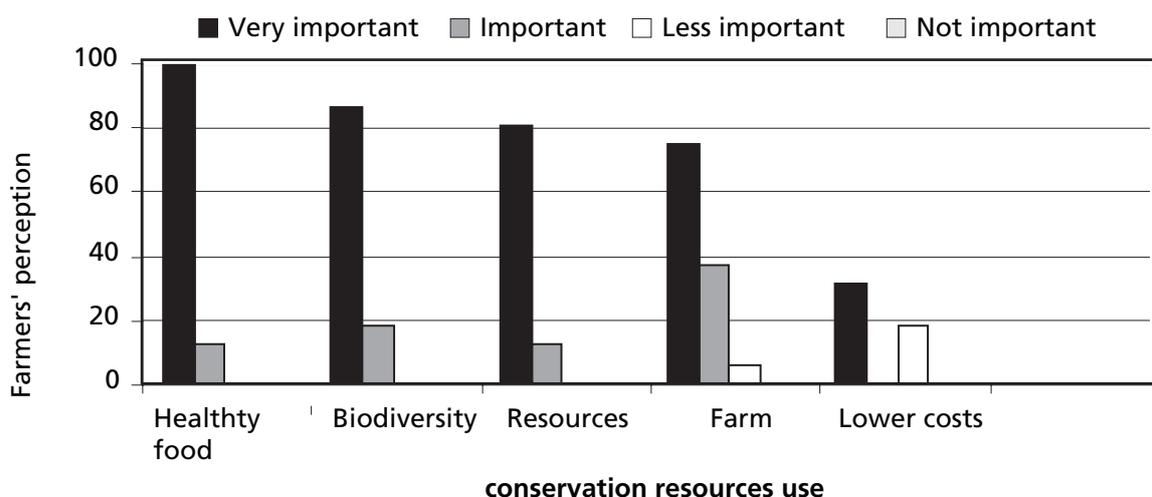
Enhancement of biodiversity was a very important benefit for most farmers, who associate a healthy landscape with sound farming practices. The presence of wild animals, birds, spiders, snakes and other predators was seen as beneficial in helping to control dangerous pests.

There was a high perception that conserving and increasing water and soil resources are important for the long-term feasibility of a farm. Among the practices that help to improve soil organic matter are the cultivation of green manure, the harrowing of straw back into the soil, and the use of manure. Minimum or non-tillage also contribute to maintaining physical soil characteristics by avoiding the direct action of sun and rain. Together, these practices help to maintain ecological equilibrium in agro-ecosystems.

Farmers also felt that there was better resource allocation on organic farms than in conventional farming. This is because of better farm planning, crop diversification, and self-production of inputs, such as for manuring and pest control. There is higher demand for labour resources at the farm level, but labour is better distributed along the production cycle.

There was less agreement as to whether lower production costs were another benefit of organic farming. For many farmers, production costs were important or very important, while for about 20 percent they were not. These differences are explained by the specific productive conditions, such as crop types, farm practices and labour costs in each region.

**Figure 2. Farmers’ perceptions of organic benefits at the production level**



### Marketing benefits

For most of the farmers, price premiums stood out as an important benefit of organic marketing, followed by self-production of inputs and reduction of intermediary intervention. These benefits derive from enhanced farm management, associative and marketing skills, and accumulated knowledge through sustained training and organization.

Price premiums are negotiated between producers and consumers. Consumer awareness and confidence that farmers are in compliance with organic standards are important elements in the market. Farmers' conviction of the benefits of organic farming and a reliable certification system support the building of this confidence. Awareness of the potential risks for health of pesticides and other chemical inputs is another driving force. Some farmers do not receive price premiums for their products because they have to sell in conventional markets.

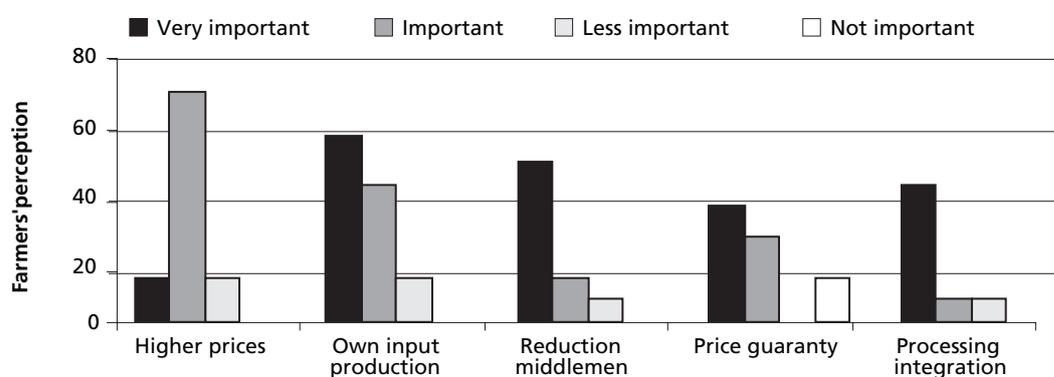
Self-production of inputs as individuals or groups was seen as a way of saving money compared with using purchased inputs. The development of technologies adapted to the specific needs of each agro-ecosystem facilitates the development of low-priced technical alternatives and improvements in farm resources allocation.

For at least two-thirds of the farmers, reduction of intermediary intervention facilitated an increase in market margins. Certification procedures make it possible to strengthen the formal linkages between farmers and consumers, creating confidence in the market place.

Few farmers appreciated that there is price guaranty. As in conventional markets, price fluctuations depend on the supply–demand situation. Product diversification in organic farming is as critical in diversifying income generation opportunities as it is in any other market.

Although they recognized the benefits of agroprocessing in adding value and reducing losses, very few farmers are able to carry out agroprocessing activities that demand the development of specific skills and investments.

**Figure 3. Farmers' perceptions of organic benefits at the marketing level**



### Certification benefits

Alternative certification is seen as helping to trigger an alternative concept of rural development. Building a strong network is considered as important as enhancing farmers' managerial and marketing

skills. By learning through participatory process, farmers improve their productive resources, while contributing to knowledge generation. The search of alternative distribution channels encourages farmers to participate more actively in developing local market opportunities.

Through the ECOVIDA Network, farmers have been able to participate in public debate to formulate public policies. The inclusion of alternative certification in Brazilian law proves the effectiveness of such public debate.

By enhancing their managerial and marketing skills, farmers become more autonomous in farm decision-making and implementation. This is facilitated by participation in the group planning, monitoring and inspection phases of alternative certification. Through exchanges with consumers in the market place, farmers are able to perceive changes and put in place production planning to respond to changing demands.

**Table 14. Farmers’ perceptions of the benefits of organic production**

Production	Market	Certification
Additional income	Price premiums	Networking
Healthy and safe food	Market access	Training
Improved farm resource management	Skills development and learning processes	Skills development and learning processes
Reduced input costs	Reduced intermediary intervention	Differentiated markets
Soil and water conservation	Local production of inputs	
Increased biodiversity	Integration of agroprocessing	

**SWOT ANALYSIS AT THE FARMERS’ GROUP LEVEL**

**Strengths**

Farm business planning and technology development in farmers’ groups are considered crucial to reinforcing individual farmers’ skills and knowledge. In essence, the permanent exchange of information and experiences helps farmers to solve their problems collectively. This collective learning process facilitates the creation of self-confidence, credibility and social responsibility, which are fundamental to participatory certification. For some farmers, establishing collective savings mechanisms was another important strength that helps them to face financial risks.

**Weaknesses**

The main weakness for most of the farmers’ groups is lack of accessible agroprocessing technologies and suitable marketing strategies and accounting systems. One example is the lack of storage technologies for agroprocessed citrus, which prevents diversification of the product portfolio. Developing this technology requires investment and research skills that are not yet available to most farmers. Farmers need to establish partnerships with universities and research institutes to create or adapt agroprocessing technologies. In agroforestry systems, farmers need to have information and technology available for production and suitable agroprocessing equipment.

For individual farmers, small economies of scale hinder the opportunities for agribusiness development. Markets that are too small become an obstacle for production growth. For a few farmers, the need to meet regularly becomes tedious, and discouraging when external agents are not

able to participate at meetings. For example, the agroforestry farmers considered that they were not mature as a group and that they required external agents to build up a development process. Finding ways of attracting interest from the younger generation could become another limitation.

### Opportunities

While some farmers' groups identified the supply of fresh organic produce to supermarkets as an opportunity for expanding organic markets, for others, the strengthening of alternative market channels through creating alliances between farmers' and consumers' groups was a challenge. In all cases, stimulating consumers' awareness of healthy products was seen as a great prospect. It is also believed that the promotion of farmers' organizations as formal rather than informal entities will improve access to credit and other financial and technical resources. Diversification opportunities for fresh and processed products were considered crucial, particularly in the case of citrus production.

### Threats

Although some farmers considered it an opportunity, sales to supermarkets were also seen as involving high market risk. Supplying food regularly throughout the year implies improved production planning and marketing systems. As there is no price premium for organic products in Brazilian supermarkets, there is no incentive to incur market risks.

Farmers also saw the high costs of post-harvest and handling activities as a threat, particularly regarding labour costs. Improving and making available post-harvest technologies for organic products would help to reduce the costs and make the sector more profitable.

Another concern regarded the behaviour of conventional producers, which may jeopardize organic production and markets. Conventional producers can carry out negative publicity against organic products or treat organic farmers unfairly. Losses of genetic material and lack of organic seed were other threats that put development of the organic sector at risk, according to some farmers' groups.

**Table 15. SWOT analysis of farmers' groups**

<b>Strengths</b>	<b>Weaknesses</b>
Participatory learning process	Lack of technological development
Collective problem solving	Limited economies of scale
Collective savings	Regular meetings are tedious
<b>Opportunities</b>	<b>Threats</b>
Access to supermarkets	Market risk of supermarkets
Strength of alternative markets	Lack of price premium from supermarkets
Increased consumer awareness	High post-harvesting costs
Product diversification	Commercial disloyalty
	Loss of genetic material

## Conclusions and recommendations

The study results demonstrate that the participatory certification system is a suitable method of ensuring organic quality for the local marketplace, and serves the interests of both farmers and consumers.

The basis for the ECOVIDA Network's success is its systemized implementation of agro-ecological principles in which farmers are encouraged to work together and improve farming practices through the sharing of knowledge and experiences. Consumers also share responsibility for organic quality through their participation in norm setting, peer review and final decision-making on certification. This contributes to building trust between consumers and producers.

The certification process is seen as a learning opportunity for those actors aiming to create better socio-economic and ecological conditions for sustainable local development. The creation of networks is a vital element of the approach. The ECOVIDA Network integrates more than 2 300 farmer families and their farmers' groups, 25 support organizations, 15 consumers' cooperatives, eight market enterprises and seven agro-industries in the southern states of Brazil.

Through long experience, the ECOVIDA Network has been able to create mechanisms for norm setting, particularly standards and procedures that suit specific social and environmental conditions, a management system that is documented and verifiable, and a regionally based organizational structure that supports farmers with technical advice, information, marketing and financing systems.

The ECOVIDA Network now faces great demands on its technical and organizational support provision, from both inside and outside the network. This has weakened its structure and led to cost inefficiencies in its functions, as reflected by uneven information and knowledge dissemination among its supportive organizations.

For the organizations in the network, the main challenges in terms of managerial skills are to develop participatory research tools that integrate agro-ecological principles with farmers' knowledge, and to provide advice on technology and organizational development.

The costs associated with participatory certification are difficult to segregate from those for organizations' other activities. Some insights suggest that the annual running costs of an NGO supporting an average of 150 farmer families are about US\$27 000, of which development of training materials and technological development account for about a third each.

Farmers cultivate a great diversity of products for both self-consumption and sales. This study analysed the costs and benefits derived, and the managerial skills needed by farmers regarding only one product along the production, processing, certification and marketing.

At the farm level, it is clear that pest control demands the highest costs for labour, while fertility management involves the highest expenses for other purchased items. In general, pest control involves the highest farm production costs.

Harvesting, selection and cleaning are the most costly marketing activities in terms of labour, while transport and sales activities demand almost two-thirds of other expenses.

Certification costs represent a high proportion of total production costs because the necessary training and group organization are time-consuming. However, these activities serve more than certification, and would be carried out even if farmers were not certified.

The average cost: benefit ratio is 2:14, which is good, although some of the farmers' group products are below this average.

## **RECOMMENDATIONS**

Three areas of interventions for institutional support are priorities for the strengthening of current network activities and performance:

- interaction with research and agricultural development centres, to identify more cost-effective technologies for pest control;
- linkages with technology development institutions specialized in agroprocessing technologies, to identify appropriate technologies that add value and extend the shelf-life of organic produce;
- awareness building of the benefits of organic produce, particularly among urban populations, to take advantage of the great potential of Brazil's domestic market.

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# **CHAPTER 4**

## **Organic horticultural farmers in Hungary**

By Anikó Juhász  
Budapest  
2005



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## Acronyms

AMC	Agrar Marketing Centre
EU	European Union
FADN Ft	Farm Accountancy and Data Network forint
GMO	genetically modified organism
IFOAM	International Federation of Organic Agricultural Movements
JAS	Japanese Agricultural Standard
KÖM	Minister of Environmental Protection
MARD	Ministry of Agriculture and Rural Development
NAEP NOP NRDP	National Agri-Environmental Plan Norms for Organic Production National Rural Development Plan
OFS	Organic Farming Scheme
SEC/SKAL SPSS SWOT	Stichting Ekomerck Controle (Netherlands certification and control body) statistical package for the social sciences strengths, weaknesses, opportunities and threats (analysis)

Exchange rate 2005: US\$ 1.26 = 1 EUR



## Executive summary

Over the last two decades, organic farming in Hungary has undergone dynamic development similar to that in developed countries. In 2004, the organic area was 129 000 ha (1.75 percent of total agricultural land) and there were more than 1 400 producers. There had been no significant change in the area structure of organic farming between 1996 and 2004. The share of grassland and cereals remained quite high (at more than 65 percent in 2004), while that of fruits and vegetables – although increasing slowly in absolute terms – was stagnating at about 5 percent. About 80 to 90 percent of Hungary's organic production (50 000 tonnes in 2003) is exported, practically all to the developed European countries of Germany, Switzerland, Austria and the Netherlands. The most important export products are wheat, maize and sunflower seed.

To summarize the general background to Hungary's organic agriculture the facts are presented in the following strengths, weaknesses, opportunities and threats (SWOT) analysis.

### STRENGTHS

- The issue of controlling and certifying organic products was solved in the early 1990s, when Hungary became a European Union (EU) third country, meaning that before the country's accession to the EU, Hungarian organic products could be exported to EU markets without further control.
- EU-compliant regulations were established in 1999/2000.
- A support system was in place between 1997 and 2002, until the EU compliancy subsidy scheme was established.
- Organic production (in terms of number of farms and area concerned) has grown significantly since the late 1980s.

### WEAKNESSES

- Quantitative growth has in general not been followed by continuous quality upgrading. The product structure of the sector is out of date; lower-risk, low added-value products (cereals) are dominant and the shares of fruit and vegetables and animal products are increasing only slowly.
- Domestic organic processing is lagging behind. The main obstacles hindering volume growth in processing are farmers' lack of capital and limited experience, and processors' lack of information about organic products and fear about low demand.

- There are opportunities for developing marketing channels. Only a narrow selection of organic products are present in the conventional retail sector; the main channels for organic produce are still specialized shops and markets. In more developed countries, the marketing channels of organic products had a similar structure in the 1970s.

### **OPPORTUNITIES**

- Domestic consumption is growing slowly but steadily.
- Further growth is also likely in the main European export markets, which have a longer history and tradition of organic agriculture and consumption.
- Significant increases in both domestic and export markets can be expected if the product structure changes and the share of higher added-value, processed and convenience products increases to satisfy the demand from conventional consumers and retail sale channels.

### **THREATS**

- Production is not adapting to the changing structure and quality of demand; even the present excellent export opportunities could be in danger.
- Market research over the last decade has not shown a dramatic change in the attitude of domestic consumers towards organic products; most people in the samples expressed interest in a healthy and organic diet, but according to their consumer preferences they could be categorized as “indifferent”.
- The main factors hindering organic food consumption (high prices, poor accessibility, limited choice) have not improved much recently, and it is very difficult to decide whether inside (preferences) or outside (price, selection) factors have more influence on the slow increase rate of consumption.

### **CAPABILITIES**

The capabilities of farmers that need to be improved are mainly economic, especially those to do with marketing. As can be seen from the SWOT analysis, controlling and certification are strengths and so are not among the most acute problems facing Hungarian organic farming. There seem to be no significant problems regarding compliance with certification, and production skills also seem to be adequate in the opinion of the farmers and experts interviewed. Regarding producers, however, there are still areas where the financial and human abilities and means needed for controlled and certified organic production could be improved.

## COSTS

In all of the cost categories analysed, organic agriculture required lower costs than conventional agriculture; the only exception was the 7 percent surplus on propagation materials in the case of family-based farms. Cost savings from organic agriculture ranged from 6 to 50 percent. Factory cost savings of organic production for family-based farms (54 percent) proved to be higher than those for large-scale farms (37 percent), mainly owing to differences in wages and animal-related expenses. This illustrates the different structures of these two farm types: family-based farms (smaller) are mainly operated by family members who do not always receive monthly wages for their work; while only larger-scale farms keep animals because of the land needed for grazing or feed production.

The fees of the two certification bodies (Biokontroll Hungária and Hungária Öko Garancia) were highest for fruits and vegetables and lowest for meadows and pastureland. During the interviews, some participants (especially smaller ones) mentioned that certification fees present a considerable burden for their farms. Such fees for fruit and vegetable producers represent an average 2 percent of total factory costs. To build up a more detailed picture, two model farms – one larger one that was already converted to organic cultivation, and one smaller farm in the conversion phase – were used to represent the whole sample of 21 farms. Exact calculations of the yearly certification expenses of these farms were made. There were no significant differences between the two certification bodies, for both farms Biokontroll had slightly higher fees: 6.3 EUR/ha or 3 percent more, and 35.7 EUR/ha or 4 percent more. There were, however, more important disparities between the two farms in terms of set-up costs, with the smaller farm paying almost the same for these as the larger farm, which was six times larger. The set-up costs for the second farm – 37.5 and 35.7 EUR/ha – were therefore about six times higher than those of the larger one. This demonstrates the importance of extra subsidies during the conversion period, especially in the first year.

## BENEFITS

In interviews, the farmers were asked about their motivation for converting to organic production. The following three reasons were given by 68 percent of the farmers:

- Ecological, environmental: more environmentally friendly production, avoidance of chemical fertilizers and protection materials, nature protection (26 percent of respondents).
- Ideological/ethical reasons: convictions (22 percent of respondents).
- Economic reasons: higher profits, organic subsidies, organic price premiums (20 percent of respondents).

The following three choices also had some importance: family health reasons (10 percent), organic farming methods already being extensively used (8 percent), and professional challenge (8 percent). When asked whether they regretted converting to organic production, all farmers replied that they did not.

## **RECOMMENDATIONS**

Possible areas for government or civil assistance are: helping farmers to overcome their conversion and marketing problems; improving the subsidy system and making it easier to use; and stimulating consumer demand for organic products.

Information and training programmes for farmers could have an important role. Some farmers are afraid to start organic production; according to farmers who were already producing organically, the main reasons for this fear, apart from financial uncertainty, is the professional challenge organic farming represents. One way of increasing farmers' inclination to convert would be to develop a consultant network operated by either members of the vertical chain (e.g., integrators, food processors, traders) or independent organizations, with possible assistance or involvement from educational or government organizations.

It is equally important to expand the domestic market and help to reach higher-quality export market segments. Domestic market development can only be achieved through a comprehensive, structured programme, which should have three main objectives:

- creating public awareness through intensive communication;
- increasing the variety and volume of goods;
- improving and widening the marketing channels for organic trade.

Informing and persuading consumers can also serve social objectives, because encouraging a healthier diet is in the national public interest and increasing organic food consumption is fully in line with this target.

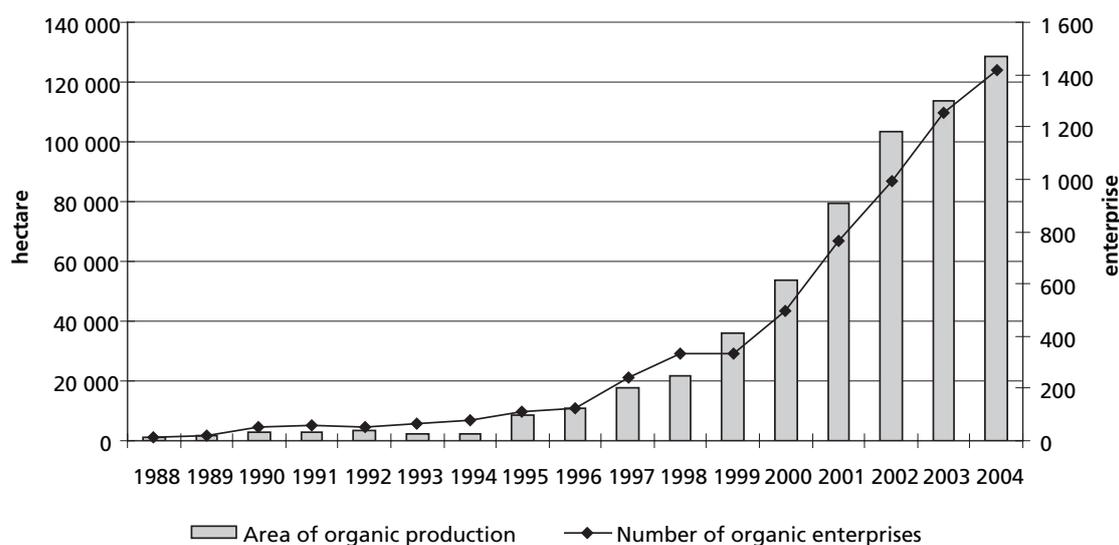
## Trends in Hungary's organic fruit and vegetable system

### PRODUCTION

The history of Hungarian organic agriculture is only two decades long. The first literature, mainly German in origin, appeared in Hungary at the beginning of the 1980s, inspiring a few farmers to start this new/old method of agricultural production. The first organic farmers – mainly on small-scale farms and for own consumption – started their operations for emotional reasons, resulting in hobby farming; the first professionals to seek market opportunities for organic production did not appear until about five years later. An important date for the Hungarian organic movement was 1983, when the Biokultura Club was founded. The club became a nationwide organization in 1987, and is now a member of the International Federation of Organic Agricultural Movements (IFOAM).

Professional Hungarian organic production was started with the help of experts from the Netherlands company, Natura, and was mainly on large-scale cooperative farms for export markets. In 1992, the area of organic farming was 7 000 ha, which had increased to 15 000 ha by 1995. At this time, about 70 percent of organic production involved large-scale farms; 40 to 50 farmers with 10 to 100 ha each produced mainly monocultures to sell to wholesalers/exporters. There were few small-scale farms (averaging 1.7 ha each), accounting for an insignificant share of total agricultural enterprises. Most of these producers were part-time farmers.

**Figure 1. Expansion of organic production in area and number of enterprises, 1988 to 2004**



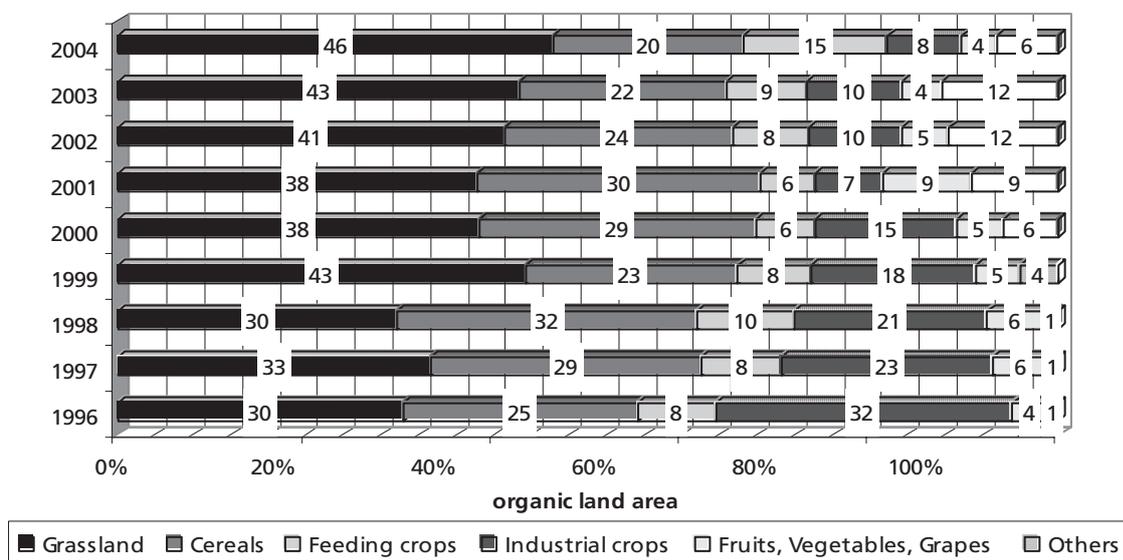
Sources: Biokultura Association and Biokontroll databases.

Since the late 1990s, and especially since 2000, organic production and the number of producers involved have increased dynamically in Hungary, as in the rest of the world. In 2004, the organic area was 129 000 ha (1.75 percent of total agricultural land) and there were more than 1 400 producers (Figure 1). This means that the area multiplied 13 times and the number of enterprises ten times between 1988 and 2004; since 2000, when centralized certification led to more reliable statistics, the increases were 240 and 287 percent, respectively.

In interviews, farmers were asked to predict what the share of organically cultivated land in total agricultural area would be in 2010. None of the farmers expected organic production to decrease, with 29 percent predicting it would grow by between 2 and 4 percent, 5 and 7 percent, and 8 and 10 percent each, and 13 percent expecting that growth would be greater than 10 percent. Given the tendencies of the past five years, the farmers' optimistic predictions may well be realized.

Between 1996 and 2004, there was no significant change in the area structure of organic farming. The share of grassland and cereals remained high at more than 65 percent in 2004, while that of fruits and vegetables, although increasing slowly in absolute terms, stagnated at about 5 percent. The main reason for this structure is that organic conversion is easier for cereals. Organic fruit and vegetable production involves more risk and higher costs because of the higher workload and the wider variety of potential pests and diseases. Another important reason is the export orientation of cereals and industrial plants, which can be transported quite easily in large volumes, encouraging many integrator companies to start operating in this sector.

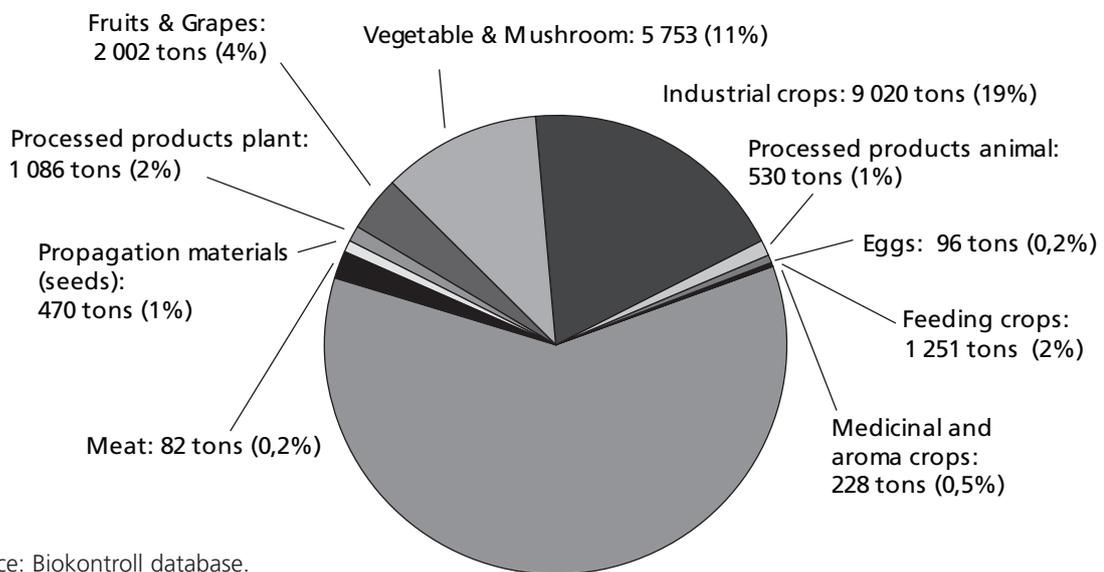
**Figure 2. The production structure of organic agricultural land, 1996 to 2004**



Source: Biokontroll database.

As well as the more complicated production methods and higher risk, the difficulties of marketing organic fruit and vegetables are another hindering factor. At present, storage, logistical and processing facilities are inadequate, so most fruit and vegetable farmers sell their products on the still limited domestic market.

**Figure 3. Structure of organic production, 2003**

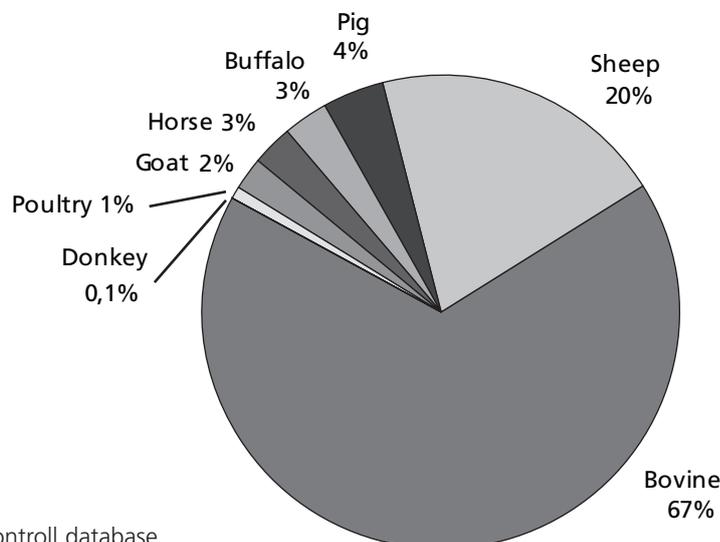


Source: Biokontroll database.

In terms of volume, however, fruit and vegetable production accounts for a more significant 15 percent share of total organic production because of the more intensive technology used. The volume shares of cereals (60 percent) and industrial crops (19 percent) are just as dominant as those for land usage. The most important differences are in the shares of animal production and grassland.

Organic animal production is lagging behind plant production, partly because policy and subsidy regulations for this sector came later than they did for plants. In 2003, 137 organic farms were keeping a total of 11 210 animals. Figure 4 shows the structure of animal husbandry, where the most important animal was cattle, followed by sheep (both are ruminants), which together account for almost 90 percent of all organic animal production.

**Figure 4. Structure of organic animal production in numbers of animals, 2003**



Source: Biokontroll database.

Compared with conventional animal husbandry, non-ruminant animals (poultry and pigs) account for a smaller share – 5 percent – of total organic animal production.

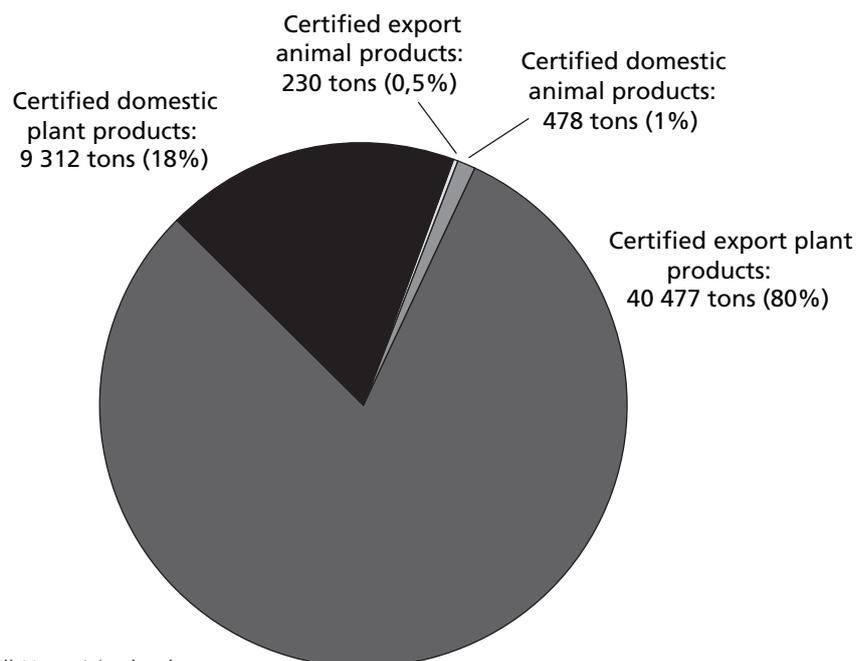
Most organic products reach Western European consumers in unprocessed form, via intermediate traders who charge commissions. Initially, processing facilities carried out occasional primary processing and lease work (quick freezing, drying of vegetables, fruits, herbs and spices, smashing, etc.).

## MARKETS

### Export

In the early 1990s, only one company, Ökoszerviz, exported organic products. The number of trading companies has since increased significantly and now fluctuates at between 50 and 100. Exports account for a dominant share of total organic production. Although some positive trends can be seen on the domestic market, it has only gained a few percentage points, and the ratio of exporting was still about 80 percent in 2003 (Figure 5).

**Figure 5. Shares of exports in total organic production, 2003**



Source: Biokontroll Hungária database.

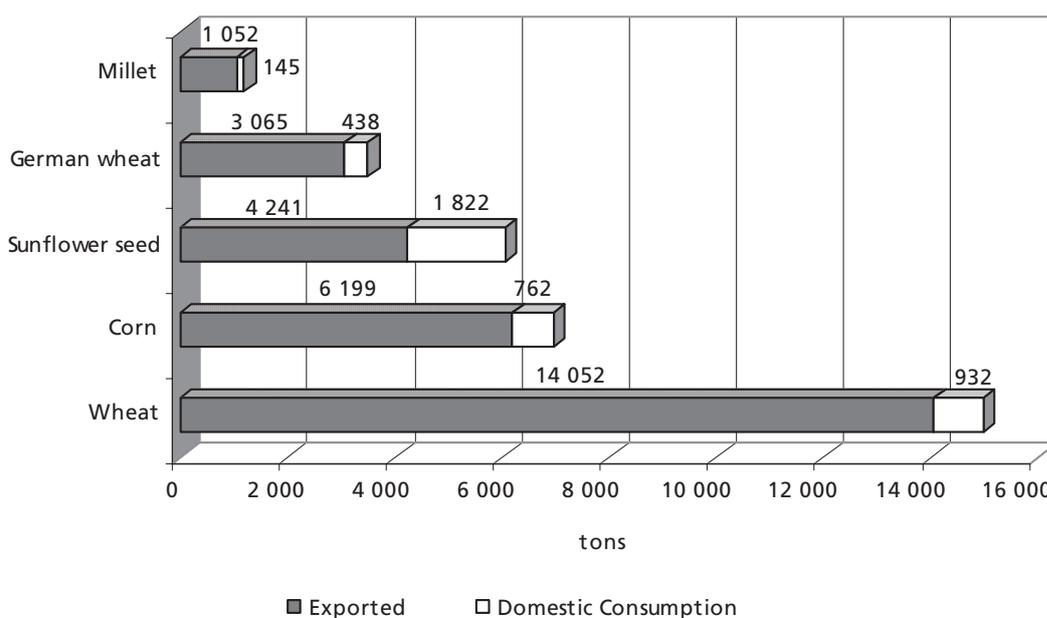
Hungarian organic exports to European Union (EU) countries were made easier in 1996, when Decree No. 522/1996 put Hungary on to the third country list, which meant products controlled and certified by Biokultura and Biokontroll could reach EU markets without further control.

The following are the main characteristics of the Hungarian organic export market in the last few years:

- About 80 to 90 percent of Hungary's organic production is exported.

- There are far more target countries for conventional agricultural exports than for organic exports; the export market for Hungarian organic products is specialized.
- While nearly all Hungarian organic exports are targeted to developed (EU) countries, a far smaller proportion of conventional exports are. This implies that Hungarian organic products can achieve better prices and can compete in more developed markets than conventional agricultural products can.
- The most important target countries for Hungarian organic exports are Germany, Switzerland, Austria and the Netherlands.
- The most important export products are wheat, maize and sunflower seed.
- Average export prices for these three products increased between 2000 and 2002.

**Figure 6. Export ratios of the most important organic products, 2003**



Source: Biokontroll Hungária database.

Among the negative factors in the structure of Hungarian organic exports are:

- the large proportion of products that are raw materials, which are usually processed in developed countries prior to re-export;
- the dominant share of crops, mainly cereals and industrial crops that are not high-value products.

Solutions for the future include:

- widening the product range to include more animal products, fruits and vegetables;
- processing organic products;
- increasing the quality;
- finding new markets, such as the United States, Japan and Israel;
- concentrating on domestic markets.

### **Domestic markets**

The available export opportunities are insufficient to stimulate Hungarian organic producers' interest in increasing their presence on the domestic market. The current small demand, high prices and distribution problems also hamper progress. Of controlled organic production in 2003, only 18 percent (9 312 tonnes) was certified as domestic plant products, and 0.5 percent (478 tonnes) as animal products. Exact data about sales numbers are not available, so the following information about the domestic market was collected from a wide-ranging literature review and organic product and price surveys from both conventional and organic shops and markets throughout the country. The information can be grouped into four categories:

- descriptions of typical consumer groups;
- price premiums for organic products;
- size of the Hungarian organic market;
- dominant market channels for organic products in Hungary.

About 10 to 20 percent of the survey sample were regular organic buyers, who are highly educated (to higher degree level), middle-aged (40 to 50 years), health-conscious, urban and more likely to be women than men. The educated, urban, younger generation is also interested in organic food consumption, but usually lacks the financial means to be regular buyers.

The general opinion about the price of organic products was that it is one of the main impeding factors for further consumption growth. Acceptable price premiums, depending on the product group and consumer segment, would be between 10 and 30 percent more than conventional food. However, quite an important share (10 to 20 percent) of the surveyed consumers stated that they would buy organic products only with no price premium. According to the study's price survey, the price premium of 25 general food items varied from 24 to 237 percent, with an average of more than 100 percent. Present prices on the domestic market are therefore too high, given the price premium acceptable to general Hungarian consumers.

The literature contained very little information about the size of the Hungarian organic market. According to what was available, organic food accounts for between 0.025 and 0.2 percent of total domestic food expenditure, implying a market of between 166 million and 1 332 million euro, and an annual per capita consumption of 16 to 131 euro. The lower and higher of these two figures are probably under- and overestimates of the current situation; a more realistic figure would be about 0.1 percent of total food consumption. A significant boost in demand can only be expected if basic value-added products are made available in nationwide conventional retailing. The bad news for Hungarian organic producers and processors is that if they do not fill these gaps in domestic niche markets, other EU countries will fill them, now that there are no administrative and custom barriers.

Examples of basic processed products that are appearing in conventional retailing include:

- dairy products under the Zöldfarm (Green Farm) brand, using milk produced by organic farmers and processed by conventional dairy manufacturers;
- bakery products from Piszke Pékség, which produces only organic products;
- breakfast cereals and fruit juices from Biopont.

Analysing the literature, the most diverse results are those that apply to market distribution channels for Hungarian organic products. This is the area where different authors' basic concepts of the issue vary the most. Almost all of these authors counted uncertified, organically produced products for self-consumption as being in the organic market. The first task in analysing these data was therefore to separate out the bought – and thus certified – production from the rest. Between 1994 and 2004, the most important market channels remained organic shops and markets, but with decreasing importance: decreasing from 40 to 30 percent, and from 50 to 30 percent, respectively. Direct sales remained marginal, at 5 percent, while conventional retail formats gained in share, rising from 0 to 25 percent. Study interviews with prominent representatives of the organic sector all gave very similar numbers: an average of 20 percent for conventional retail shops; 40 percent for organic shops; 40 percent for farmers' direct sales, including at markets (35 percent of the total); and a smaller share of 5 percent for direct sales to conventional retailers.

One of the documents analysed (Kürthy, 2001) dealt with sales channels from the point of view of farmers rather than consumers. It found that 60 percent of the farmers involved in the project used markets as direct sales opportunities, 34 percent sold their products to processors, 37 percent exported directly, 33 percent used wholesalers, and only 8.5 percent dealt directly with conventional retailers.

## **POLICY REGULATIONS AND SUBSIDIES**

### **Regulations**

The EU standardized the requirements and rules of organic agriculture in Council Decree 2092/91. In 1992, 1995, 1999 and 2000 amendments were introduced for topics such as the use of a uniform logo and labelling, import rules, and organic animal husbandry. Following EU regulation, worldwide harmonization and standardization started, leading in 1998 to the foundation of IFOAM and its standards for organic agriculture and processing. Although the IFOAM standards are not obligatory, they are promoting the gradual harmonization of national regulations.

The first national legal regulation of organic agriculture in Hungary was Government Decree 140/1999 on the organic production of agricultural products and their marketing, which was valid until EU accession. The decree is a close adaptation of Council Decree 2092/91. Common Decree 2/2000 of the Minister of Agriculture and Rural Development (MARD) and the Minister of Environmental Protection (KÖM) contains detailed standards for the general regulation (Annex 4). The amendment to decrees 2/2000 and 82/2002 includes animal husbandry standards, which were completely harmonized by Council Decree 1804/1999 of the European Commission.

After Hungary's accession to the EU, existing regulations were amended but required only minor alterations. In some areas, the Hungarian regulation was stricter than the EU one. Some of these stricter regulatory elements remained in force after accession, but other rules had to be changed. For example, in Hungary, it was the product and not the producer that was certified. Certification bodies issued permits for specific volumes of a product, and followed these through the vertical chain in a process referred to as "product-accompanying certification". This was not EU practice, and so was changed after accession.

Individual import licensing from third countries is another area where EU accession required significant change. Although the basic regulations were harmonized (according to paragraph 6 of article 11 of Council Decree 2092/91) the procedures were different when the importing country was not on the EU third country list. The following outlines the pre-accession Hungarian procedure:

- The Hungarian certification body checked the organic regulation system of the country concerned, to ensure that it was in line with Hungarian regulations (e.g., lists of permitted materials varied greatly).
- The Hungarian certification body then checked the certification body of the other country, to ensure that it existed, and was approved by the EU or IFOAM.
- The Hungarian certification body then asked the other certification body to confirm that it had certified the given product as organic.
- If necessary, the Hungarian certification body analysed the product itself before forwarding an import licence application to MARD, with a recommendation for approval or rejection.
- MARD then checked the examination material provided by the Hungarian certification body, and issued an import licence if the correct procedure had been followed.

This procedure was safe and worked quite smoothly, but it was also lengthy and slow and did not conform with EU practice. After EU accession, a new regulation (No. 144/2003) made the necessary changes, and certification was the responsibility of MARD alone. This was a significant change, because in previous years there were only about five to ten cases of organic import a year; this number multiplied after EU accession. MARD now has to solve the whole certification issue on its own, without administrative help from the certification bodies, although it has requested their cooperation and expertise.

The following are some of the stricter Hungarian regulations that remained in force:

- According to Hungarian regulations, producers must be controlled twice during the transition period; there is no EU rule about this.
- In Hungary, fodder must be controlled by the certification body.

Regulations for the following areas are likely to require changes to make them compatible with EU regulations:

- gastronomy;
- aquaculture;
- processing;
- import regulations;
- wine, rabbit breeding, fishery, game husbandry and non-food products.

### Subsidies

Between 1997 and 2001, Hungarian organic farmers could apply for subsidies for conversion, which had a significant stimulating effect on organic conversions. Although the annual 100 million forint (Ft) (474 000 euro in 1997) set aside for these subsidies was not exhausted, subsidies of 64 million Ft were paid in 1997, 54 million Ft in 1998, 33 million Ft in 1999, 50 million Ft in 2000, and 66 million Ft (26 000 euro) in 2001.

Since 2002, Hungarian organic agriculture has been subsidized in the framework of the National Agri-Environmental Plan (NAEP), which was integrated into the National Rural Development Plan (NRDP) in 2004 (Annex 5).

The main objective of NAEP and NRDP's agri-environmental measures is the formation of EU-compliant good agricultural practice that is based on the renewable use of natural resources, is multifunctional, adaptive to nature and competitive, and produces healthy products while preserving natural values, biodiversity and the beauty of landscapes. Data from NAEP show that the highest number of applications were made for the grassland usage programme, which also had the easiest eligibility criteria. The largest share of the money, however, went to the High Nature Value Area Scheme, with organic agriculture receiving the second largest share of agri-environmental subsidies.

Table 1 shows the amounts available as subsidies from agri-environmental schemes to convert land to organic farming. The amount of subsidy depends on the agricultural subsector; more is paid for orchards and vegetable growing than for cereals or grassland. Problems with organic farming subsidies have two main causes: first, because of EU accession, farmers received subsidies after considerable delay; and second the differences between conventional and organic agriculture, and between organic arable and organic fruits and vegetable are greater than the compensation made by subsidies, so subsidies do not provide sufficient incentive to change production structure (Annex 6).

**Table 1. Sources supporting the agric-environmental subsidy scheme, 2004 to 2006**

	2004	2005	2006
EU (in thousand euro)	66 710	80 030	99 110
National (in thousand euro)	16 680	20 010	24 777
Together (in thousand euro)	83 390	100 040	123 887
Rate of increase (%)		20%	24%

Sources: MARD Decrees 3/2003 and 150/2004.

## **MAIN STAKEHOLDERS IN ORGANIC PRODUCTION**

Organic agriculture has been present in Hungary since the 1980s. The first organization helping Hungarian organic agriculture – Biokultura – became a countrywide club in 1983 and a national association in 1987. Today it has 32 domestic and 13 international groups with about 1 400 members. The objective of Biokultura is to clarify trade issues for organic products: protecting producers from unfair competition, and guaranteeing the origins of organic produce for consumers. The association has been a full member of IFOAM since 1987. In December 1994, IFOAM accredited Biokultura with the control and certification of plant product processing. In 1996, Biokultura founded an independent organization – Biokontroll Hungária (the Organic Cultivation Control Public Benefit Company) – to take over certification, because EU regulations stipulate that control and certification can be provided only by independent organizations with no other functions.

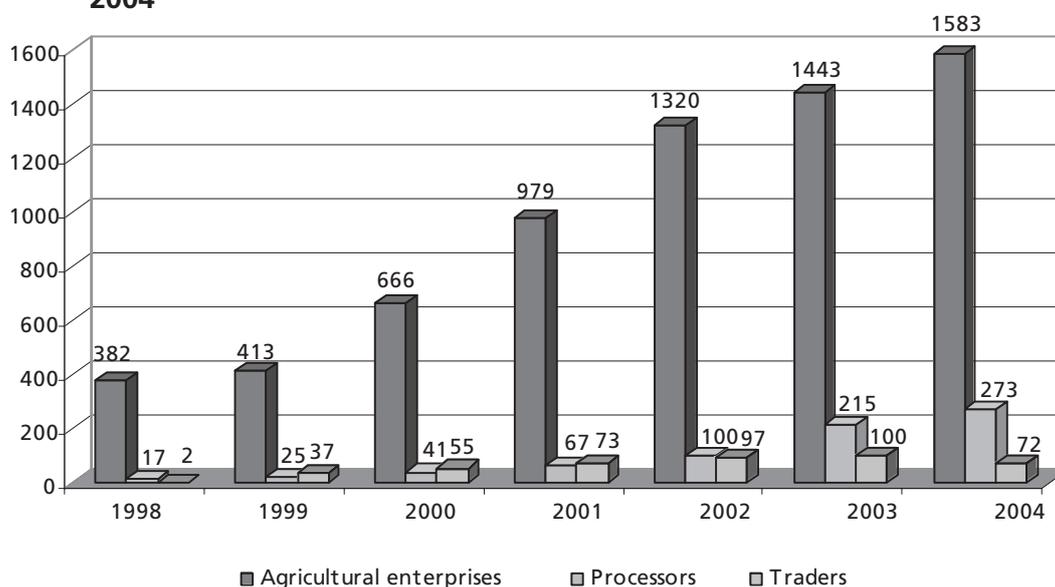
The tasks of Biokultura are to:

- support the operation and independence of Biokontroll Hungária;
- help and promote organic agriculture, and represent the interests of organic farmers;
- maintain contacts with international organizations;
- collect and interpret the results of domestic and international organic research;
- disseminate the advantages of environmental and nature-respecting life styles;
- increase the domestic consumption of organic products through promotional programmes;
- strengthen the Friends of Gardening movement to increase organic agriculture;
- provide information about organic agriculture;
- build and develop links between organic agriculture and rural tourism.

Biokultura operates the Information Centre of Organic Production, which collects and processes domestic information and takes part in Central and Eastern European networking. The Central Club of the association offers members such services as lectures, consultations and the use of a seed bank. It also organizes short and long courses on topics connected to organic agriculture for farmers, consumers and students, either at the club or elsewhere in the country. Its consultation body is called Bio-Szaktanacsado.

Biokultura is the only organization specializing in support to organic farmers. This poses a great problem, and is a possible area for future government, business or civil involvement. Certification bodies also provide voluntary and informal help to organic farmers through their everyday working relationships, but officially this is not allowed (EU rules stipulate that certification bodies must have a purely controlling profile). In the frame of its agri-environmental programme, MARD has created a chain of sample farms. These are successful farms, which receive an extra subsidy for providing access to other farmers and MARD experts. Some model farms are organic, so they will provide help to farmers interested in organic production. This is a new initiative, so it is too early to judge the success of the model farm approach. Most technical, research and extension services are available only on a full-priced business basis.

**Figure 7. Numbers of controlled enterprises according to type of operation, 1998 to 2004**



Source: Biokontroll database.

According to surveys and analysis of statistical data (based on survey results about distribution channels and other economic factors), two main groups of Hungarian organic farmers can be distinguished: smaller farms with a wider range of products (fruits, vegetables, animal products) mainly for the Hungarian market; and larger farms with monocultures (usually cereals and industrial crops) and no serious market or economic problems, which export to EU markets.

Unfortunately, compared with the number of agricultural producers, very few companies in Hungary process organic foods. This explains why most Hungarian organic exports leave the country without processing. To improve this situation and develop the home market, it would be useful to increase the amounts of processed organic products. Two types of Hungarian processing companies produce organic foods. The first type are large firms producing organic foods among other products. However, the average large food company does not tackle the challenges of processing organic foods because of the fear of lacking demand, the technological difficulties (Hungarian universities specialized in agriculture and food processing make very little – if any – reference to organic methods), and the isolation of many possible organic suppliers.

The second type of organic processors consists of small companies producing only organic foods. Their profile is not clear because they sometimes trade or produce organic foods as well as processing them. A very small proportion of their products are exported, because they cannot compete with the prices and quality of processors in developed countries. This, coupled with their mentality, makes the home market more important for these processors. Unfortunately, however, they cannot usually fulfil the requirements of modern retail chains, so organic shops and markets (including Ökopiác, the Organic Market) are their most important selling channels.

The largest, concentrated market for organic foods is in and around Budapest, where most of the important distribution channels for organic foods, such as organic shops and Ökopiác, are based. Ökopiác is a non-profit organization founded and operated by Biokultura, whose aim is to create a sales opportunity for its members. For years, Ökopiác operated in the garden of the culture house on Marczibányi Square in Budapest; this year it moved to another location in the garden of another culture house, MOM. The market is open twice a week, on Wednesday and Saturday mornings, offering a wide range of products, although the infrastructure has not yet been developed. Farmers, processors and traders pay small fees for their sales points to cover the rental cost of the garden, which is paid by Biokultura. The only condition for selling is that products must be certified and labelled as organic foods.

Small organic shops sell organic and other healthy foods. The main problem with these shops is that there are very few of them so consumers have to travel to reach them. Most organic shops are in Budapest, with only a few elsewhere, mainly in larger country towns. Another complication with these shops is their unclear profile; they sell not only organic foods, but also other types of food such as “reform food” and healthy food. This mixed profile confuses consumers about the concept of organic production, which means that only a few consumers know exactly what organic quality means.

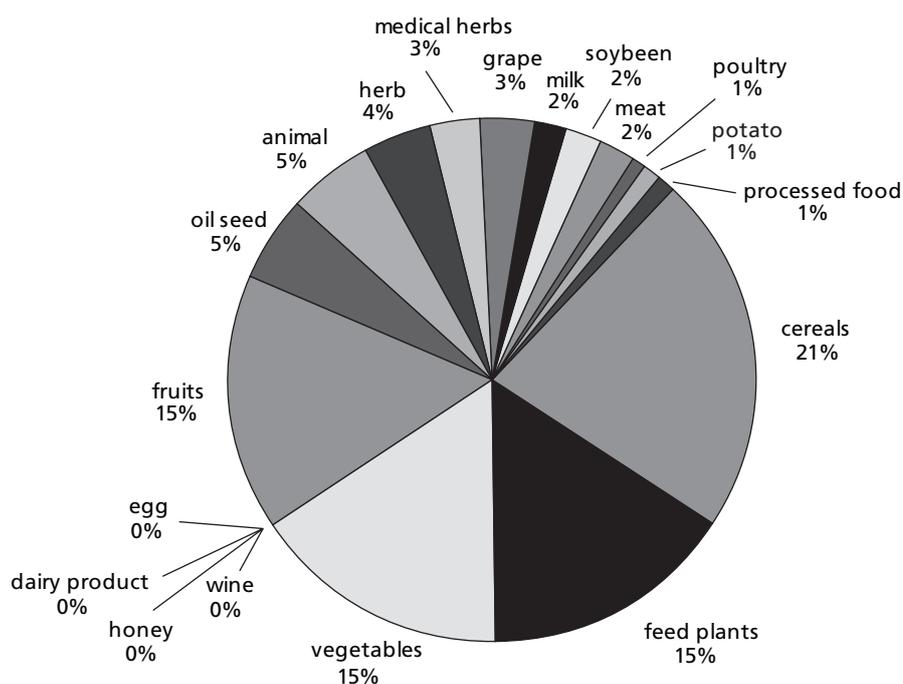
## Methodological aspects

Potential respondents to the interview questionnaires for organic farmers were requested from Biokontroll Hungária and Biokultura. Unfortunately, Biokontroll is not allowed to give out the names and addresses of its partners (farmers) and Biokultura had only out-of-date lists, so respondents were selected from the list of 627 organic farmers who won area payments for organic farming in 2001 and 2002 (published in the *Official Journal of the Ministry for Agriculture and Rural Development*).

The selection process aimed to create a representative sample according to regional location and production structure.

Regarding organic production structure, as shown in Figures 2 and 3, the production of cereals and oilseeds is very significant in Hungarian organic farming, representing about a third of the total organic cultivated area. Vegetables, fruits and vineyards cover very small shares of total organic cultivated area – 2 to 3 percent – but these products are usually produced by smaller farms, so their importance in terms of number of farms can be higher. This was proved by a survey carried out in 2001, which examined the presence of different crop products in the production structure rather than the production area. As can be seen in Figure 8, many farms produce fruits and vegetables on some of their land.

**Figure 8. Farm products according to frequency of mentioning, 2001**



Source: Own research, 2001.

After taking these factors into account, 21 farms were chosen, producing mainly vegetables, fruits and grapes.

These farms do not produce only fruits and vegetables; many of the larger ones in particular also produce cereals and oilseeds, as these products are technologically easier to produce and relatively easy to sell in the more profitable export markets.

**Table 2. Land distribution of farms in the sample**

	Land (ha)	Farms (number)	Land (%)	Farms (%)
1 to 10 ha	13	4	0,4	19
11 to 50 ha	168	6	4	29
51 to 100 ha	240	4	6	19
100 to 500 ha	1 481	5	39	24
More than 500 ha	1 890	2	50	10

Source: Own research, 2005.

The farms in the sample covered a combined total of 3 793 ha, with an average of 181 ha per farm. Almost half of the farms were less than 50 ha each, but the two large farms (of more than 500 ha each) alone accounted for 50 percent of the land area in the sample. These two large farms also had meadows and pastures, so they were not producing only fruits and vegetables on their huge areas. Typical fruit and vegetable producing farms are less than 100 ha, and usually less than 50 ha.

Statistical data regarding the production structure (Annex 1) were available, but there were no statistical data about the regional locations of Hungarian organic farms, so selection of the sample was based on the 2001 survey.

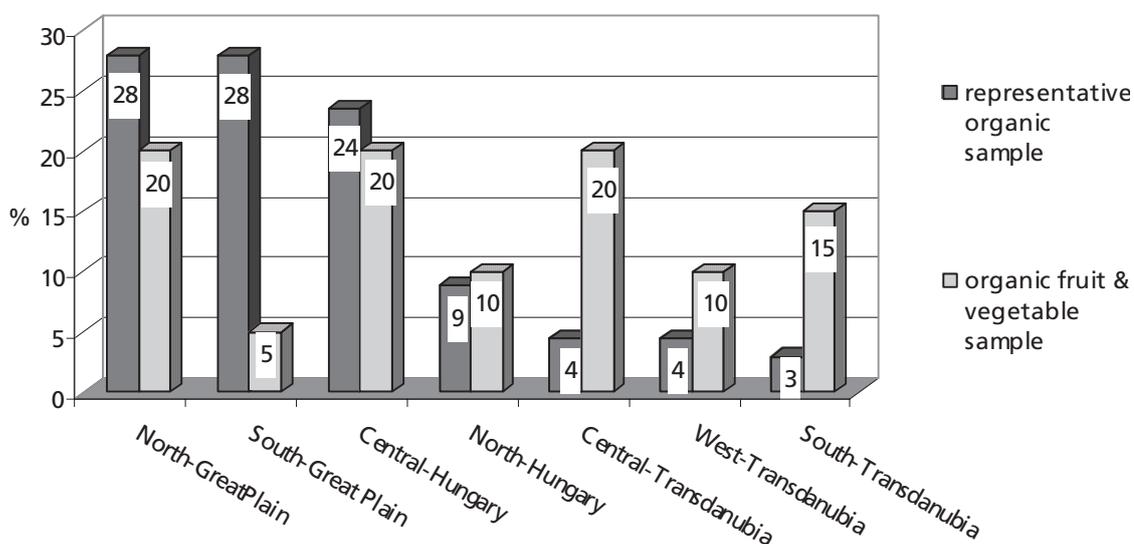
In the summer of 2001, research into organic farming was carried out for the Pro-Region Foundation. Of the 210 questionnaires sent to organic farmers, 70 were returned. Considering that there were 495 organic farms in Hungary in 2001, this means that the representation of the research was quite good; it analysed the opinions of 14 percent of organic farmers.

Figure 9 shows the numbers of organic farms in the regions of Hungary. As this division was made in 2001 for all organic production, additional consultation with experts and analysis of the list of subsidized farms were needed to match these results to the present situation, reflecting possible differences for horticultural production. The sample was modified according to these analyses, and the results are shown in Figure 9.

The high representation of Central-Hungary could be because most organic fruit and vegetable production in Hungary remains in domestic markets, the most important of which is Budapest in the Central-Hungarian region. The North-Great Plain is important because it has great production potential and is also quite close to the capital.

West- and South-Transdanubia were more important because of the large numbers of organic farms in these regions to win area payments in 2002, and also because a large factory for Hipp (the international organic baby-food producer) is located in West-Transdanubia, providing a stable market and vertical coordination possibilities for quite a number of organic fruit and vegetable growers.

**Figure 9. Regional distribution of organic and sample farms**



*Source:* Own research in 2001, with further analysis in 2005.

As well as with farmers, interviews were also conducted with representatives of main stakeholders in the organic sector, from both the administrative and the market sides.

In the farmer interviews a simple questionnaire was used (Annex 7) and the results analysed using the statistical package for the social sciences (SPSS) analytical tool. Interviews with the other main stakeholders used different sets of questions, depending on the issues for which more information was sought. The main aim of the non-farmer interviews was to gather background information that was not available from the literature.



## Background on certification

At the outset of organic production in Hungary, the first certification and control body was the Netherlands Stichting Ekomeerk Controle (SEC), later SKAL. From 1991, an IFOAM directive recommended the introduction of a national certification body in every country, and Biokultura took over certification. In 1992, of a total of about 7 000 ha of organically cultivated land, 3 500 ha was controlled by Biokultura, 3 000 ha by DEMETER, and a few hundred hectares by SEC (SKAL). In the mid-1990s, the organic land area increased to about 15 000 ha, of which 10 000 ha was controlled by Biokultura, and most of the rest by DEMETER.

In 1996, to comply with EU regulations, Biokultura founded an independent certification body, Biokontroll Hungária. The standards of certification organizations in Hungary today conform to State standards and, thus, to the standards and rules stated in EU and Hungarian regulations and laws.

### CERTIFICATION BODIES

#### Biokontroll Hungária

Biokultura founded Biokontroll Hungária in 1996 as an independent certification body to comply with EU regulations. Biokultura, being 100 percent in Hungarian ownership, is a fully accepted certification body for the EU and Switzerland. It complies with the legal requirements registered by MARD, under registry number HU-ÖKO-01.

The basic aims of the organization are to:

- control and certify those participants in the economy who comply with Hungarian rules and international regulations for organic production, processing and trade;
- ensure the transparency of market competition;
- strengthen trust between producers and consumers.

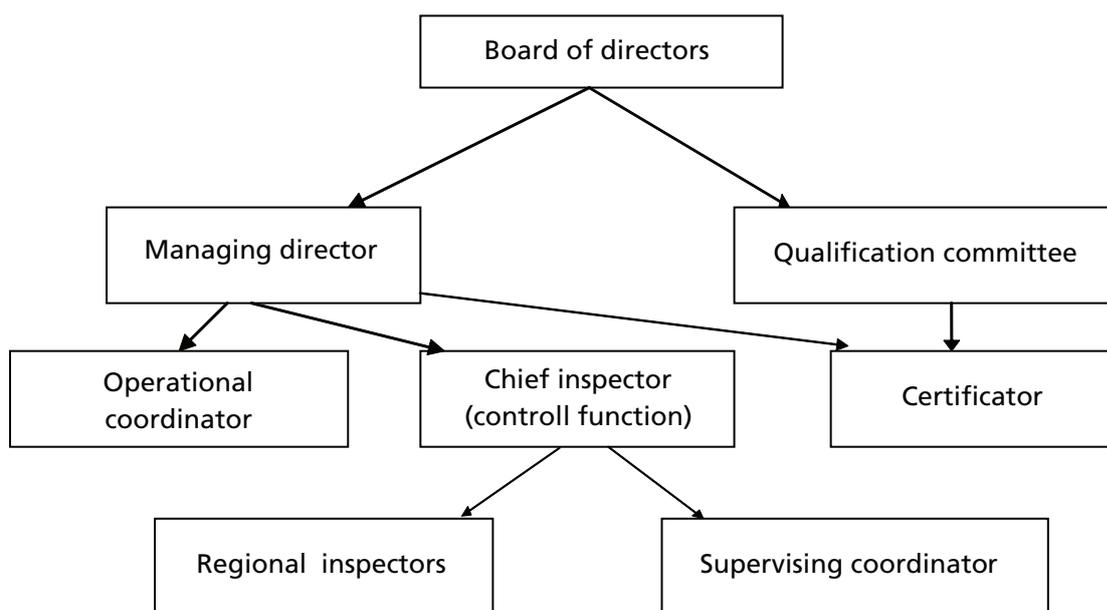
Figure 10 shows the organizational structure of Biokontroll Hungária.

The main aim of control is to follow the product through the whole supply chain from the farmer through processors and traders (wholesale and retail) to the consumer. According to these stages, Biokontroll Hungária groups the certified companies into the following categories:

- Producer:
  - agricultural producer;
  - beekeeper;
  - collector of wild plants.

- Processor.
- Importer.
- Producer and processor.
- Processor and importer.
- Producer and importer.
- Producer, processor and importer.
- Trader.

**Figure 10. Organizational structure of Biokontroll Hungária**



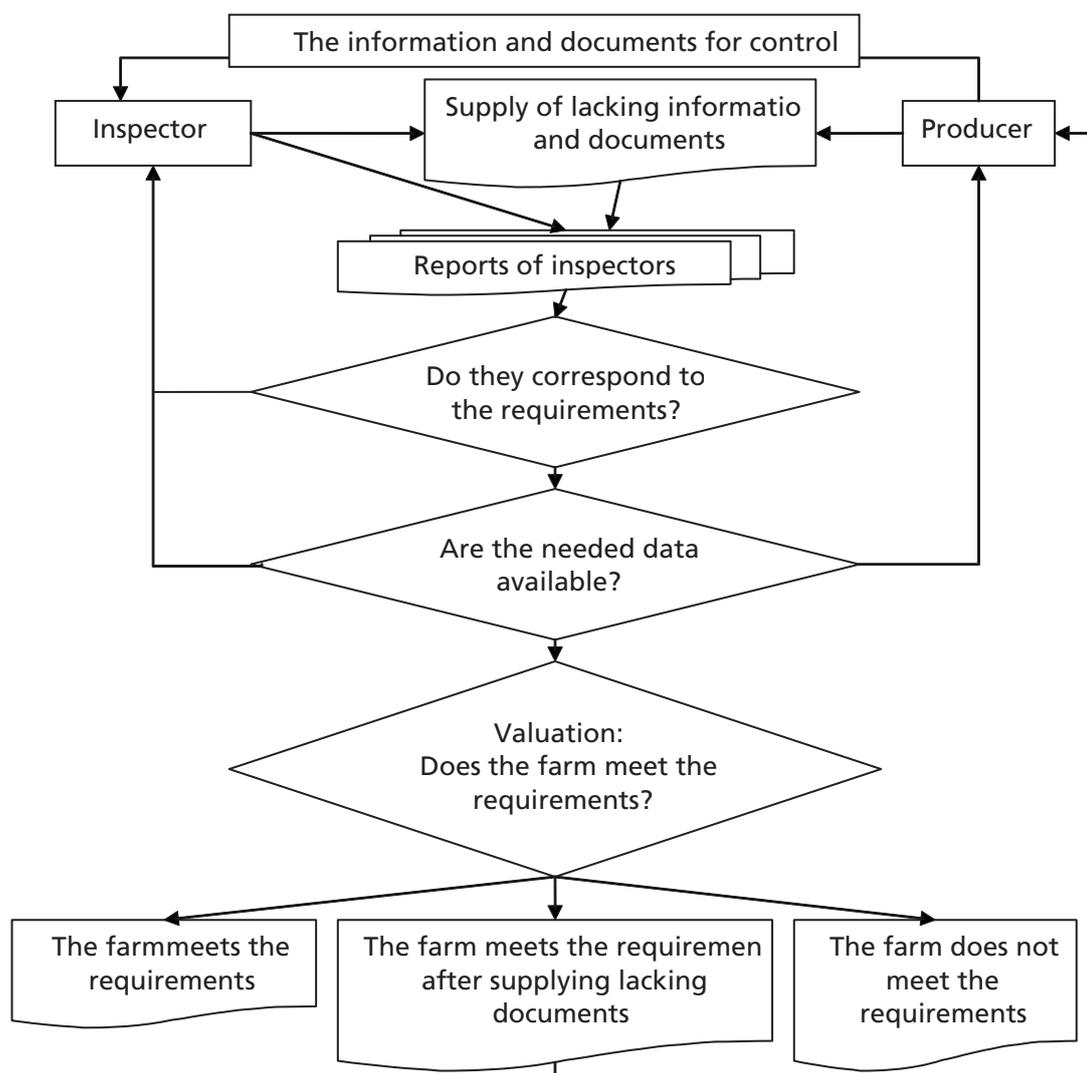
Source: Biokontroll Hungária. Quality Control Handbook.

The process of applying for certification begins with the filling out of a registration form. Biokontroll Hungária acknowledges receipt of registration with one copy of the contract and the first invoice for the control fee. An inspector visits the farmer according to the rules, and makes reports, which are analysed at Biokontroll headquarters. The protocol of control is summarized in Figure 11.

Biokontroll Hungária issues the following certification for compliance with the rules of organic production:

- Enterprise certification verifies that the farmer's work is in compliance with the rules of organic production. This certification is sent automatically after the inspection.
- Product certification verifies that the product, as described in kind and in volume on the certification, was produced by an enterprise complying with the rules of organic production. This certification is sent only on request and includes a clear description of the buyer. This type of certification is no longer used for intra-EU exports and imports.

Figure 11. Biokontroll Hungária's control and certification protocol



Source: Biokontroll Hungária. Quality Control Handbook.

Biokontroll Hungária also controls and issues certification for foreign labels and certification systems, such as BioSuisse, Naturland, DEMETER, the Soil Association, Norms for Organic Production (NOP) and the Japanese Agricultural Standard (JAS).

Infringements of rules carry the following five degrees of penalty:

- *Written warning*: For failing to satisfy administrative requirements, or delay in providing production data. *Consequence*: substitution of the deficiency followed by a substitution inspection (+ 5 percent of certification fee).
- *Strict warning*: For failing to satisfy administrative requirements, delay in administration, or small contravention, such as use of non-organic seeds, too high nitrogen content, or too much copper content in plant protection. *Consequence*: substitution of the deficiency, plus penalty, followed by substitution inspection (+ 10 percent of fee).

- *Prohibition of use certification for an item of organic product* (this has not been used since 2004, because products are no longer certified): For failing to satisfy administrative requirements, delay in administration, more serious contravention, such as inadequate separation during production or storage, use of non-organic seeds, small contravention in fertilizing, plant protection or animal breeding. *Consequence*: penalty, prohibition of use certification for the organic product concerned, and informing of MARD, followed by substitution inspection (+ 15 percent of fee).
- *Restarting of conversion period*: For a serious contravention, such as inadequate separation during production or storage, use of genetically modified organism (GMO) seeds, contravention in fertilizing (using prohibited fertilizers), excessive doses of permitted plant protection methods, serious contravention of rotation or animal breeding. *Consequence*: restarting of the organic conversion period, penalty, and informing of MARD, followed by substitution inspection (+ 20 percent of fee).
- *Dissolving of the contract*: For a very serious contravention such as failure to provide production data, production of GMOs, inadequate separation during production and storage, use of GMO seeds, use of artificial fertilizers, use of forbidden plant protection chemicals, serious contravention of rotation or animal breeding. *Consequence*: dissolving of contract, and informing of MARD, followed by substitution inspection (+ 30 percent of fee).

### **Hungária Öko Garancia**

This certification body is fully accepted by the EU and Switzerland. It complies with the legal requirements registered by MARD, under registry number HU-ÖKO-02. Hungária Öko Garancia was founded by Austria Bio-Garantie (AT-N-01-BIO) and BCS Öko-Garantie (DE-01-Öko-Kontrollstelle), the leading certification bodies of Germany and Austria. It is a Hungarian legal entity accredited according to Hungarian regulations because foreign certification bodies can work in a country only with verification from the national authority (MARD).

Hungária Öko Garancia follows a similar procedure and penalty system to that of Biokontroll Hungária. As it was founded only a few years ago, it controls significantly fewer farmers and less area. It also undertakes controlling and certification according to the specifications of BioSuisse, Naturland, Demeter, NOP and JAS.

### **PRIVATE STANDARDS AND LOGOS**

It is important to emphasize that alongside generally applicable EU and State regulations and logos, there are also private standards; so there are two levels of regulation and certification in the EU. EU standards establish the basic minimums for organic agriculture, and compliance with these rules is a main criterion for participation in EU subsidy systems. Products of a quality that is higher than the EU standards, can use the logo of a more stringent certification body, as long as they are produced according to the standards of that body. The use of such logos is an important marketing tool, creating an attractive image for the products associated with them. On the other hand, Hungarian exporters and some importers have found that private standards and regulations can sometimes be impediments to the development of

foreign trade. There have been examples of Hungarian products that may compete with domestic products being discriminated against during import licensing procedures because they do not have the logo of a private body (e.g., Biosuisse, DEMETER, Naturland and the Soil Association), even though they comply with EU and national regulations. When there is a producer group behind a private logo, it is natural for that group to protect the market position of its own producers.

It is difficult to decide whether compliance to national or to private standards is more important, and much depends on the country concerned and on the certifying body that consumers trust the most. For example, in Germany, Denmark and France, the State logos are strong, while in Switzerland, the United Kingdom and Austria, private logos have a more important role. Organic products with one or more of these private logos can obtain a better position on foreign markets, and higher prices.

The ranking of private standards according to the experts interviewed is as follows:

- Biosuisse;
- Soil Association;
- Naturland;
- DEMETER.

In Hungary there are no private logos or standards. Biokultúra's logo can be used by any producer who has been controlled by Biokontroll Hungária and pays to use the logo. According to consumer interviews, only consumers who have been buying organic food regularly for many years know and appreciate the Hungarian logo.

### **State logo**

MARD plans to issue a State logo. Agrar Marketing Centre (AMC) is coordinating this work and has presented a logo design to a jury for selection. AMC wants the logo to be a voluntary way of informing consumers and gaining consumer confidence in order to develop the domestic market, which is too small compared with the export volumes. Experts fear that very strongly export-oriented organic production is too vulnerable to the saturation of foreign markets or the appearance of competitors, as is already the case. AMC is starting to coordinate a promotional campaign, similar to that for the Excellent Quality Hungarian Food logo and standards, with educational and marketing components. The budget for this campaign has not yet been planned.

The eligibility criteria for use of the logo will be compliance with certification bodies that use the State, EU-compliant standards and regulations and that have a permit to issue licences from MARD. As a State logo, its use will be free and voluntary. The rules governing product origin are still being discussed as it has to be decided whether the logo will be awarded to any product entering the market after some kind of manipulation in Hungary or only to those products that contain a minimum percentage – e.g., 80 percent – of elements produced in Hungary. The aim is that the State logo will make safer and organic products more easily recognizable. This is important because product labels can be misleading. State logos are successful when they are well-known and consumers trust them, and this can only be achieved through promotional campaigns.

### **POTENTIAL FOR FARMERS' ORGANIZATION CERTIFICATION SCHEMES**

The main hindrance for farmers' organizations to obtain State accreditation as certifying bodies is the EU requirement that such bodies be independent and have no other functions. The only way round this challenge could be for farmers' organizations to operate a private logo and standards system (complying with and demanding more than the EU standards), such as that of DEMETER, etc. However, according to experts in Hungarian organic agriculture, such a system has little sense or possibility given the expenses involved and the very minor advantages over existing certification bodies.

The following are two options for further development:

- Biokultura is planning to develop standards that will be stricter than its existing EU-compliant scheme. Use of the Biokultura logo would then depend on compliance with these standards, and not just on certification from Biokontroll Hungária and payment of a usage fee.
- Some organic processors use their own brand names as logos (Hipp or Biopont). Hipp produces considerable quantities of organic baby food in Hungary according to its own control process, which includes an extended list of forbidden compounds and laboratory examination of samples from every production lot.

## **Capabilities needed by farmers to comply with organic certification standards and procedures**

Before they become controlled and certified producers, farmers have to undergo a conversion period, which besides clearing products biologically also serves as a test period of the farmers' competency. The new challenges faced by the converting farming can be grouped into two categories:

- Ecological tasks:
  - improving soil productivity;
  - changing the production system.
- Economic tasks:
  - new marketing strategy;
  - new production technology;
  - new human resources;
  - new administrative requirements.

Farmers preparing themselves for the new problems should draw up conversion plans and send them to the certification body for acceptance. According to international practice, the conversion plan has four main compulsory elements:

- a rotation plan;
- manure handling and compost production technology;
- technological design of cultivation;
- changes in the number and variety of animals.

As well as these compulsory elements, farmers planning to convert are also advised to prepare a detailed plan for the following economic issues:

- present situation of the farm;
- available human and financial resources;
- capacity and quality of buildings and storage facilities;
- arrangements for marketing new organic products.

In Hungary, however, very few farmers draw up such conversion plans, according to an expert from Biokontroll Hungária. Annex 8 gives the eligibility criteria for acceptance as an organic farmer, which Hungarian organic farmers have to comply with. The criteria are grouped into four categories:

- natural criteria: minimum land area, etc.;

- production method criteria: soil nutrition plan, good agricultural practice, etc.;
- administrative criteria: registration, compliance with national organic farming law, etc.;
- competency criteria: minimum of one training session and two inspections per year, etc.

These are the minimum conditions for organic farmers participating in the organic farming and agri-environmental subsidy schemes.

The farmers interviewed for this case study did not mention serious problems with professional skills (ecological and production tasks) as obstacles to further development or certification, but almost all of them mentioned some kind of economic problem – especially marketing and financial (subsidy) deficiencies and, less frequently, the instability and high cost of labour.

Three questions in the interviews concerned the possible obstacles to organic production, each offering a choice of four answers. The first question concerned four types of obstacle: labour, capital, land, and others (including marketing problems). The most important type of problem was the market situation for 15 percent of respondents, lack of capital for 13 percent, lack of labour for 10 percent, and expense of labour for 8 percent. The second question concentrated on market issues and found that the most important marketing problem was the lack of proper demand (according to 41 percent of respondents), followed by difficulties in finding and entering marketing channels (35 percent), and compliance with quality and other requirements (13 percent). The third question asked farmers to describe how they saw their main problems in organic production. In this case, the most frequently mentioned issue was low or inadequately distributed subsidies (25 percent of respondents), but the second and third most frequent answers were again related to marketing problems: unfavourable consumer preferences (15 percent) and lack of demand (11 percent).

The correlations between the main problem areas and the four basic characteristics of the farm (its area, when organic production began, and the age and education level of the farmer) were also analysed. No correlations between these characteristics and the problems mentioned were found.

Although none of the farmers mentioned certification or its requirements as a problem area, in the third, free answer question a few related issues emerged:

- two mentions of bureaucracy, one farmer mentioned it as the first issue;
- one mention of strict regulations, also in first place;
- three mentions of lacking information and consultation.

The fact that certification and compliance with regulations is a comparatively small problem is reflected by the penalty cases of Biokontroll Hungária. In 2003, there were 694 penalty cases and 4 635 certifications (of enterprises or products), making penalties about 15 percent of certification. Most faults (85 percent) could be corrected (e.g., by providing missing information). In 12 percent of the penalty cases the product was not certified as organic – meaning that 89 products were denied compared with 4 337 certified, a proportion of about 2 percent denials. Only in 4 percent of the cases were farms excluded from organic production, either by dissolving the contract (1 percent) or by restarting the conversion period (3 percent).

This means that 24 farms were excluded compared with 1 255 in operation, again a proportion of about 2 percent.

The organic farms in the sample faced similar difficulties, regardless of their size and experience. The capabilities that farmers need to improve are mainly economic, especially marketing-related ones. There seem to be no problems with compliance to certification, and production skills seem to be adequate in the opinion of the interviewed farmers and experts. Areas for possible government or civil assistance were identified: helping farmers to overcome marketing problems; improving the subsidy system, or at least making it more easy to use; and stimulating consumer demand for organic products.



## Costs and benefits of organic production

### COSTS AND BENEFITS AT THE FARM LEVEL

During the interviews, real difficulties emerged concerning questions connected to costs and profits. Most participants were unwilling to give exact cost and profit data, as they stated clearly before the interviews were conducted. Other questions were therefore designed to investigate the general financial situations of the farms. Data published in the literature, and organic farm data from the Farm Accountancy and Data Network (FADN) were also used.

Several Hungarian and international literature sources dealing with the costs of organic production were found, but few gave exact figures per hectare. According to the interviews, the cost increase is generally between 10 and 15 percent, depending on the characteristics of the farm. The income level proved to be almost equal to that of the preconversion period, because the decreasing factors were usually levelled by organic price premiums and subsidies. The decreasing and increasing factors in cost and income are summarized in Table 3.

**Table 3. Increasing and decreasing factors for costs and income of organic agriculture**

Cost		Income	
Increasing	Decreasing	Increasing	Decreasing
Special soil improvement	Plant protection chemical costs	Organic premiums	Lower yields
Special propagation material	Artificial fertilizer costs	Subsidies	Lower marketable volume (quality problems)
Change of production system			
More intensive labour			
Certification/administration			
Special marketing activities			

Sources: Literature and interviews.

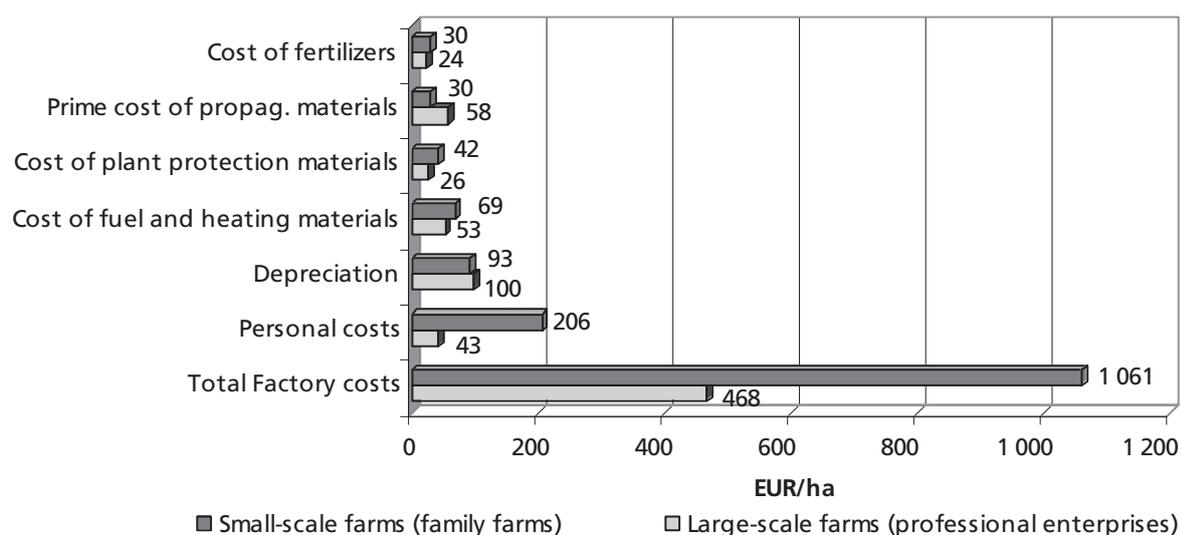
The general opinion was that conversion to organic production results in some degree of cost saving, mainly owing to decreased costs for chemicals (fertilizers and plant protection materials). Cost increasing factors included increased labour and mechanical working costs. Certification and special marketing activities also add to the costs. Production according to private (foreign) standards costs more than the basic Hungarian certification, but the market sometimes makes it necessary or profitable to acquire private certification (e.g., for special export opportunities).

The most important income decreasing factors are lower yields and lower marketable quantities because of quality problems. According to the interviews, volumes decreased by about 15 to 20 percent, but several of the 21 farmers interviewed stated that their yields had remained almost the same since conversion to organic. The significance of these factors depends greatly

on the natural resources of the organic farm and the type of crop produced. In general, in areas with unfavourable natural conditions, especially frequent droughts, yields do not vary much between organic and conventional farms. In these areas, organic agriculture can be cost-saving and profitable compared with intensive production methods. Certain plants and cultures react better to organic production, while others need more complicated and costly production methods or their yields will be at risk. The best examples of this latter category are certain fruits and vegetables, such as apple orchards or greenhouse vegetable production, which can be technologically difficult and thus costly to maintain organically.

FADN data were used as the basis for estimating and analysing the costs of organic production. The use of the FADN system was possible because it included 20 – mainly fully – organic farms in the Hungarian system. The FADN database also made comparison with the results of conventional farming possible. Results were checked against expert opinion and information from the interviews. This was essential because of the low sample number and the natural differences in the cost structure of different type of products.

**Figure 12. Cost data of organic farmers (EUR/ha, 2002)**



Source: FADN database.

So that organic farm data could be compared with those of conventional agriculture, the organic farms were separated into large-scale (professional) and small-scale (family-based) categories. As in conventional farms, the cost data of these two categories differ considerably. Total factory expenses were more than double for large-scale organic farms (1 061 EUR/ha), but still considerably lower (by 37 percent) than those in conventional agriculture (see Annex 9).

Six cost categories were analysed that together account for about 55 to 65 percent of total factory costs. The most important cost category for large-scale farms was personal costs (206 EUR/ha), which was in fourth place for family farms. Depreciation was almost equally important for both farm types (93 and 100 EUR/ha, respectively), while on family farms, propagation material was a very important cost (58 EUR/ha), mainly because small, family farms are not able to produce propagation material themselves.

In all of the cost categories, organic agriculture required lower costs than conventional agriculture, with the one exception being propagation materials for family farms, which were 7 percent higher for organic than for conventional farming. The cost savings due to organic agriculture ranged from 50 to 6 percent. Factory cost savings for family organic farms (54 percent), were higher than those for large-scale farms (37 percent), mainly because of lower wage and animal-related expenses. This illustrates the different structures of the two farm types: small family farms are operated mainly by family members who do not always receive payment for their work; and only larger enterprises keep animals because of the land needed for grazing and feed production.

Interestingly, the FADN data did not register the expected increases in labour and mechanical expenses (Table 3). The reason for this was connected to the production structure of the FADN sample, most of which were farms producing cereals. These need less labour and mechanical work than do, for example, fruits (in post-harvest) or vegetables (in cultivation).

**Table 4. Costs of organic conversion and certification (EUR/ha, 2004)**

		Registration (EUR/farm)	Arable land <sup>1</sup> (EUR/ha)	Orchards <sup>2</sup> (EUR/ha)	Feeding crops (EUR/ha)	Fallow (EUR/ha)	Meadow (EUR/ha)
Bio- kontroll	In conversion	Yearly certification fee	9.1	17.5	6.0	4.0	0.7
	Converted	-	7.9	14.7	7.9	2.4	0.5
Öko Garancia	0–49 ha	99	5.6	15.9	5.2	4.0	0.8
	50–99 ha	127	5.0	14.3	4.6	3.6	0.8
	100–149 ha	183	4.5	12.7	4.1	3.2	0.7
	150–299 ha	266	3.9	11.1	3.6	2.8	0.7
	300 ha and more	433	3.3	9.5	3.1	2.4	0.6

<sup>1</sup> In the case of Biokontroll, vegetables produced on arable land also pay this fee.

<sup>2</sup> In the case of Öko Garancia, vegetables producers also pay this fee.

Sources: Biokontroll Hungária and Öko Garancia.

FADN does not collect data on certification costs, so information from Biokontroll Hungária, Öko Garancia and the farmer interviews was used (Table 4). According to interviews with experts, in addition to the registration fee, the costs of converting to organic agriculture also include 400 EUR/farm for compulsory soil analyses and production plans.

The fees of the two certification bodies are highest for fruits and vegetables and lowest for meadows and pastureland. This fee structure reflects the different expertise and labour needed by the different production types. During the interviews, some participants mentioned that certification fees represented a considerable burden for their farms. Although these fees were not among the highest expenses involved, for fruit and vegetable producers they represented an average of 2 percent of total factory costs.

In order to identify exact certification costs, two model farms were selected to represent the whole sample of 21 farms. The yearly expenses of both these farms were calculated exactly for both certification bodies (Table 5):

- Farm 1 is a fully converted large farm of 150 ha:
  - 30 ha fallow;
  - 20 ha pasture;
  - 40 ha arable (cereal production);
  - 50 ha arable (vegetable production);
  - 10 ha orchard.
- Farm 2 is in the first year of conversion so has to pay set-up costs and registration fees:
  - 20 ha vegetables
  - 5 ha fruits.

Table 5 shows that there were no significant price differences between the two certification bodies, although Biokontroll Hungária had slightly higher fees for both farms: 6.3 euros/ha, or 3 percent; and 35.7 EUR/ha, or 4 percent.

**Table 5. Costs of organic conversion and certification based on two model farms (EUR/ha, 2004)**

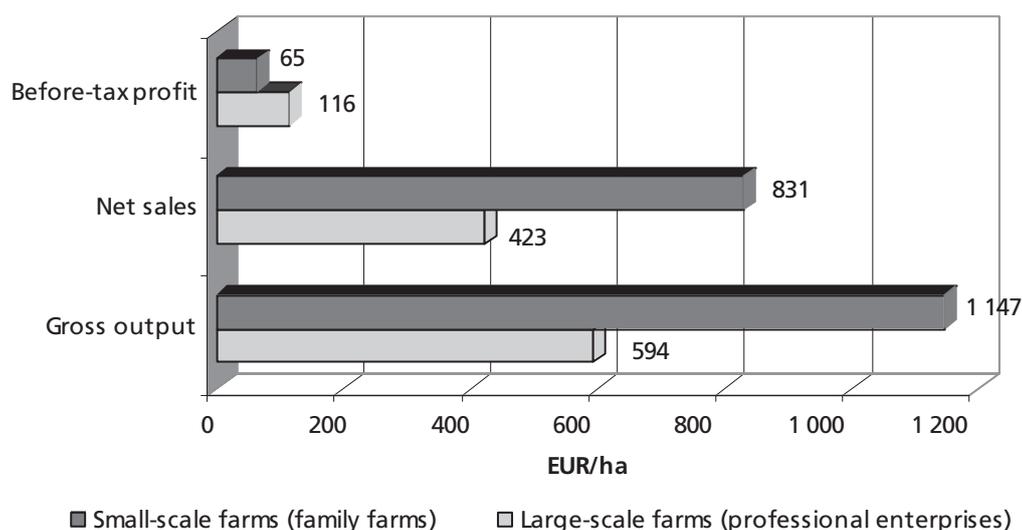
	Biokontroll		Öko Garancia	
	(EUR/ha)	(EURO)	(EUR/ha)	(EUR)
Farm 1	6.3	943	6.1	920
Farm 2	37.5	938	35.7	894

Sources: Biokontroll Hungária and Öko Garancia.

There were more important disparities between the two types of farm. The smaller farm 2 paid almost as much (about 900 euro) to have its products controlled (including set-up costs, certification and registration fees) as the six times larger farm 1. The euro per hectare expenses of farm 2 (at 37.5 and 35.7) are therefore about six times higher than those of farm 1. This demonstrates the importance of providing subsidies during the conversion period, especially in the first year when set-up costs and registration fees are added to the conversion certification fee.

FADN's comparison data for large and small organic farms show that although large-scale farms have considerably higher production per hectare, small-scale farms are more profitable. According to FADN data, the same is also often true in conventional agriculture, which contradicts the basic principles of economy of scale. However, some of the explanations for these results alter the picture:

- Large-scale farms usually spend more on investments, which reduce their short-term profits but usually help them to stay competitive in the long term.
- Small-scale (family-based) farms usually undervalue the cost of their own labour, which adds to the apparent profits (see the personal costs category in Figure 12).

**Figure 13. Income data on organic farmers (EUR/ha, 2002)**


*Source:* Own calculations from FADN database.

The income of organic agriculture compared with conventional was lower in the FADN sample for both small-scale (family) and large-scale farms. The main reason for this is that some of the organic farms in the FADN programme were still under conversion, so they were not always able to sell their products with organic price premiums, while they had to contend with the lower yields of organic production methods. Even in these circumstances, however, the considerable cost savings of organic farming made it more profitable than conventional agriculture. The 65 EUR/ha before-tax profit of small-scale (family) organic farms was 24 percent higher and the 116 EUR/ha before-tax profit of large-scale farms was 8 percent higher than those of conventional farms (Figure 13 and Annex 9).

Contradicting the FADN data, interview participants stated that organic producers need price premiums if they are to compete with conventional farms. During the conversion period, or when prices are lowered by supply surpluses or market saturation, farmers need the security of a properly functioning subsidy system. The literature and interviews showed that the differences in profit between organic and conventional farms depended just as much on lower yields obtaining higher prices than on differences in the cost structure. The average reduction of yields was about 35 percent in the 21 interviewed farms, but varied greatly, even in cases of the same crop on different farms.

Features of the three main product groups that receive organic price premiums (fruits, vegetables and cereals) were analysed. Fruits obtained the lowest price premiums, averaging 29 percent and varying by 58 percent between the highest and the lowest. The average premium for vegetables was a slightly higher 36 percent, with lower dispersion of 26 percent. Cereals obtained the best price premiums, averaging 55 percent more than conventional prices, but with considerable dispersion, also of 55 percent. The surprisingly low premium for fruit was because grapes were an important fruit in the sample but are produced almost solely for wine production, so are not eligible for any price premium. Cereals' high premiums were probably because this is the most firmly established organic farming category in Hungary.

Price premiums in the different marketing channels were also examined. As expected, the most profitable channel was found to be direct sales (with an average price premium of 47 percent), followed by processing (46 percent), retail (38 percent) and direct export (34 percent). The comparatively low price premium for export was not expected because direct export sales had always proved to be the best businesses. This emphasizes yet again the importance of developing domestic markets.

### **BENEFITS AT THE COUNTRY AND FARM LEVELS**

The more general benefits of organic agriculture found in the literature can be grouped into two categories:

- Environmental benefits:
  - improved soil and water quality (decreasing chemical residues);
  - natural conservation and landscape maintenance;
  - decreased agricultural contamination in the environment.
- Economic and social benefits:
  - more opportunities for recreational utilization, such as model farms with direct sales opportunities, organic restaurants, design of bicycle and other tourist routes;
  - increased labour requirements of organic agriculture, providing additional employment opportunities;
  - increased profitability;
  - supply of healthier food to consumers.

In the interviews, farmers listed their reasons for converting to organic production. A list of nine possible reasons was given, and each farmer chose a maximum of three. Three answers were given the most frequently, and together accounted for 68 percent of the responses:

- Ecological, environmental reasons: more environment-friendly production, avoidance of chemical fertilizers and protection materials, nature protection (26 percent of answers).
- Way of living: ideological/ethical reasons, conviction (22 percent).
- Economic reasons: higher profits, organic subsidies, organic price premiums (20 percent).

The following three choices also had some importance: family health reasons (10 percent), the farming methods were already practised (8 percent), and professional challenge (8 percent). All of the farmers claimed not to regret converting to organic production.

## Recommendations

The Hungarian regulation, subsidization and certification systems are working fairly well, in spite of the relatively late start. There are, however, some areas of possible development in the interest of increasing the competitiveness of the organic sector.

A development programme for small and medium enterprises should aim mainly to improve their cooperation, while offering solutions and plans for mechanization, transportation, storage and primary processing problems. The producers of some products are dispersed over large distances across the country, and each farm produces only small quantities, which makes transport and marketing of organic products more difficult and expensive. Creating special organic storing centres in the regions (with separate store houses and cool storage) would help to solve this problem. Another possibility would be to create marketing–selling or production–selling cooperatives, which would give farmers control over more stable volumes of products, allowing them to supply larger food processing companies and conventional retailers. Strengthening cooperation should be a priority in every programme to enhance organic production. A good example is the Netherlands, where producers' organizations and cooperatives specializing in organic production have been successful in making mechanization, storage, transportation, manipulation and even administration more efficient.

Most services, such as technical assistance, research and extension, are available on only a full-cost business base, and there are no important organizations specialized in organic agriculture (except Biokultura). This is a great problem and a possible area for further government, business or civil initiatives. Information and training programmes for farmers could have an important role in increasing production. A number of farmers fear starting organic production; according to those who already produce organically, the main reason for this – apart from financial uncertainty – is the fear of confronting a professional challenge. Another problem area for producers is obtaining and using marketing skills and practices, and they have a severe need of these – at least so that they can take the first steps in adopting organic methods. A way of encouraging more farmers to convert to organic production would be to develop a special consultant network, operated by members of the vertical supply chain (e.g., integrators, food processors, traders) or independent organizations, with the possible involvement of educational or governmental organizations.

On the other side of the vertical chain, it is just as important to develop the processing industry. One of the main obstacles to further consumption growth in the domestic market and to maintaining high price levels for exports is the lack of product selection. This is especially true of the processed organic food segment, but also for such fresh products as fruit and vegetables, consumers are increasingly demanding ready-to-eat or -cook products. Making market information available, integrating organic processing into education courses, or organizing professional meetings for different participants in the organic sector may encourage processors to adopt organic production. Conferences and other professional meetings can

also provide opportunities for producers and processors to develop new or improve existing supplier–buyer relationships.

As well as educational, information and training programmes, the processing sector itself can also do much to widen the selection of organic products. In spite of the mainly positive experiences of existing organic processors, many fears – often unfounded ones – continue to hold others back from entering the organic sector. For example, some of these fears regard:

- incompetence of raw material suppliers;
- complicated registration and authorization processes;
- lack of demand.

It is this last point that makes it vital to expand the domestic market and reach higher-quality export segments. Considerable development in this area can only be achieved by a comprehensive, structured programme for domestic market development, with three main objectives:

- informing public opinion through intensive communication;
- increasing the variety and volume of goods;
- improving and widening the marketing channels participating in organic trade.

Informing and persuading consumers also serves social objectives. A healthier diet in a country is of public interest, and increasing organic food consumption is fully in line with this target.

These recommendations underline the importance of including not only producers, but also other participants of the vertical chain (processors, traders and consumers) in development programmes. For example, if improved certification is to have positive results, consumers must understand the importance of and need for controlled and certified organic products. Otherwise they are unlikely to accept the price increases or to feel confident about the authenticity of organic products.

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## Annexes

### ANNEX 1. FARM STRUCTURE OF ORGANIC PRODUCTION, 2003

Crops	In conversion period (ha)	Fully converted (ha)	Total (ha)
Arable land			
Cereals for the production of grain (incl. seeds)	10 862.8	14 077.5	24 940.3
Common wheat and spelt	4 920.8	8 259	13 179.8
Durum wheat	31.5	0	31.5
Rye	439.3	267.6	706.9
Barley	935.3	903.5	1 838.8
Oats	1 060.8	117.3	1 508.1
Grain maize	1 499	2 238	3 737
Other cereals (incl. seeds)	1 976.1	1 942.4	3 918.5
Protein crops (dried pulses)	662.7	774.4	1 437.1
Potatoes (incl. early and seed potatoes)	50.3	63.7	114
Sugar beet (excl. seeds)	0	0.5	0.5
Fodder foods and brassicas (excl. seeds)	11.5	41	52.5
Industrial crops (total)	3 918	7 586.3	11 504.3
Sunflower	2 218.5	3 360.5	5 579
Soy	274.5	967.7	1 242.2
Aromatic, medicinal and culinary plants	170	184.9	354.9
Other industrial crops	1 254.9	3 073.2	4 328.1
Fresh vegetables, melons, strawberries (total)	165.1	911.8	1 076.9
Outdoor	162.7	911.3	173.8
Under glass or other protective cover	2.4	0.5	2.9
Forage plants (total)	5 637.6	4 196.8	9 834.4
Green maize (maize for silage)	581.4	144.6	726
Other forage plants	5 056.2	4 052.2	9 108.4
Arable land seeds and seedlings	81.1	245	326.1
Fallow land as part of crop rotation	2601.2	2522.4	5123.6
<b>Permanent pastures and meadows</b>			
Pastures and meadows (total)	15 149.3	33 533.1	48 682.4
<b>Permanent crops</b>			
Fruit and berry plantations (total)	987	909.3	1 896.3
Fresh fruits and berry species	665	861.5	1 526.5
Nuts	322	47.8	369.8
Vineyards	306.7	147.1	453.8
Other permanent crops	0.03	0	0.03
Unutilized land	3 066	5 308	8 374

Source: Annual Report of Biokontroll Hungária, 2003.

**ANNEX 2. SUPPORTING AREA PAYMENT SCHEME FOR ORGANIC FARMING, 2004 TO 2006**

	2004	2005	2006
<b>Organic area payments (EUR/ha)</b>			
arable land (in conversion)	176.47	176.47	176.47
arable land (converted)	125.49	125.49	125.49
vegetable production (in conversion)	325.49	325.49	325.49
vegetable production (converted)	200	200	200
grassland	58.82	58.82	58.82
vineyards, orchards (in conversion)	396.08	396.08	396.08
vineyards, orchards (converted)	278.43	278.43	278.43
<b>Organic animals (euro/head)</b>			
cattle			74.62
Pig			58.82
sheep			18.82
Hen			0.49
chicken			0.25
duck/goose			0.78
turkey			1.04
<b>Supplementary programmes (EUR/ha)</b>			
<b>erosion protection (for arable land)</b>			
water erosion protection for spring sowing			98.04
water erosion protection for autumn sowing			39.22
wind erosion protection			98.04
<b>erosion protection (for vineyards and orchards)</b>			
water erosion protection, year 1			231.37
water erosion protection, year 2			39.22
<b>Grass margin (for arable land)</b>			
year 1			462.75
from year 2			39.22
<b>Scrub control (for grassland)</b>			
year 1			168.68
from year 2			62.75
<b>Long-term set-aside (EUR/ha)</b>			
year 1			376.64
from year 2			133.33

Sources: Decrees 3/2003 and 150/2004 of MARD.

### **ANNEX 3. ELIGIBILITY CRITERIA FOR ORGANIC FARMING SUPPORT SCHEMES, FROM 2004**

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Natural criteria:

1. Minimal area of 1.01 ha for arable land and 0.5 ha for permanent crops
2. Minimal size of field in one piece 0.3 ha
3. Be owner of the land or have at least 1 year tenancy contract and permission from the owner to enter the programme

**Production method criteria:**

4. Conversion of the whole farm
5. Prepare soil nutrition plan for 5 years
6. GMO usage is prohibited
7. Applying Good Agricultural Practice (GAP)
8. Nutrient use 170 kg/ha/year
9. Maximum animal units 0.5-1/ha
10. Minimum animal units 0.2/ha
11. Use organic seeds except in the few cases where it is not available

**Administrative criteria:**

12. Registered agricultural entrepreneur
13. Registered as organic or conversion farm
14. Submit application in time (on fixed date)
15. No unpaid State taxes
16. Comply with the national law for organic farming

**Cooperation criteria:**

17. Give data about the farm and the actual production to certification bodies
  18. Minimum 2 inspections/year according to national legislation
  20. Minimum 1 training/year
- 

Source: Interviews with experts.

**ANNEX 3. REVIEW OF ORGANIC AGRICULTURE LITERATURE REFERRING TO THE DOMESTIC (HUNGARIAN) MARKET**

Study	Consumer group	Price premiums willing to pay	Market size	Market channels
Újvári, M. (1994): 150 consumers, representing Budapest only	Young and a few long-term regular buyers 60% consumed; 24% regularly	21.3%, none 38%, 5% premium 33%, 10% premium	-	68% consumers' own production 26% organic shops 31% markets 3% direct from farm
Bódi, A. (1994): 200 consumers in Budapest, Szeged 16 organic shopowners	Educated, and 20–30 or 40–50 years old Shopowners: more elderly and in poor health	11.1%, none In general, 30% premium	-	-
Kürthy, G. (1997): 1 000 consumers from whole country, but not representative	Regular: educated, middle-aged, high-income, urban Occasional: educated, young, lower-income	Price is important impeding factor	-	-
Baricz, A. & Kürthy, G. (1997): 1 000 consumers representative, but interviewers not independent	8.9% regular, 26.7% occasional 58.3% for health 42.7% for environmental protection Regular: Women, higher-income	14.5%, none 22.5%, 1–10% premium 25%, 10–30% premium 6.5%, 30–50% premium 1.6%, more than 50%	-	21.1% bought: 5.1% direct from farms; 8.1% markets; 12.2% organic shops 20.4% consumers' own production
Lehota, J. et al. (1997): 1 000 consumers, representative 14 organic shops	Risk-conscious about food: environmental pollution, chemical residues, artificial ingredients	47%, up to 20% premium 21.5% 20–30% premium 18.6% 30–50% premium 13%, more than 50% premium 76%, price is impeding factor	1.7–2% of population consumes: 0.6–0.7% regularly 0.1–0.2% of food market is organic	-
Mokry, T. (2001): Organic market customers in Budapest	71% women, 25–34 years old; 23% 45–54 years old; 60% highly educated	In general, 25–27% premium (on cereals, vegetable, dairy)	-	-
Kürthy, G. (2001): 120 organic farmers Some organic food processors, wholesalers, retailers	People with health problems or "modern" customers, usually educated with higher incomes, living in Budapest and large towns	Price is impeding factor	-	60% organic market 34% industry 37% export 33% wholesalers 8.5% supermarkets
Ozoli, A. (2002): 10 organic wholesalers and retailers 1 235 consumers, representative	18.1% consume, 3% regularly. Older people living in Budapest with university degree	-	Organic export 40 mill Ft: 0.5% of food production, only 0.05% of domestic consumption	-
GK Hungária (2002): Survey of food consumption habits	Middle-aged with university degree Monthly income/person more than 100 000 Ft	-	-	-
Szente, V. (2004): 20 organic farmers 500 consumers, representative 100 organic consumers	60% for health Mainly women, young (30–40 years) and educated	29.2% high price is an impeding factor	-	40% hypersupermarket 40% organic shops 40% consumer markets 13% general food stores 6.4% direct sales

Source: Summarized from the collection of G. Kürthy.

**CHAPTER 5**  
**Organic horticultural farmers**  
**in The Czech Republic**

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## Acronyms

CIA	Czech Institute for Accreditation
CK	Czech koruna/koruny
EAGGF	European Agricultural Guidance and Guarantee Fund
EPOS	association of organic farming advisors, researchers and instructors
EU	European Union
GMO	genetically modified organism
HRDP	Horizontal Rural Development Plan
IFOAM	International Federation of Organic Agriculture Movements
KEZ	Organic Farming Control
NGO	non-governmental organization
PRO-BIO	association of Czech organic farmers and processors

Exchange rate 2005: US\$ 1.26 = 1 EUR



## Executive summary

Owing to unprecedented growth in demand for organic products in the developed world, over the last decade more and more farmers are considering the switch to organic farming methods. One of the constraints to this could be the cost and complexity of certification according to the organic standards demanded by developed markets.

One option for overcoming this hurdle to the development of sustainable farming in the developing world could be the creation of alternative certification methods.

This report assesses key factors and constraints affecting organic certification schemes in the Czech Republic. It attempts to answer questions related to the capabilities needed by farmers to comply with certification procedures, and addresses the cost and benefit issues of organic farming.

As no organic farmers' organization in the Czech Republic is involved in organic certification, it was decided to look at a specific segment of organic farmers – those involved in horticulture – and assess their experiences. A group of eight organic farmers involved in vegetable and fruit production were selected to appraise the situation. An internal control system of the government institution responsible for organic certification was also analysed.

Recently, the Czech organic sector has been developing strongly, thanks to a relatively generous government support scheme and rising demand from both domestic and foreign markets. Nevertheless, most of the land under organic management in the Czech Republic is situated in less productive, mountain areas, most of which have permanent grass cover. More intensive, productive farms on arable land have been developing much more slowly. This could be because it is much more difficult and demanding to use organic farming methods on arable land than simply to use the land as organic pasture or meadow. Difficulties in complying with the certification system and lack of skills in marketing production could be other reasons for the small number of farmers to have transferred to organic methods.

Although organic horticulture has been developing in the Czech Republic since the beginning of the 1990s, it has been doing so very slowly. Only about 40 horticultural farms are producing mixtures of organic vegetables and/or fruits. Most of these are small family farms. Organic fruit and vegetable production still comprises less than 0.3 percent of total Czech production.

The Czech organic market is experiencing significant growth, powered mainly by imports. Total spending on organic food rose by about 40 percent between 2003 and 2004, and more growth is expected owing to rising demand and the increased information available to consumers. Implementation of the Czech Republic Organic Action Plan, prepared by the Ministry of Agriculture, will give the organic sector another boost. There is also rising demand from foreign markets to import organic raw materials from the Czech Republic.

Since May 2004, the Czech Republic has been a member of the European Union (EU), so policies governing the organic sector in the EU, namely Regulation 2092/1991, also apply in the Czech Republic. Subordinate to this regulation is Czech legislation on organic farming: Act No. 242 of 29 July 2000 on organic farming, and amendments to Act No. 368/1992 on administration fees.

The 2000 act establishes conditions for the management of organic farming and the production of organic foodstuffs in the Czech Republic. It also regulates the system of certification for organic products and foodstuffs and their labelling, as well as the control and supervision of compliance with this law. The act entered into force on 1 January 2001.

Supervision of compliance with the organic farming law is carried out by Organic Farming Control (Kontrola ekologického zemědělství – KEZ), which also issues certificates for organic products and foods. KEZ is accredited with the Czech Institute for Accreditation (CIA) as a control and certification organization. The European Commission has included the Czech Republic and KEZ in its list of third countries whose system of control and certification of organic farming is compatible with the EU system.

Financial aid is provided to organic farms in the Czech Republic over the entire organic farming period and is not limited to the conversion period only. Financial aid is based on per hectare payments according to the type of organic production. There is no financial support for the costs of certification compliance or for marketing the organic food produced.

Review of secondary data on the Czech organic market, the certification scheme and the policies governing it, and information gathered through interviews with the selected farmers provided the basis for analysing the situation. All the relevant statistical data and information available were gathered from government bodies or directly from KEZ. Interviews with experts on organic farming, government officials and farmers were carried out over the winter of 2005 through face-to-face meetings, telephone conversations and written questionnaires.

Among the capabilities farmers most need in order to comply with organic certification schemes are the ability to monitor and document all steps of product flow, and management and organizational skills. Financial management is also extremely important, and patience is an important attribute. Organic farmers need the ability to communicate clearly to the market the advantages of organic production. Successful competition in this environment requires that farmers (particularly family farmers) have the will and desire to learn new skills, try innovative steps and be courageous.

The costs related to setting up and maintaining organic production at the farm level were analysed. Conversion costs are not significant, and the most important issue is the elimination of mistakes. Growing crops that the market does not want, or failing to match the capabilities of farmers and hired labour with the workload can have significant impacts on production and profit. Costs associated with implementing soil recovery measures can be significant, depending on the type of soil and the area, particularly during the first two years of organic farming, when intensive recovery measures such as weeding or deep ploughing have to be used. At the beginning, productivity losses can be significant owing to lack of knowledge and ability to deal with predators, weeding, disease and sales.

The time required to harvest organic fruits or mixed vegetables grown on small plots is significantly higher than that for harvesting single monocrops on large areas. Most harvesting is done manually, so it is labour-intensive.

The greatest cost difference between organic and non-organic production results from the far higher employment of labour in organic production and the costs of organic seeds: high-quality certified organic seeds are significantly more expensive than non-organic ones. Costs related to the marketing of organic produce can be significant because organic food is extremely information-intensive, special handling is required because of the produce's prime ripeness, and several marketing channels are usually employed. Although certification costs at the farm level are not significant, filing, documenting and recording require considerable time.

All interviewed farmers reported some benefits from applying organic methods, including increased income from both government subsidies and organic price premiums.

One significant conclusion of the report is that organic farming adds value to farmers' production. Increased farm biodiversity and soil improvement were also cited as benefits of organic farming methods. The ability to produce high-quality products demanded by the market increases farmers' self-confidence and improves their negotiation capabilities.



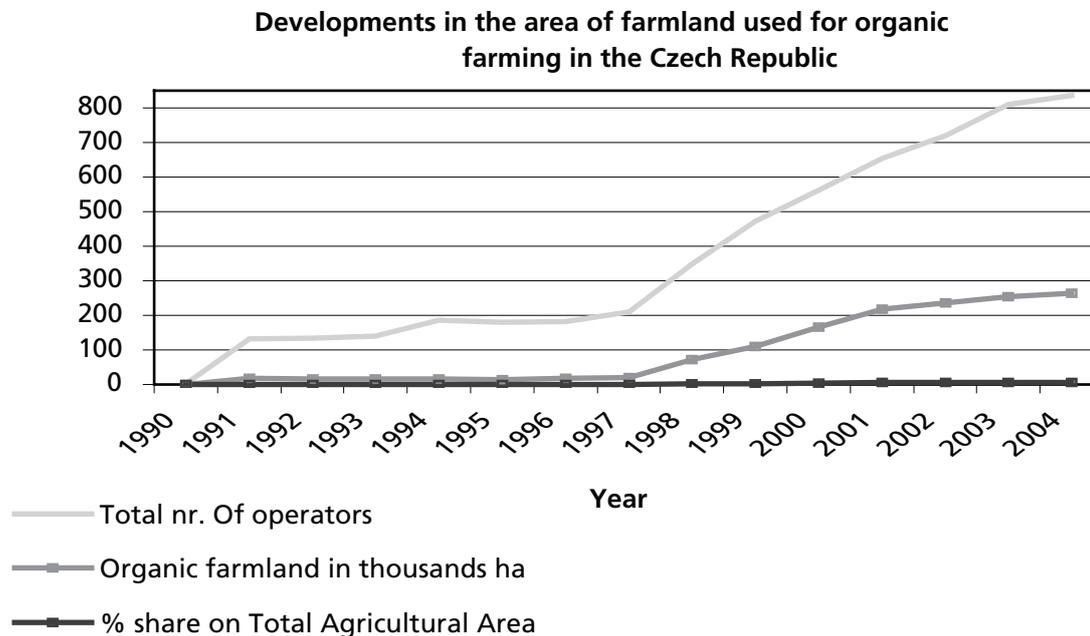
## Trends and context of the Czech organic production system

### CZECH ORGANIC PRODUCTION

At the end of 2004, 263 299 ha (6.16 percent) of the Czech Republic's utilized agricultural area was cultivated by organic methods. This represented growth of 3.46 percent compared with 2003. Arable land comprised 7.5 percent of this, permanent grassland 89.4 percent, orchards and vineyards 0.4 percent, and other land types 2.7 percent.

There were 836 organic farms (compared with 810 at the end of 2003) with an average area of 315 ha. The large size of organic farms reflects the fact that most of the land under organic management is permanent grassland and pasture in mountainous areas. Most organic pastures are situated in less-favoured or protected land areas.

Figure 1. Areas of land under organic farming, 1990 to 2004



### Regional distribution of organic production

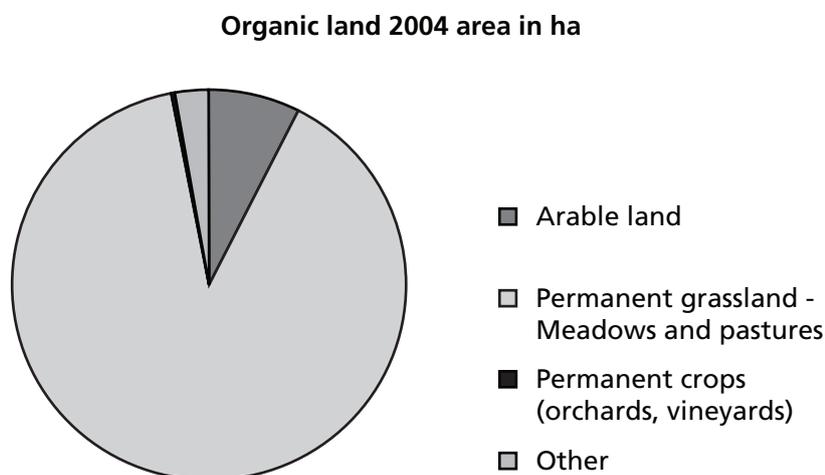
The main organic farming regions are Moravia and south Bohemia. In north Moravia and the Moravian border regions, northwest, west and south Bohemia, most organic farms raise beef cattle and suckling cows, and there are a few organic dairy farms. In the south and east Moravian region there are some organic vegetable growers, vineyards and a few orchards. Organic grain production is also concentrated in Moravia. Only a few organic farms are

located in north Bohemia, because the most polluted parts of the Czech Republic are in this northwestern region.

Organic farming's estimated shares of total agricultural production in 2003 were: raw milk 3.46 percent, beef cattle 3.74 percent, potatoes 1.02 percent, legumes 0.86 percent, and beef 0.52 percent. The organic production share of all other products, including cereals, vegetables and fruits, was less than 0.5 percent.

Farmgate prices for organic products compare favourably with those for conventional ones: for cereals they are 40 percent higher, for potatoes 60 to 100 percent higher, for vegetables 50 to 200 percent higher, for meat 10 to 15 percent higher, and for milk 15 to 20 percent higher.

**Figure 2. Area of land under organic farming, 2004**



Figures as of 31 December 2004.

Source: KEZ: [www.kez.cz](http://www.kez.cz).

### **Main organic product categories**

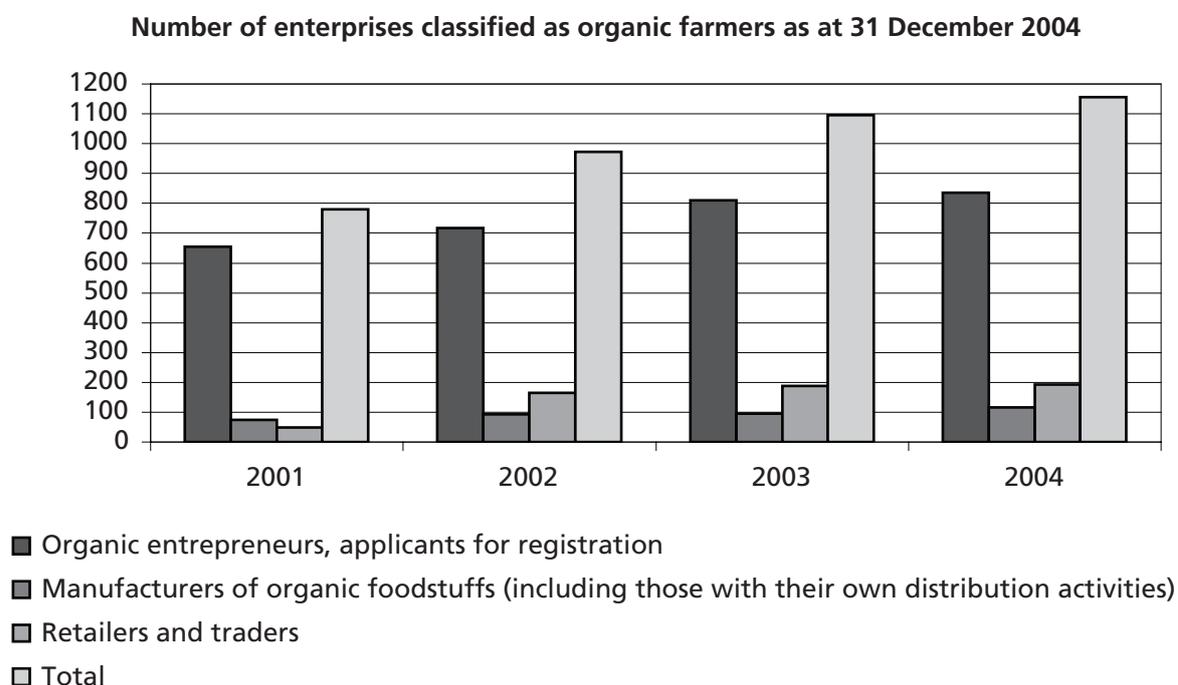
The main organic products are grains (especially spelt and buckwheat), herbs and spices, beef, and milk (cow, but also goat and sheep). There are undersupplies of eggs and meat (poultry), fresh fruits and vegetables, and milk products such as butter and cheese.

### **Organic food processing**

There are only 116 certified organic processors; the lack of organic processing industry is one of the weak points in development of the Czech organic market. The main processing industries are grain, herbs, milk and beef processing.

Most organic land is grassland (usually with livestock), but the market for meat and milk is still immature. One of the reasons for this is a lack of capacities for slaughtering and milk and meat processing, so sufficient quantities of products are not available to consumers. Most organically produced beef and milk is sold as non-organic.

Another factor influencing the sustainability of organic farmers on grassland is the collapse of wool processing, making it extremely difficult for farmers to sell their wool.

**Figure 3. Numbers of organic enterprises, 2004**


Figures as of 31 December 2004

Source: KEZ : [www.kez.cz](http://www.kez.cz).

### Organic horticulture

Organic horticulture has been developing in the Czech Republic since the beginning of the 1990s, but only on a very small scale. Most of the country's 40 organic horticultural farms are situated in Moravia and around Prague; two fruit farms are located in north Bohemia. The total area of organic vegetable production and orchards in the Czech Republic is only a few hundred hectares. As well as vegetables, some of the farms also produce grains or herbs.

### Production systems

**Vegetable production:** Two main systems are used to produce organic vegetables:

- field production, mostly of root vegetables, on large farms averaging 50 ha and producing a limited number of crops;
- garden production, for a wide variety of vegetables including leafy ones, on farms of no more than 5 to 8 ha.

**Fruit production:** Organic fruit farms specialize in apples; some also grow pears, peaches, apricots and other fruits. Orchards vary from 10 to 60 ha.

**Preconditions, skills and inputs:** Several preconditions, skills and inputs are needed for successful organic horticultural production:

- Climate, area:
  - lowlands, warmer climate, microclimate;
  - use of glasshouses or poly-tunnels to prolong season;
  - irrigation necessary for some types of vegetables and orchards.
  
- Soil:
  - fertile, appropriate structure;
  - soil improvement techniques and fertilization.
  
- Weeds, pest and disease management:
  - ecosystem biodiversity;
  - use of natural pesticides;
  - nets and textile covers.
  
- Crop selection:
  - appropriate root stock for successful fruit production;
  - pest- and disease-resistant strains;
  - appropriate crop rotation;
  - marketable crops.
  
- Management, labour:
  - very labour- and machinery-intensive;
  - expertise on every vegetable or fruit grown;
  - crop rotation systems, which may be complex and involve many types of vegetables;
  - labour management complicated by seasonality and peak periods at harvest;
  - equipment and tools for weeding and harvesting.
  
- Machinery and equipment:
  - depend on area and crop produced;
  - irrigation for vegetables and for newly planted orchards;
  - glasshouses for pre-planting and sprouting;
  - place for sorting and cleaning;
  - storage with suitable microclimate.
  
- Marketing:
  - marketing skills are as important as production skills;
  - need to sell before sowing;
  - each marketing channel has specific production and post-harvest requirements.

**Table 1. Organic production's shares of total agricultural production, 2002**

Product	% share*
Cereals	0.21
Potatoes	1.02
Legumes	0.86
Vegetables	0.33
Fruits	0.24
Grapes	0.04
Wine	0.02
Raw milk	3.46
Milk products	0,16
Pork meat	0.20
Beef cattle	3.74
Beef meat	0.52

\* Estimates from Green Marketing: [www.greenmarketing.cz](http://www.greenmarketing.cz).

Organic fruit and vegetable production in the Czech Republic accounts for less than 0.3 percent of total Czech agricultural production.

## MARKETS

The Czech organic market is entering a boom. In 2004 it rose by 30 percent (the year before by 16.6 percent) to achieve total turnover of CK 234 million. Organic food still accounts for only 0.1 percent of total food consumption, but since accession into the European Union (EU) the following signs imply that the market is moving into a growth phase:

- Foreign manufacturers and traders are showing an interest in the market.
- New organic shops and processing facilities are being opened.
- More supermarket chains offer a wider range of organic foods.
- New importers are bringing in a wider variety of organic foods.
- The number of organic foods on the market has doubled over the last eight months.
- Czech manufactures are bringing new organic products to the market.
- The government is supporting organic market development through its Organic Farming Action Plan.

EU accession has had a very positive effect on the organic market: not only have production subsidies to farmers risen by about 300 percent, but foreign trade has also increased substantially.

The main distributors of organic food are multiple retailers, although their range is limited to about 120 products at most. Supermarkets account for about 65 percent of the market, health food and organic shops about 25 percent, other food retailers 2.5 percent, and 7.5 percent is sold directly at farms.

In 2003, 9 254 tonnes of organic products were exported – about 10 percent of the Czech Republic's total organic production and 0.13 percent of total agricultural production. There are no reliable figures for 2004, because trade within the EU is no longer recorded.

The main foreign markets for Czech organic foodstuffs are Austria, Germany and Slovakia; 97 percent of organic food produced in the Czech Republic is consumed nationally or in Slovakia, only 3 percent is exported elsewhere.

Organic imports into the Czech Republic were 3 021.8 tonnes in 2003 – about 0.09 percent of total food imports. In 2004, imported organic products accounted for about 27 percent (US\$2 million) of total organic consumption.

Although the Czech organic market is the most advanced among the new EU Member States, it is still underdeveloped in several areas. Organic food still accounts for less than 0.1 percent of total food consumption. Most processed products are imported, mainly from the Netherlands and Germany, because local processing facilities are underdeveloped, with the exception of herbal teas and spices (by the Czech sister company of Austria's Sonnentor company).

Many basic commodities, such as fruits, vegetables, eggs, milk products, pork and poultry meat, and fresh bakery products, are still not regularly available. Czech consumers are not aware of the principles of organic production, and a very small percentage of people regularly buy organic. Most participants in the organic market lack basic marketing skills, and research is almost non-existent.

### **Demand for organic fruits and vegetables**

Demand for organic fruits and vegetables among existing organic shoppers is large and growing, especially in large cities. Several new organic shops have opened recently in Prague and other cities, and register large customer demand for fresh produce. Some restaurants and caterers also seek fresh, local produce. Young families demand fresh and organic produce for their children.

Farmers have several channels for marketing their produce:

- *Direct sales from the farm:* About 5 percent of organic harvests are sold on the farm.
- *Farmers' markets:* Almost all producers sell their produce at farmers' markets, some only occasionally and others regularly. This marketing channel accounts for 40 to 50 percent of total organic turnover.
- *Boxed deliveries:* Several farmers send boxes of their produce direct to customers by post or rail. Boxes are usually sent directly to end customers, but some farmers also use them to send produce to large city distribution centres. One farmer reported this scheme as accounting for 90 percent of his sales.
- *Distribution centres:* Some large cities have distribution centres where farmers bring their products to be sold by local volunteers, organic shops or small companies.

- *Retail outlets:* Most organic vegetable and fruit producers sell to shops, mainly in large cities. Farmers either deliver the goods themselves or the shop uses its own pick-up truck to collect fresh produce directly from the farmers. For one farmer, this marketing channel accounts for almost 50 percent of his total turnover.
- *Catering:* A few restaurants in Prague and Brno use fresh organic produce. About five farmers deliver to them, but the amounts concerned are not significant.
- *Export:* Some organic fruits are exported, either fresh or dried. Most of the amounts concerned are not large, although two fruit farmers export more than 50 percent of their total turnovers.

Export markets have the potential for almost unlimited growth in demand, but Czech production does not yet have the capacity to capture this.

All existing organic vegetable and fruit farmers are “true believers” in the organic philosophy, and organic certification is essential for them. Even though a significant part of their sales are direct or to local markets, organic certification is an important way of distinguishing themselves from non-organic competition and justifying organic price premiums.

### **Czech organic exports**

The Czech Republic’s main organic export products are buckwheat, spelt, rye and barley. Germany and Austria are the main importers, followed by the Netherlands and Italy.

In 2003, 911 certificates for the export of organic products and foodstuffs were issued in accordance with Act No. 242/2000 and Regulation No. 53/2001. This was an increase of 100 percent on 2002, which can be attributed in large measure to the establishment of European Commission Regulation No. 1788/2001 for exporters and importers, in 2003. According to this regulation, it is not possible to describe produce exported to EU Member States as organic unless it has a valid export certificate. Far more organic produce was exported in 2003 than in 2002 and 2001: 3 699 tonnes in 2001; 3 579 tonnes in 2002; and 9 254 tonnes in 2003. Austria accounted for 63 percent of all Czech exported produce.

No organic vegetables were exported in 2003 or 2004, but organic apples, peaches and apricots were exported to Austria in 2004.

### **Imports**

In 2003, organic food from 35 countries worldwide was imported. Compared with the previous year, Organic Farming Control (KEZ) registered greater interest in the certification of imported products, particularly for spices and seasoning, dried vegetables, fats and oils. This increased interest was mainly the result of gradual harmonization with EU organic farming legislation, which made it necessary to change the use of some raw materials commonly used in the manufacture of organic foodstuffs.

In 2003, 576 organic products were certified for import, accounting for approximately 41 percent of all certified products on the market. Compared with 2002, this represented an increase of 4 percent in the range of imported organic foods. No fresh organic vegetables or fruits were imported until March 2005, when Lucni Udoli started to import them.

Organic farming and the organic food market will grow significantly in the future as a consequence of growing demand from both domestic and foreign consumers, resulting from more information about the positive aspects of organic diets, increased buying power, changing lifestyles and greater support to production through the Ministry of Agriculture's agro-environmental scheme.

## **POLICY REGULATIONS FOR ORGANIC PRODUCTION**

### **Organic agriculture regulations in the Czech Republic**

The European Commission has accredited the Czech Republic with compatibility with Regulation No. 2092/91. Two major Czech regulations are directly related to organic farming.

The first of these is Act No. 242 of 29 July 2000 on organic farming and amending Act No. 368/1992 on administration fees. This act establishes the conditions for managing organic farming and producing organic foodstuffs. It regulates the system for certifying the origins of organic products and foodstuffs and their labelling, as well as the control and supervision of law compliance. The act entered into force on 1 January 2001.

The second regulation is a decree of the Ministry of Agriculture from 13 February 2001, which explains the act and amendment, making the Ministry of Agriculture's Structural Policy and Ecology Department the competent authority for organic farming in the Czech Republic.

A significant factor in stabilizing the organic farming system was adoption of Act No. 242/2000, which provided the much-needed legislative framework for the whole system and which was prepared by the Ministry of Agriculture in cooperation with the Ministry of the Environment. This law lays down the rules for organic farming and the production of biofoodstuffs, processing, import requirements for products from other countries, and labelling of organic farm produce, as well as general requirements related to inspection of this type of production. The law's implementing regulations are Regulation No. 53/2001, which was amended by Regulation No. 263 of 15 September 2003. The amendment deals mainly with implementation of European Commission Regulation No. 1788/2001, updating the list of fertilizers, plant production products and raw and ancillary materials that can be used in the production of biofoodstuffs and the list of countries and inspecting bodies whose certificates are acknowledged as equal to the certificates issued under the law.

### **Support for organic farming**

In early 2004, the Czech government adopted a strategic document entitled Organic Farming Action Plan of the Czech Republic. Among its goals are increasing the organic area to 10 percent of total agricultural land by 2010, increasing subsidies for production on arable land, increasing the quality of processing, marketing and export support, and educating consumers on the merits of organic farming.

Between 2004 and 2006, organic producers were to receive US\$12 million (CK 300 million) per year in subsidies. In 2003, domestic support for organic production amounted to US\$8.5 million, five times higher than in 1998.

Financial aid is provided to organic farms in the Czech Republic over the entire organic farming period and is not limited to the conversion period. The Ministry of Agriculture has prepared the Horizontal Rural Development Plan (HRDP), which is implemented in accordance with Council Regulation No. 1257/99 on support for rural development and which enables the Czech Republic to draw financial funds to support rural development from the guarantee section of the European Agricultural Guidance and Guarantee Fund (EAGGF). Co-financing from EAGGF may cover up to 80 percent of total calculated payments. The organic farming subsidy programme is one of the agro-environmental measures that follows up on subsidizing policies implemented by the Ministry of Agriculture before the Czech Republic's entry into the EU. These subsidies are for 117 EUR/ha of arable land, 33 EUR/ha of grassland, 408 EUR/ha of perennial crops and 368 EUR/ha of vegetables and herbs on arable land.

In February 2005, the Czech organic product logo, until then registered by KEZ, was transferred to the Czech government and thus became the official Czech organic label. This was a significant development meaning that the government can now support promotion of the logo among consumers.



## **Main stakeholders in organic production**

### **PRODUCTION**

There were 816 organic farmers in the Czech Republic at the end of 2004 – 26 more than at the end of 2003. Only about 40 of them (about 5 percent) were growing organic fruits and/or vegetables, mainly on very small areas and for local markets only.

### **PROCESSING**

There are 116 registered certified organic processors, but not all of them currently process or produce organic food. Lack of capacity for processing organic products is one of the major limiting factors in the development of the Czech organic market. Most organic processing is concentrated in large companies, but there is a general lack of volume for effective capacity utilization.

There are several obstacles to the growth of processing facilities at farms, mainly lack of demand, lack of financial capital and technological problems, especially owing to extremely strict veterinary hygiene standards.

### **MARKETING**

#### **Fruits and vegetables**

Much organic fresh fruit and vegetable produce is sold directly to consumers via farmers' markets, direct delivery, box schemes and farmgate sales, or through specialized organic shops (mainly in large cities). Restaurants are slowly starting to demand fresh organic vegetables and fruits, especially in Prague and Brno.

No vegetables are exported at the moment, but some organic fruit growers have been able to export parts of their production to foreign markets, mainly Germany, Austria and Italy. The main reason for exporting is the higher prices that foreign markets offer compared with local ones.

Only one organic vegetable producer produces enough to meet supermarket requirements for potatoes, red beet, onions and carrots, which are the only organic vegetables that supermarkets offer.

#### **Grain**

Most organic grain production is sold to the Czech Republic's largest organic processor, PRO-BIO, which either exports it or processes it into such products as flour, cake mixes, pasta, breakfast cereal and ready-made meals. Some grain producers are able to sell directly to German or Austrian traders.

## **Meat**

**Beef:** A large cooperative of about 25 organic farms in northwest Bohemia specializes in organic cattle production and beef processing. Cattle are slaughtered at the cooperative's own abattoir, then sold to a wholesaler for direct delivery to supermarkets. This is a vertically integrated operation of farmers, abattoir and wholesaler. The beef is of good quality and is sold in many multiple retailers. Most organic cattle produced in other regions are processed and sold locally as non-organic meat.

**Pork:** There is only one organic pork producer, which sells most of its production directly from the farm or through the local abattoir where the pigs are processed.

## **Dairy**

**Cow milk:** There is only one significant organic milk processor, Olma, which is the largest in the Czech Republic. Since 2000, Olma has been producing organic milk and three varieties of yoghurt. All Olma products are sold via multiple retailers, with only very small shares going to organic shops or general food stores. Distribution is via conventional distributors working for Olma.

A few small organic milk producers process on their farms and sell directly to consumers locally.

**Goat milk and products:** There are several organic goat milk producers and processors, selling either directly to consumers or via specialized organic shops.

## **Drinks**

**Fruit juices:** Of the two organic fruit juice producers, one sells directly to specialized organic shops, and the other mostly through a wholesaler.

**Wine:** Of the three organic wine producers, only one produces enough to cover the market. The wine goes through a wholesaler to multiple retailers, or is sold directly to specialized shops and consumers.

## **Herbs, spices and teas**

These are produced by the sister company of Austria's Sonenntor in south Moravia, and most of the finished products are exported to the parent company in Austria. Products for the domestic market are delivered to specialized retailers and, through wholesalers, to multiple retailers.

## **Bakery**

There is no nationwide distribution of fresh organic bakery products. Such products are sold locally, with the exception of the French hypermarket chain, Carrefour, which bakes organic bread at each of its ten outlets.

## **Retail**

An estimated 65 percent of all organic food is sold through general food shops. Health and organic food shops represent 25 percent of the market, independent food retailers 2.5 percent, and direct marketing, farm shops or consumer clubs 7.5 percent.

Most conventional retail chains offer an assortment of organic products. Most dry organic products sold through general food multiple retailers are imported; local sourcing of organic food is limited to potatoes and root vegetables, apple juice, herb teas, milk products and meat.

Health food shops and specialized organic food retailers: About 300 health food shops sell organic food in the Czech Republic. Fifty of these are registered and certified by the PRO-BIO association, and account for 25 percent of the organic food market. Up to 80 percent of their stock is organic, and they offer the largest selection of organic foods on the market, some of them stocking up to 1 000 organic products. Several new organic shops have opened recently, and more are planned for the near future in Prague, Brno and other large cities.

Direct sales from farms: Most organic fruit, vegetable, milk and meat is sold directly from farms, sometimes through basic pick-your-own schemes. Other channels include farmers' markets, and boxed deliveries by post or train.

A large Internet food shop with 24-hour delivery in greater Prague offers a wide assortment of organic foods, including fresh and chilled, from an on-line organic shop.

### **Wholesalers**

Six organic and natural food wholesalers operate in the Czech Republic, three only regionally. All of these wholesalers deal with dry goods only, but the vegetable and fruit producer Lucni Udoli has recently started to import and distribute organic fresh fruit and vegetables nationwide to specialized retail outlets and restaurants.

### **Certification**

The organization responsible for organic control and certification in the Czech Republic is KEZ, which was founded on the basis of Act No. 248 of 28 September 1995 on publicly beneficial companies. In accordance with article 29 of Act No. 242/2000, and based on the results of a selection procedure, KEZ has been contracted by the Ministry of Agriculture to carry out inspection activities and other actions related to legal regulation of the act. The management board of KEZ is a statutory management body with decision-making power. The supervision board ensures that KEZ carries out its activities in accordance with the act and statutes, and that it follows the most economical procedures.

## **ASSOCIATIONS**

### **PRO-BIO**

PRO-BIO, the association of Czech organic farmers, is a non-profit organization that supports and promotes ecological methods of farming and the use of organic food in the Czech Republic. PRO-BIO is a national non-governmental organization (NGO) associating ecological farmers, processors and traders, and consumers, schools and other service providers that focus on ecological agriculture and the use of its products.

PRO-BIO provides complex services to its members: it assists them in the transition process from conventional to ecological farming; helps them solve technical and administrative problems; and supports the sales and promotion of organic products. The association

participates in organizing educational programmes and defends its members' interests when dealing with inspection authorities and State administration bodies.

In general, the association provides its members with:

- information services;
- advisory services;
- promotion of ecological farming and organic food;
- marketing support, and information on sale potentials and contacts;
- representation of members' interests;
- loans from its self-help fund.

PRO-BIO does not directly provide its members with certification advice, which is instead provided by government-accredited advisers. Accredited advisers manage PRO-BIO regional centres and provide basic advice on the transition to organic systems to member farmers, in exchange for part of their membership fees. Only about 20 percent of PRO-BIO members use this service; it can therefore be calculated that only about 10 percent of all organic farmers use the advisory services, because PRO-BIO members comprise about 50 percent of all registered organic farmers.

PRO-BIO runs ten regional centres covering the whole of the Czech Republic. It had 524 members at the end of 2004, 406 of whom were organic farmers cultivating a total of 115 000 ha of farmland. Farmers pay yearly fees based on land area.

PRO-BIO is a member of the International Federation of Organic Agriculture Movements (IFOAM) and a partner of Bioland, the German association of ecological farmers.

### **EPOS**

EPOS is the association of organic farming advisers, researchers and instructors accredited by the Czech government. It provides consulting and advisory services to organic farmers and processors, and publishes instruction manuals and other publications. Member advisers have to follow an accreditation process administered by the Ministry of Agriculture; they have to maintain a good knowledge of organic farming, and keep up-to-date on legislative developments, support schemes, etc.

## Methodological aspects

### REVIEW OF AVAILABLE INFORMATION

During preparation of this report, all available secondary data and information on the Czech organic market, organic agriculture and the policies and rules governing it were collected. Data on Czech organic farming are very scarce and hard to find. The Czech Statistical Office does not collect any data concerning organic farming or consumption. KEZ, the certification body, only publishes basic data about the overall situation in organic farming. The Ministry of Agriculture does not collect any other data on organic farming except those required by EUROSTAT or those supplied by KEZ.

Information on legislation, control and certification were collected from the Ministry of Agriculture and KEZ.

Organic market information was collected over the last three years by Green Marketing, a private consulting agency.

There was no existing information about organic horticulture. All the information gathered for this report was collected through e-mail or personal interviews with organic farming experts, farmers, KEZ and PRO-BIO officials and EPOS advisers.

EPOS also provided some basic information on the process and procedures of farm control visits by KEZ inspectors.

A summary of secondary data (statistical information on production, market, exports, supply services) is available in the Annex.

### DOCUMENTATION OF INTERVIEWS

Intensive interviews were carried out for this report with various experts on organic farming, organic food market and the certification scheme in the Czech republic, as well as with selected farmers in the chosen organic sector – horticulture. There are about 40 organic vegetable and fruit growers, most of them very small. Interviews were carried out with a representative sample of eight farms (20 percent of the total), face to face or via telephone and e-mail.

All of the selected farms had wide experience of organic certification processes, as they had been in the organic system for more than five years. All of them were successful on the market, where they were able to sell all of their production as organic.

A questionnaire was designed and sent to the farmers with an explanatory letter about the goals of the report. A telephone call followed, explaining in detail all aspects of the report and questionnaire. The farmers were asked to think about the questions and prepare preliminary answers. Then, face-to-face meetings were held, where the interviewer helped the farmers to answer all the questions. The results of the interviews were then appraised and analysed. A few e-mail contacts and telephone calls followed to explain some aspects in further detail.

## Organic Certification in the Czech Republic

Act No. 242/2000 on organic farming and the amendment to Act No. 368/1992 on administration charges came into effect on 1 January 2001. The principal purpose of this law was to supplement Council Regulation No. 2092/91 (particularly with regard to administrative procedures) in the period following entry into the EU.

The Ministry of Agriculture has entrusted the supervision of compliance with the law to KEZ, which also issues certificates for organic products and food. KEZ is accredited by the Czech Institute for Accreditation (CIA) as a control and certification organization. The European Commission has included the Czech Republic and KEZ in its list of third countries whose systems of control and certification of organic farming are compatible with the EU system. Its control and certification programme has earned KEZ worldwide accreditation under the IFOAM Accreditation Programme.

**Figure 4. The Czech Republic's organic logo, officially registered with the government in February 2005**



### THE ORGANIC FARMING CONTROL SYSTEM IN THE CZECH REPUBLIC

In the Czech Republic, organic farming dates back to 1990, when the foundations of an organic system were laid through cooperation among the Ministry of Agriculture, the Libera Association and PRO-BIO.

In 1990/1991, five organic farmers' organizations were founded. These prepared their own directives and controlled and certified their respective members, but it soon became clear that unified directives, control, certification and production specifications needed to be established. In 1993, an agreement between the Ministry of Agriculture and the unions introduced the Methodical Instruction for Organic Farming, a national directive for organic farming in the Czech Republic. A unified system of production control and specification was introduced subsequently, with the logo BIO – Organic Farming Product. Since 1 April 1999, KEZ has been authorized to carry out organic farming control in the Czech Republic.

## **KEZ INTERNAL CONTROL SYSTEMS**

Control is performed by specially trained inspectors who have to comply with established education and practice requirements. The training of inspectors is ensured through KEZ and cooperation with partner control organizations in other EU countries. In 1999, an agreement with the Austrian control organization, Austria Bio Garante GmbH, established cooperation in control systems and the training and education of inspectors.

Every organic farm is subject to comprehensive control at least once a year; controls are always announced in advance. When the control body finds a violation of the law, it decides whether or not the violation can be remedied. If the violation cannot be remedied, the control organization does not issue the farmer with a certificate for that year. If it can be remedied, the farmer sets out his/her own terms for remedy; a follow-up control visit will be made to ensure that the remedial measures have been implemented. Random unannounced control visits are carried out, and revision controls may also be performed when a farmer complains about the control and certification results, and it is necessary to verify the facts at the farm. Representatives of KEZ, the Ministry of Agriculture and the farm in question participate in the revision control.

KEZ has a Department of Inspection and a Department of Certification with self-decision authority. These departments have been accredited as inspection and certification bodies by CIA. Other institutions, such as the Ministry of Agriculture, and the KEZ Board of Directors, Certification Committee and Director, have no decision authority in certification processes. These institutions supervise and support other issues, including the objections and requirements of operators and the public.

The two-year period of transition to organic farming starts on the day the application form is issued. The KEZ Inspection Department carries out its first control visit during the growing season. KEZ inspectors control field crops, animals, stables, farm accounting and other production aspects, using special questionnaires, which must be signed by the inspected farm.

The results of the control visit are assessed by KEZ Department of Certification officials, who decide whether an organic product certificate should be issued or not. The farmer may appeal to the control organization when a certificate is not issued; if this appeal is rejected, the farmer may then appeal to the Ministry of Agriculture, which decides definitely about the appeal.

The KEZ Certification Department evaluates inspection results and issues certificates of origin or certification refusals.

The whole process of control and certification is supervised by the Certification Committee. As an advisory body of the Director of KEZ, this committee creates conditions for the impartial and efficient supervision of compliance with the act's provisions, and with the goals of ensuring fair economic competition for businesses and the genuine origin of labelled organic products and foodstuffs. It discusses and approves proposals made by KEZ to the ministry regarding administrative procedures for imposing penalties and special measures and for withdrawing registration; administers objections and appeals from organic operators, producers and traders; and resolves third party complaints that are beyond the level of the KEZ Director.

The following principles are observed in assigning inspectors to individual farms:

- An inspector must not check the same farm for more than two consecutive years.
- An inspector must not check a farm where there is danger of conflict of interest.

An indispensable part of the control system are sanctions, the most frequently used of which are the refusal to issue certificates and the imposition of fines for breaking conditions of the law. It is also possible to impose so-called special measures, such as ordering removal of the BIO – Organic Farming Product logo from producers whose labels and products are at variance with the law. Sanctions are imposed by the Ministry of Agriculture based on recommendations from control organizations.

In cases of suspected violation of the law, KEZ collects samples. It also collects samples randomly to analyse for the presence of genetically modified organisms (GMOs) or other unapproved substances in organic products and foodstuffs and in storage facilities.

## **EU ORGANIC FARMING ACCREDITATION PROCESS**

In 1995, the Czech Republic started to comply with the accreditation process for entry into the EU. A supervision agreement was concluded with Bioland Kontrollstelle Bayern (now BIOZERT, GmbH, Augsburg), which made possible the first exports of Czech organic products to EU countries. The accreditation process was concluded by Council Decision No. 548/2000 of 14 March 2000, making the Czech Republic an EU third country for the production and processing of plant products, in accordance with article 11 of Council Regulation No. 2092/91. Commission Regulation No. 2589/2001 of 27 December 2001 made the Czech Republic an EU third country for animal production, in accordance with Council Regulation No. 1804/99. These decisions were significant as they provided Czech organic products and foods of both plant and animal origin with free access to the markets of EU countries. KEZ was recognized as a control and certifying body for organic products and foods of plant and animal origin grown and processed in the territory of the Czech Republic. KEZ is also accredited by CIA, according to norms EN 45 004 and EN 45 011.

EU accreditation was based on two basic processes:

- assessment of the compatibility of national directives for organic farming with Council Regulation No. 2092/91;
- testing of the practical feasibility of the organic farming system by European Commission officials, especially verifying the implementation of European criteria by the control organization.

## KEZ ACCREDITATION

### In the Czech Republic

In October and November 2003, CIA carried out supervisory inspections and KEZ successfully defended its holding of the following certificates:

- Certificate for the Implementation of Certification Activities in accordance with Czech Act No. 242/2000 and European Council Regulation No. 2092/91, number 3096;
- Certificate for the Implementation of Inspection Activities in accordance with Czech Act No. 242/2000 and European Council Regulation No. 2092/91, number 4019.

### Figure 5. EU organic logos



The requirements of the Ministry of Agriculture and the EU were fulfilled, and KEZ expanded its accreditation; it is now eligible to carry out inspections and certification in accordance with the requirements of Council Regulation No. 2092/91.

### With the EU

Until EU accession, the Czech Republic was registered in the list of third countries under Commission Decision No. 548/2000 of 14 March 2000 for non-processed and processed products of plant origin cultivated in the Czech Republic, and under Commission Decision No. 2589/2001 of 27 December 2001 for livestock, non-processed and processed products of animal origin.

In accordance with Article 11(1) of Council Regulation No. 2092/91, registration on the list of third countries was extended until 30 June 2008 by Commission Decision No. 2382/2002 of 30 December 2002.

### With IFOAM

#### Figure 6. IFOAM accreditation logo



On 14 February 2003, at the international exhibition BIOFACHJ 2003 in Nuremberg, Germany, KEZ received a certificate of accreditation from IFOAM, granting it the right to use the IFOAM logo in its certification programme, KEZ Standards.

KEZ Standards are designed for farmers and processors interested in operating and fulfilling higher criteria for organic farming in accordance with IFOAM Basic Standards, which require more than either Czech law or Council Regulation No. 2092/91 do.

## Capabilities needed by farmers to comply with organic certification

### FARM RESOURCES MANAGEMENT

Ability to monitor and document all steps of product flow from purchase through transport, stocking, processing and sales is very important. Time and workflow management and organizational skills were all cited as important by the interviewed farmers. The interviewed farmers practise only organic cultivation, so no measures were needed to avoid commingling or mixing with non-organic substances or products to ensure the integrity of organic production.

Financial expertise is extremely important, as enormous pressure from competition encourages farmers to invest in infrastructure, labour and marketing so that they can survive on the market. However, financial institutions are not willing to lend money, most government policy measures are not suitable for small family farmers, and farmers' cash flow prevents them from making significant investments.

### RECORD-KEEPING AND DOCUMENTATION

Most interviewed farmers cited "patience" as the most important attribute. Record-keeping and documentation of the product flow on farms with a wide variety of mixed crops, complex crop rotations and several marketing channels is very complicated, tedious and time-consuming.

### POST-HARVEST PRACTICES

The only post-harvest practices that farmers carry out are washing and storing, which do not require any capabilities other than those already mentioned.

### MARKETING

All organic products have to be labelled as organic, delivered to the market in separate containers, invoiced as organic and offered as organic.

Organic agriculture is very information-intensive, so farmers need the ability to communicate the advantages of organic production to the market. This is a new skill for Czech farmers, because under the old regime they did not have to promote their products – the government simply bought them. The pressure from conventional marketing structures, which put

price before quality, is enormous. Successful competition in this environment requires that farmers (particularly family farmers) are willing to learn new skills, try untested steps and be courageous.

## Costs and benefits of organic production and marketing at the farm level

The eight farms interviewed for the survey covered a total area of 78.6 ha, with an average of 8.7 ha per farm; average annual income was 5 437 EUR/ha, including subsidies.

### SET-UP COSTS OF ORGANIC PRODUCTION

#### Conversion costs

According to the farmers, conversion costs were not significant (bearing in mind their rather small land areas). The most important issue – assuming that farmers already have horticultural knowledge – is the elimination of mistakes. Growing crops that the market does not want, or failing to match the capabilities of farmers and hired labour with the workload can cost up to 10 percent of the total harvest.

- Investment in building infrastructure is no different from that for non-organic production.
- Implementing soil recovery measures can entail significant costs, depending on the type of soil and the area. All interviewed farmers said that these costs were quite high in the first two years, when intensive recovery measures such as weeding or deep ploughing had to be used. Because all of the farms were more than five years old when the interviews took place, farmers were unable to express precise costs, but said that most soil recovery activities were carried out by themselves or family members; the necessary machinery was hired to save extra costs.

#### Direct costs

- *Integrating a new crop into a rotation or mixed crop:* The cost of this depended on the area – small farms using manual weeding and harvesting needed only expertise, but some large farms needed to invest in new machinery.
- *Use of leguminous cover crop* cost about 500 EUR/ha (100 euro for seeds, and 400 euro for labour, ploughing, sowing and disc harrowing costs).
- *Use of natural pesticides:* Natural pesticides cost nothing at fruit farms because of their excellent climatic and geographical location.
- *Productivity losses:* At the beginning productivity losses can be significant owing to lack of knowledge and skills to deal with predators, weeding, disease and sales; some losses totalled up to 7.5 percent of total turnover, or 46.7 EUR/ha.

**Indirect costs**

- *Training*: Up to 50 hours per year, 3 euro/hour – 150 EUR/ha.
- Test methods and observe their effects: 1 percent of turnover – 6.2 euro.
- *Publications*: 50 hours per year – 150 euro.

It cost 587.3 EUR/ha to set up organic production.

**MAINTENANCE COSTS OF ORGANIC PRODUCTION**

The main cost difference between maintaining small-scale, mixed organic production and large-scale, monocrop non-organic production is the labour cost. Planting, hoeing, weeding and harvesting are labour-intensive and require time and labour managements skills.

- Integrating a new crop into a rotation or mixed crop cost 50 EUR/ha for labour.
- *Commercial organic manures* cost 400 EUR/ha.
- *Use of leguminous cover crop/green manuring* cost about 500 EUR/ha (100 euro for seeds, and 400 euro for labour, ploughing, sowing and disc harrowing).
- *Use of natural pesticides* cost 300 EUR/ha (250 euro for textile cover sheets and 50 euro for maintenance labour).
- *Other measures to increase organic matter contents* required about 30 hours/ha/year of extra labour = 90 EUR/ha.
- *Weeding* is mostly done manually and is time-intensive, requiring 300 EUR/ha of extra labour.
- *Harvesting* entailed an additional 1 000 EUR/ha of labour costs. The time required to harvest mixed crops grown on small plots is significantly higher than that for harvesting single monocultures on large areas – up to three times as much in the case of vegetables. More labour, time and management skills are required. Organic fruit harvesting is more labour-intensive, because it is done manually when fruit has reached the optimum ripeness to ensure market quality.
- *Extra purchases*: High-quality certified organic seeds are significantly more expensive than non-organic – from 500 to 1 000 percent more. This is because of the special treatment required to produce them. It cost 450 EUR/ha for seeds.

It cost 3 120 EUR/ha to maintain organic production.

**COSTS OF PROCESSING ORGANIC PRODUCTION**

- *Processing*: The interviewed farmers did not carry out any post-harvest processing of their produce, but marketed it in its raw state.

- *Improved handling for better quality:* Farmers selling organic vegetables wash their produce prior to marketing. This does not require any significant investment, but fixed costs for water, time and extra labour. One farmer labelled individual packs of organic vegetables with stickers, which required extra time and labour. Altogether, this cost was no more than 1 percent of total turnover: 54.37 EUR/ha.

It cost 54.4 EUR/ha to process organic production.

### Extra marketing costs

- *Packaging:* an average 6.5 percent of total turnover, depending on the type of sales channel: farmers selling to retail shops or using box schemes cited higher packaging costs than those selling directly from the farmgate or at farmers' markets – 40.4 EUR/ha.
- *Labour for packing, loading and unloading:* about 9 percent of total turnover – 56 EUR/ha.
- *Transport to wholesale market:* 6.5 percent of total turnover, for car and fuel costs or postage costs – 40.4 EUR/ha.
- *Market fees:* 8 percent of total turnover, for fees at farmers' markets – 49.8 EUR/ha.
- *Communication and promotion:* 6.5 percent of total turnover for labels, leaflets, Web presentations, sampling and advertising – 40.4 EUR/ha.
- *Storage:* 4 percent of total turnover. Most farmers used their own storage facilities, so there were very few storage fee costs. Nevertheless, storage costs will rise significantly in the near future, as most of the interviewed farmers reported a market demand to prolong the availability of organic produce. This will incur significant investments in storage capacities – 24.9 EUR/ha.

It cost 252 EUR/ha to market organic production.

## CERTIFICATION COSTS

### Set-up costs

- *Cost of registration in the system:* 33 euro, 3.5 hours of filing – 5 EUR/ha.

### Ongoing costs

- *Inspection fees:* Yearly fee of 33 euro for 0 to 40 ha or 57 euro for 40 to 70 ha; plus 14 euro/hour of inspector's time; plus inspector's travel costs of 0.3 euro/km – 19.1 EUR/ha.
- *Yearly filing:* 7.5 hours – 2.6 EUR/ha.
- *Records of purchased inputs:* three hours/year = 1 EUR/ha.
- *Farm maps:* record-keeping of farm maps and accurate plot measurements are time-consuming, up to ten hours per year – 3.4 EUR/ha.
- *Cultivation activities:* ten hours/year – 3.4 EUR/ha.
- *Specification of inputs or suppliers used:* three hours/year – 1 EUR/ha.

- Harvest, storage, transportation and sales records: 110 hours/year – 37.8 EUR/ha.
- *Learning costs*: total of up to 50 hours – 17.2 EUR/ha.

Average cost of cultivated area for organic certification: 90.5 EUR/ha.

Total average cost: 4 104.2 EUR/ha.

Total average revenue: 5 437 EUR/ha.

## **BENEFITS**

All interviewed farmers reported *increased income* after the transition to organic production, from both government subsidies and organic price premiums. All farmers are able to sell all of their products as organic, achieving between 30 and 60 percent price premiums compared with non-organic produce, depending on the season and harvested crop.

Organic production *adds value to farmers' products*. Usually, but not always, the farmers' customers are willing to pay for this. A small proportion of final customers are not willing to accept the added value of organic products, owing to lack of information.

*Increased farm biodiversity* was cited as one of the main benefits of organic farming methods.

*Soil improvement* was also a major benefit. It starts about two years after the transition and increases continuously.

Organic horticulture is an extremely difficult type of agricultural production, particularly regarding crop rotation and production planning. The interviewed farmers agreed that over several years they gained significant capacity and skills in *better production planning*.

The wide range and variety of crops produced on a single farm enabled some farmers to *decrease the risk of underproduction* or complete crop loss owing to bad climatic conditions or disease.

*Timely payments* were also cited as a benefit by some farmers, as they achieved pay-on-delivery schemes with wholesale or retail clients, thereby benefiting from their organic status.

The ability to produce products of a quality that few others in the Czech Republic can produce gave most interviewed farmers *increased self-confidence*. Demand is much higher than supply, so producing high-quality organic fruits and vegetables *improves the negotiation capabilities* of farmers.

## Recommendations

Small and medium-sized organic farmers in the Czech Republic face both enormous market potential and immense pressure to survive. On the one hand, the demand for organic products is larger than the supply, and is growing, and on the other hand it is extremely difficult to produce successfully in a sustainable way while competing on the market. Small organic farmers generally lack basic marketing, communications, economic and managerial skills, and are financially weak.

For organic agriculture to attract more farmers and for the organic market to grow, certain policy measures are necessary:

- full political support for organic farming;
- mutual and integrated cooperation at all levels of State institutions (in the areas of agriculture, the environment, education and health);
- a control and certification system that is less rigid for its operators and more user-friendly, while keeping intact the basic principles of organic farming;
- greater incentives for small organic family farmers;
- more information, advice and demonstrations for farmers;
- more advice on developing marketing strategies and using a variety of sales channels;
- introduction of organic foods in public procurement;
- more funds for research;
- balancing of push and pull strategies, to encourage consumption and raise production;
- consumer information and education;
- emphasis of the non-production advantages of organic farming for the whole society;
- encouragement to consumers so that they connect to the sources of food and support local food communities.

FAO could encourage the EU and national governments to support specific measures aimed at the sustainable development of rural areas, particularly through skill and knowledge building in marketing for small and medium-sized organic farms.



## Annex

### Funds to organic farming, 1998 to 2003

Year	Funds (CK)
1998	48 091 000
1999	84 168 000
2000	89 101 971
2001	167 966 104
2002	210 861 131
2003	230 810 809

### Development of organic farmland, 1990 to 2004

Year	No. of operators	Organic farmland (ha)	% share of total agricultural area
1990	3	480	-
1991	132	17 507	0.41
1992	135	15 371	0.36
1993	141	15 667	0.37
1994	187	15 818	0.37
1995	181	14 982	0.35
1996	182	17 022	0.40
1997	211	20 239	0.47
1998	348	71 621	1.67
1999	473	110 756	2.58
2000	563	165 699	3.86
2001	654	217 869	5.09
2002	721	235 136	5.50
2003	810	254 995	5.97
2004	836	263 299	6.16

**Structure of organic farmland stock, 2001 to 2004**

Type of land	% share in 2001	% share in 2002	% share in 2003	% share in 2004
Arable land	8.78	8.31	7.70	7.50
Meadow and pasture	89.69	90.13	90.86	89.40
Permanent crops (orchards, vineyards)	0.45	0.38	0.36	0.40
Other	1.08	1.18	1.08	2.70
Total	100.00	100.00	100.00	100.00

**Registered land and land classified in the transitional period by culture, 2003**

Land	Arable land without vegetables (ha)	Arable land with vegetables (ha)	Meadow and pasture (ha)	Permanent crops (ha)	Other (ha)	Total (ha)
Certified organic	15 007	92	188 843	467	5 873	210 282
Transition	4 507	88	46 536	704	1 183	53 017
Total	19 514	180	235 379	1170	7 056	263 299

Source: KEZ : [www.kez.cz](http://www.kez.cz).**Numbers of enterprises classified as organic farmers, 31 December 2004**

Business activity	2001	2002	2003	2004
Organic entrepreneurs, applicants for registration	654	717	810	836
Manufacturers of organic foodstuffs (including those with their own distribution activities)	75	92	96	116
Retailers and traders	49	164	189	193
Total	779	973	1 095	1 155

Source: KEZ : [www.kez.cz](http://www.kez.cz).**Farmers' price premiums on organic food**

Product	Organic price as a % of conventional food price
Cereals	140
Potatoes	160 – 200
Vegetables	150 – 200
Meat	110 – 200
Milk	115 – 120

Source: Green Marketing, 2002: [www.greenmarketing.cz](http://www.greenmarketing.cz).