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Results of a questionnaire survey of Hungarian organic farms

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Abstract

Carried out in 2006, this study presents the results of a questionnaire survey covering 110 organic farms. For these farms the study shows the production structure, the parameters governing the conversion from conventional production to organic farming, and the factors motivating this conversion. Among aspects surveyed are changes in cost-output/sales price and respondents' opinions regarding selling organic products. Also discussed are respondents' subsequent success stories. Included in this paper are farmers' future expectations relating to demand and prices. The results obtained are contrasted with those published in domestic and international professional literature.

Keywords

organic farming, willingness to change, questionnaire survey, analysis, Hungary

Introduction

In Hungary and all over the world the amount of area devoted to organic farming and the number of farms producing organic products are continually increasing. Internationally the size of organic production areas is superior to 51 million ha. In the year 2004, organic production was carried out on 167,000 European farms on an area of 6.5 million ha. Of this total 5.8 million ha and 140,000 farms were in the European Union. The share of agricultural land devoted to organic production amounts to 34%. In Italy one finds the largest organic production area and the most organic producers (Willer – Yussefi, 2006) In Hungary since the 1980s organic farming has experienced continual growth. Based on 2005 data collected by Hungária Kht., the area devoted to organic farming was 122,615 ha and there were 1,353 organic Hungarian organic enterprises. This occurred after a slight decrease compared to the previous year. Organic farming means farming without the use of synthetic fertilizers and synthetic plant protecting chemicals. Organic farming is based on biological cycles, organic manuring, and biological plant protection (Radics, 2001) Organic agriculture entails a production method based on a harmonious relationship among soil, plants and human beings with the main purpose of sustaining a natural cycle. Of course these practices are coupled with the need for food production. Rather than always striving for the highest possible yield, it means a conscious effort to produce healthy foods of high biological value using the most environmentally friendly methods possible. In Anglophone countries end products produced in this way are designated as organic products while in several European countries they are termed biological products. Elsewhere they are referred to as alternative products (Kissné, Bársony, 2000) Among organic farming's fundamental principles are soil protection and environmental protection. This involves utilizing plants' natural capacities, and those of animals and of those capacities particular to given regions. Maintaining environmental quality is a must. In organic farming artificial supplementary materials are applied at minimum rates only, and one forgoes the use of synthetic fertilizers, plant protecting chemicals and pharmaceutical products. The aim of organic farming is in accordance with the national Program for Agro-Environmental protection (NAKP). It endeavours to promote agricultural practices based on sustainable use of natural resources, preservation of natural values, biodiversity

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and also regional values. Also present in this programme is the production of healthy commodities. NAKP measures relating to agro-environmental protection were advertised in the form of target programs, and included in this was a target program for organic farming. The greatest interest was in target programs for organic farming and grass utilization. Regarding applications for the year 2002, this statement held true for both the applied area (27 and 35%) and the number of applications (20 and 33%). As for farmers interested in organic farming, those farming areas already converted to organic farming represented more applications than those seeking support to change to organic farming (Szabó et al, 2000) Other than the NAKP program, the National Program for Regional Development also deals with organic production matters. The National Program for Regional Development supports propagation of environmentally friendly production methods and improving rural employment and income. It also endeavours to improve production structure related to given land sites, and promote environmentally conscious farming and sustainable land use. Its other organizational aims are environmental improvement and reduction of agriculture's environmental impact. Several authors and publications deal with the subject of organic production, but for more extensive farming surveys less information is available.

AT Szent István University environmental research was carried out regarding the use of plant protecting chemicals in Hungary. This research project's official numbers were T042503 and GAK ALAP 00138/2004 and fell under the auspices of the National Foundation for Science and Research. The research projects dealt with applying economic methods to measure the viability of reducing the inherent risk of using plant protecting chemicals in Hungary and with programs for optimizing herbicide use in terms of the environment. The economic effects of reduced chemical use were examined and in the summer of 2006 a questionnaire was compiled to gather as much information as possible on the natural and financial aspects regarding organic farms' economic management and on the subject of production conditions. This study presents the general results of the questionnaire survey. Results of each topic surveyed are separately compared with the professional data from other pertinent literature and perceivable differences are evaluated.

Methods and materials

The database for the research was gathered from data from a nation-wide questionnaire inquiry carried out in 2006. From the list of addresses available, 110 farms were selected by means of random sampling in hope of ensuring area and regional representation.

The questionnaire comprises several topics, and comprehensively investigates the transition from conventional farming to organic production. Other topics are the factors prompting conversion and the effects of output changes. Also covered are cost and prices relating to the change over. Data are gathered on farm resources, sales possibilities and farmers' future expectations. The second, large unit of the questionnaire – still a work in progress – contains data on output, cost and sales revenue according to different branches or farming. Data are evaluated using simple mathematical/statistical methods, which were completed using Excel and SPSS programs. The results obtained were compared with data in the domestic and international professional literature.

Results

Distribution of farms in terms of area location

From investigating the area distribution in the studied organic farms it can be stated and also statistically proved (the values of the Chi^2 test statistics relating to 7 statistical regions both in county and regional examinations were higher than the critical value at a confidence level of 95%) that the area location distribution of organic farms is uneven. For example, even when viewed on a regional level, differences between area units are apparent. 24% of the farms are found in the Great Plain southern region, 31% in the Great Plain northern region, 12% in the North Hungarian region, 5% in the Central Hungarian Region, 13% in the southern Transdubian region, 10% in the Transdubian northern region and 5% in the western Transdubian region. In the two Great Plain regions, the number of organic farms surpasses the average, and 55% of the farms under study are located here. The percentage of organic farms operating in the Transdanubian (28%) and Central Hungarian (5%) regions is lower than the average.

Production structure

Data were requested on the type of production practiced on the farms regardless if they were only organic, or both conventional and organic. On the studied farms 76 practiced only organic production and on the remaining 34 both organic production and conventional production were practiced. *Of the 110 farms, on 66 farms (60% of those studied) only crop production was practiced while 34 farms (31%) raised crops and kept animals* (Table 1). However, the rate of processing and integrating activity was low.

Table 1

Distribution of the directions of production

Denomination		Number of farms	Percentage of farms
Crop production		66	60%
Crop production and animal husbandry		34	31%
Bee keeping	Possessing area	4	4%
	Without area	2	2%
	Total	6	5%
Processing		2	2%
Animal husbandry- fishery		1	1%
Integrator		1	1%
Total		110	100%

Source: on the basis of own survey

Research on the Conversion Process

While looking into the motivation behind conversion from conventional production to organic farming, Rigby-Caceres (2001) established two separate groups, and the study distinguished between those who voluntarily converted for personal and environmental/ethical motives and farmers drawn by attractive prices. Factors leading to conversion were fur-

ther detailed by Padel (2005) who explored the personal, economic, and external factors behind conversion. British research (ADAS, 2003) revealed that on crop farms lucrative prices and other economic motivations do not fully explain the reasons behind conversion since a 10% reduction in organic prices could significantly reduce surplus profit, thus showing that economic reasons alone don't lead to conversion. Nevertheless, their surveys indicated that 55% of converted farmers did so because of the higher sale prices. According to an earlier 2002-2003 Szent István University survey, 23% of organic farmers converted for economic reasons, 22% for ethical reasons, and 55% converted for both reasons (Csótó-Triczka, 2003).

Respondents were able to choose from a list of motivating factors and were able to select from among several categories. On average a respondent marked 2-3 categories Category frequency is shown in Table 2.

Table 2

Reasons for conversion

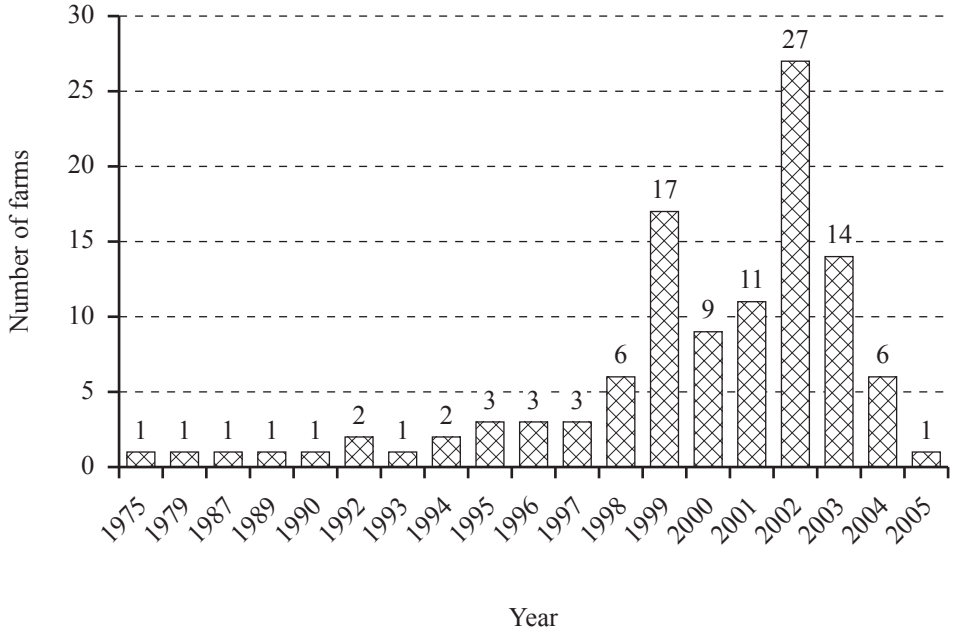
Reason	Number of mentioning individuals (capita)	Percentage
Personal conviction	67	61%
Environmental concern	58	53%
Production of healthy food	54	49%
Higher sales price	51	46%
Negative factors in relation to chemicals	46	42%
Higher support	33	30%
Less hectic market	9	8%

Source: own survey

The majority of the respondents initiated organic farming out of personal conviction and out of concern for safe production and environmental protection. When contrasted with the earlier research results, the rate for economic motivation factors was lower. Also the opportunity for higher sales prices and higher subsidies were selected on fewer occasions. 51 survey respondents selected higher sales prices as the chief factor behind their decision to convert, and 33 respondents mentioned greater subsidies. Still on the economic question, farmers were asked if prior to conversion they had calculated the economic ramifications of conversion and come up with a subsequent financial plan. .Surprisingly 62 farmers or 56% of the respondents had not made such calculations. Another question concerned the precise time when organic farming practices were implemented. Usually the answer was at the beginning of the conversion process, but . in some cases actual organic farming preceded the introduction of the formal rules governing organic farming. Fig. 1 shows the conversion process dynamics on the studied farms. Until 1990 only 5 farms had begun organic production, then between 1991 and 1995 there were 8 more farms and between 1996 and 2000 the number shot up to 38. After the year 2000, a further 59 farms converted to organic production. Thus, the conversion wave started in 1995/1996 (Figure 1).

Figure 1

Temporal distribution of the number of farms undertaking organic production (without accumulation)



Source: on the basis of own survey

In 1999 the dynamics of conversion accelerated. Backing this trend were a larger market and more subsidies.

Examination into land size and branch of cultivation

Of the 110 farms studied, most were farming on a land area of 10,035 ha, but one farm had a noteworthy additional 4,000 ha because it contained a fish pond. Table 3 categorizes farms in terms of size. From the table it can be seen that the majority of the farmers had very small land areas In fact, one third of the farms produced on areas smaller than 5 ha.

Most farms possessed plough land and grassy areas. If one leaves out the plough land, little of the remainng land was in orchards, gardens, and forest areas (Table 4).

Table 3

Classification of the farms according to size categories

Size category	Number of farms	Cumulative number of farms	Cumulative percentage of farms
< 1 ha	13	13	13%
1.01-2 ha	8	21	20%
2.02-5 ha	12	33	32%
5.01 - 10 ha	9	42	41%
10.01 - 15 ha	7	49	48%
15.01 - 20 ha	8	57	55%
20.01 - 30 ha	8	65	63%
30.01 - 40 ha	6	71	69%
40.01 - 50 ha	6	77	75%
50.01 - 60 ha	3	80	78%
60.01 - 70 ha	3	83	81%
70.01 - 80 ha	3	86	83%
80.01 - 90 ha	2	88	85%
90.01 - 100 ha	2	90	87%
100.01 - 200 ha	7	97	94%
201.01 - 1000 ha	4	101	98%
1000.01 - 2000 ha	1	102	99%
> 2000 ha	1	103	100%

Source: own survey

Table 4

Distribution of the area of the farms under examination (according to branches of cultivation)

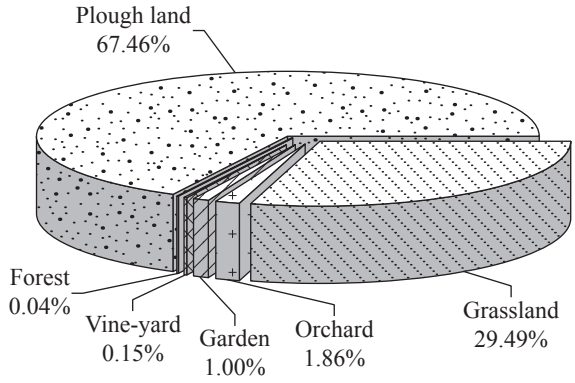
Branch of cultivation	Total area (ha)	Number of farmers	Average land size (ha)
Plough land	4,071.28	67	60.76
Fish pond	4,000.00	1	4,000.00
Grassland	1,780.06	33	53.94
Orchard	112.29	12	9.36
Garden	60.43	24	2.52
Vine-yard	8.90	5	1.78
Forest	2.30	2	1.15

Source: own survey

The actual land use distribution was distorted by the size of the fish pond. With the exception of this noteworthy data, analysis reveals that plough land represented a significant proportion (Figure 2). Minus the fish pond, average land size amounted to 59 ha (including the fish pond it amounted to 97 ha).

Figure 2

Distribution on the branches of cultivation (without the fish pond)



Source: on the basis of own survey

In comparing these data with those published in the 2005 Biokontroll Hungária Kht. report (Roszík et al, 2006), it can be stated that 40.2% of the surveyed areas consisted of plough land, meadow and the share of land devoted to grazing was higher (53.4%) when contrasted with the respective values existing in the sample. (67.46% and 29.49%). In the year 2004, the share of plough land in the area monitored by Biokontroll Hungária Kht. was 48.33% (Roszik et al, 2005), but the share of meadow and grazing land was only 46.36%.

Since beginning organic farming, respondents were asked if any change had occurred in the size of the utilized areas. 21% of the studied farms changed the area size, 16% of them brazenly opting for an increase, and 2% opting for reduction. The percentage of farms where area size varied between increase and decrease was a mere 3%.

Of the 110 questioned, 103 farm operators were operating on their own private land, and 7 farms did not own their own land because the nature of their operation (bee-keeping, processors, integrators) did not require it. 60% of the producers were farming their own land and 30% were operating on both their own land and on leased land. Only a small proportion of the farms (5%) were operating exclusively on leased land. In three cases, land area was leased from family members, and 2 organic farms were operating on government land.

Research on the land area locations not only dealt with the size of the land area, but also with the perceived quality of the land. Respondents were asked to categorize their area in terms of whether they considered it as of good, medium, or bad. Subsequently, respondents were asked to evaluate their land using an objective yardstick, meaning golden crown (GC) measurement. Respondents were asked to provide information about the golden crown values regarding the best and worst parts of their location and about their area's average golden crown value. Golden crown value is an index that indicates land quality. Participants were

more than willing to categorize their land as bad, medium, or good but significantly fewer were willing to assign objective golden crown values to their land.

55% of the respondents regarded their land area as of medium quality, while 26% felt it was good and 19% as bad. One half of the respondents revealed their land quality in terms of golden crown. The worst location had a value of 0.7 GC and the best one a value of 47 GC/ha. The sample *average was 21.3 GC which is better than the national average (19.8 GC/ha)*. 62% of the farmers produced on an area having 15-30 GC/ha, and 15% of the locations could be considered as good quality (above 30 GC/ha) and 15% of very poor quality (below 10 GC/ha).

Labour force – rate of employment

In the study two questions dealt with manpower and human resources. One question dealt with the number of employees and the number of seasonal workers. The other question dealt with family members working on the farm, which is often the case with small-scale operations. Surprisingly on *75 farms there were no employees, and when a need for labour occurred day-workers were hired*. Table 5 shows a distribution of the farms in terms of employees.

Table 5

Distribution of the farms on the basis of the number of employees

Number of employees	Number of farms
Less than 5 capita	22
5-10 capita	5
11-25 capita	2
26-40 capita	1
41-100 capita	1
101-200 capita	3
More than 200 capita	1

Source: own survey

If a farm did have employees, there were generally fewer than 5 per capita. 63% of farms with employees belonged to this group. There were 13 farms that had only one employee. Of these 13 farms, on six of them the employee was a family member. 5 farms employed 2 workers, 1 farm 3, and on 3 farms had 4 workers each On these farms all employees were family members. On farms with more than 4 employees only one had an employee that was a family member, and on the remainder employees were not family members. One can conclude that small-scale farms tend to employ family members. 18 farms tended to hire seasonal workers, and generally only 1-5 per capita.

The extent of farm mechanization

The questionnaire yielded data on the extent of mechanization and the amount of machinery on the farms. Mechanized equipment was divided into 4 groups based on its capacity, and respondents could select from a variety of farm implements and on the list. 26 farms (24% of the farms included in the study) lacked mechanized equipment. When work

arose requiring mechanized equipment, these farms contracted the job out on a commission basis. A significant portion of the farmers had mechanized equipment (Table 6). The majority of the farms (57%) had facilities for mechanized equipment.

Table 6

Examination into the degree of supply with machines

Denomination	Number of farms	Percentage of farms
Farm having neither power- nor working machines	26	24%
Farm having power- and also working machines	63	57%
Farm possessing only working machine	19	17%
Farm possessing only power machine	2	2%

Source: own survey

Changes in production during the conversion process

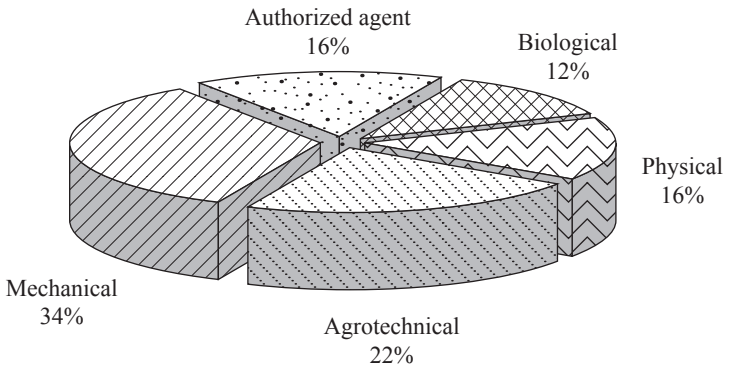
Respondents were asked whether they produced the same products as prior to conversion to organic farming. The purpose of this question was to determine if the producer possessed a basis for comparison regarding the two production methods. Only responses given by producers were taken into account since processors and integrators are not fully informed on the subject. 76% of the respondents had already produced the same goods as those produced with organic farming. The remainder (24%) however, were new to organic farming and had never before produced the same goods. It was also determined whether previous to officially converting to organic operations farmers had been using artifical materials or had already been using natural materials in plant production. Information was sought on whether different chemicals (fertilizers, plant protecting chemicals, yield-increasing agents) had been used in conventional production previous to conversion and whether organic manure had been applied as a nutrient additive.

56% of the respondents used fertilizers, 61% plant protecting chemicals, 54% applied both chemicals before starting organic production. Yield increasing additives were used by 15%, and other materials by 4%. It is noteworthy that even during conventional production 56% of the respondents manured their land areas. Before converting to organic farming 37% of the respondents did not use either chemicals, fertilizer, plant protecting materials or other yield increasing additives. Later respondents were asked how and what they used in place of artificial chemicals. Several questions were posed regarding changes in production technology. One of the questions dealt with the type of equipment organic farmers used to control weeds, and how much they used them. In 96 of 110 farms, some kind of plant protecting procedures was applied. More often than not respondents selected mechanical (75%) and agrotechnical (57%) methods Physical protection and authorized chemicals were used by 50-52% of theose questioned, and biological plant protection by 41% of the respondents.

Figure 3 indicates provides a proportional breakdown of plant protection methods by a “hypothetical average farm”.

Figure 3

Average proportion of plant protecting methods



Source: own survey

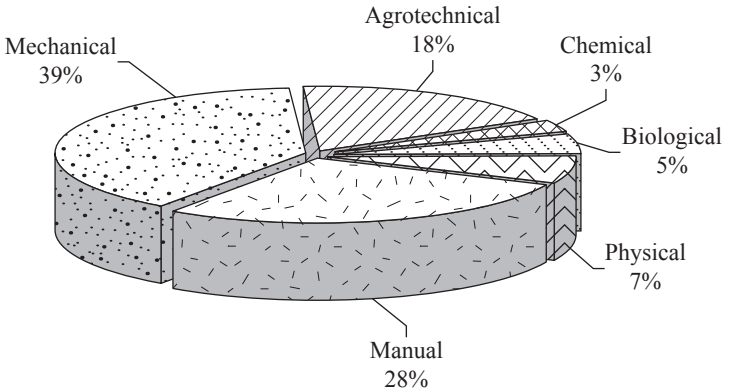
According to the average value, the most frequent and the major method was mechanical plant protection, followed by agrotechnical methods. Both authorized chemicals and physical plant protection had a share of 16%. Biological plant protection was used the least.

In terms of weed control, respondents had to choose among 6 categories, and 97 valid answers were given. For weed control methods 79% of the respondents marked mechanical, then came manual at 68% and then agromechanics at 48%. Biological was selected by 14% and chemical use by 16%. Physical weed control was mentioned by 26% of those questioned. Foremost among weed control methods were soil cultivation, mechanical weed control (inter row cultivator, weed-comb, mowing) and in some locations manual labour.

On a "hypothetical" average farm the weed control response averages would be the following: mechanical (39%), manual (28%). These were followed in order of magnitude by agrotechnical control, biological methods and spraying with authorized chemicals (Figure 4).

Figure 4

Average frequency of the elements, applied in weed control

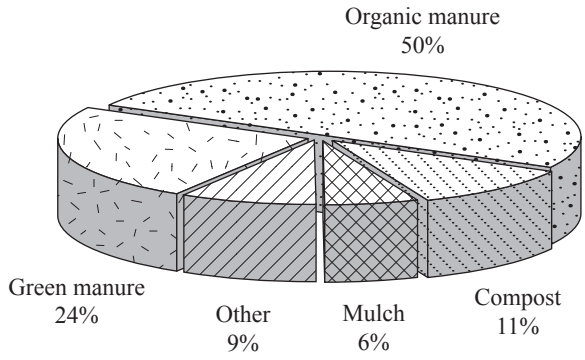


Source: Own survey

For nutrient supply there were 93 valid responses. Respondents were questioned about their nutrient supply methods and the proportions applied by the given farm. The most common nutrient supply element was organic manuring, which was mentioned by 77% of the respondents. 55% mentioned ploughing in green manure crops. Mulch and compost were used by 22-27%, and 23% applied other materials such as bacterial manure, sandstone powder and other minerals. From the above data it was determined what proportion of materials an average farm used for nutrient supply (Figure 5).

Figure 5

Average of the results of nutrient supply



Source: own survey

Cost analysis

To provide an economic comparison regarding the technologies applied for conventional and organic production, respondents were asked about the actual cost changes they had undergone. A question dealt with the change in 3 main categories (machine cost, cost of labour, material cost) and also with other categories, which were sometimes brought up by respondents. Of the 110 organic farms, 98 reported cost increases in some of the above categories. 12 farms did not respond to this question. It was impossible to establish whether the lack of response was due to unwillingness to answer or whether there had in fact been no cost increases.

45% of those questioned mentioned labour cost increases and another 27% mentioned machinery cost increases. Both of the previous cost categories were related to abandoning chemical use because mechanical cultivation and labour costs subequently increase for weed control. Increased labour costs also extended to other agricultural branches that require a lot of manual labour such as horticulture, fruit and vegetable production. 22% of those questioned experienced an increase in material costs and 6% mentioned an increase in other costs. For other costs most of those surveyed stipulated supervision and certification fees, delivery costs and membership dues.

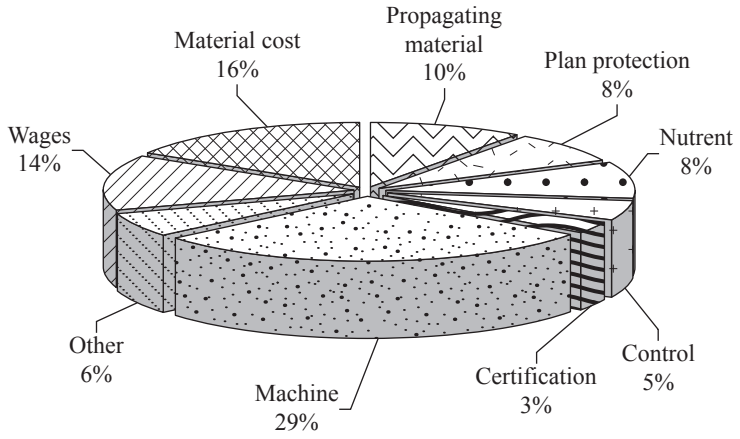
Still on the topic of costs, participants were urged to mark the principal cost categories in their operations and assign these principal cost categories a numerical share in total operations.

After viewing the average of the obtained responses, a "typical" farm's cost structure in relation to the survey's average values was able to be determined (Figure 6). The highest cost item was associated with operating machinery amounting to 29% of total cost. The cost of seed and propagating material was also significant as well as wages for seasonal and permanent workers. There were also other expenses.

Crop protection costs and nutrient supply amounted to 8-9% of overall costs and were inferior to the 20-25% incurred in conventional production.

Figure 6

The average cost structure



Source: author's own survey

The results obtained mesh with those published in the domestic and international professional literature. The greatest costs incurred in organic production came from wages and related payments, and underlying expenditures such as costs linked to weed control, be they manual or mechanical. Within related costs tractor operation and maintenance represented the greatest expenditure (Radics, 2002:575). According to Offermann-Nieberg's (2000) research, variable costs on organic farms are generally only 60-70% of those on conventional farms. It has been asserted that organic farming fixed costs are almost 45% higher. On average organic production costs amount to 80-100% of those on conventional farms. According to Szente (2005) organic production's cost-level has increased in recent years. However, compared to conventional production, those converting to organic farming don't need to make major investments.

Danish research into the cost structure of crop production on organic farms has stated that the cost of soil cultivation, machine and wages for manual labour involved in seeding amounts to 20-40% of the total cost. Among total expenditures per ha, 22-58% involves depreciation and interest payments. 12-46% of the total cost is related to paying workers a commission work (Jacobsen et al, 2005)

Through cost analysis one sees that costs entailed in converting to organic farming were related to a change in cost strucutre rather than to the extent of production. Undoubtedly organic farmers save money on the cost of protective chemicals and of spreading fertilizers,

however, they have to spend more money on soil cultivation, organic manuring, plant protecting procedures and labour. To a degree the latter expensives offset the savings inherent in organic farming.

Evaluating output changes

Survey participants who had converted to organic farming were asked about output changes. Respondents had 9 categories to choose from, and for the output changes questions 96 valid responses were obtained. Table 7 contains the distribution of the answers.

Table 7

Judgement of the change in output

Denomination	Number of respondents (capita)	Percentage of the respondents
Unchanged output, deviation max +/- 10%	43	44.79%
Output reduction between 10-15%	22	22.92%
Output reduction above 15%	29	30.21%
Output increase above 15%	1	1.04%
Output increase between 10-15%	1	1.04%
Total	96	100.00%

Source: own survey

Generally, respondents did not specify an increase in output as stagnant and decreasing yields were the norm. According to 45% of the respondents, output divergence fluctuated within a band of +/-10% as compared to conventional production. A further 53% of those questioned experienced an output decrease of greater than 10%. In two cases, a respondent reported an output decrease of 30-35%. In the table these two responses are included among output decreases above 15%. Two respondents indicated an increase in output of above 10%.

According to Offermann - Nieberg (2000) organic farming outputs are generally lower compared to conventional production, although results vary significantly depending on the operation.. Their research showed that vegetable and animal product output approach those on conventional farms. Grasslands and cereals reached 70-100% and 60-70% respectively of the conventional farm results.

Between 1993 and 2001, British researchers examined the average organic crop yield of several crops and compared them with results achieved by conventional production. Over eight years the average potato yield was 43% lower than the conventional average. During the same time period the average organic winter wheat yield was 20% lower (Cormack, 2002).

Sales prices

During conversion from conventional production to organic farming, it is possible to sell products at a top price (premium). This economic fact was behind the changeover on several farms.

The price of designated organic products is generally higher than the usual market price. The actual price varies according to countries and markets (Radics, 2002:569). According to KSH data (Central Statistical Office) in 2002 there were significant average price differences between conventional and organic products (Table 8). In fact, for some product ranges one could make double the conventional average price. However, regarding higher prices for organic products, it should be noted that these prices are decreasing from year to to year and sales price trends differ for markets and regions. When creating a model for the Hungarian situation to illustrate the relationship between sales price and market saturation, Takács and Takácsné György (2002), Takács (2006) stated that the the growing number of new entrants may drastically decrease the income from organic production by reducing the attainable market premium – equilibrium price.

Table 8

Comparison of average price of conventional products with that of organic products

Denomination	Average price of organic products (Ft/kg)	Average price of conventional products (Ft/kg)	Average premium (%)
Winter wheat	45.0	23.1	94.8
Winter barley	26.5	25.5	3.9
Spring barley	37.0	27.3	35.5
Maize	34.0	20.1	69.1
Sunflower	80.0	73.0	9.6
Rape	71.5	50.9	40.2
Green peas	71.5	51.3	39.4

Source: KSH; 2004:18.

Between 2001 and 2003, an Austrian survey researched differences between the price of conventional products and that of organic products. The survey stated that prices significantly diverged according to products. For potatoes, fresh fruits, milk, dairy products the difference amounted to 45-55%, 18-37%, 10-14% and 0.8-10%, respectively and it is noteworthy that in the case of fresh vegetables, the difference came to -6.4-13.4%. Therefore, in some cases, the organic product was cheaper than the conventional. (Schantl, 2004)

Of 100 respondents, 69 managed to obtain higher sales prices than with conventional products. However, the remaining 41 respondents (37% of those questioned) were unable to get a top price, demonstrating the previously predicted price decline. Farmers were asked to indicate the rate of the obtained/obtainable top price. Table 9 shows the distribution of the answers.

21% of those interviewed accepted the price offered by the merchant based on the apparent relation to market price. Only 5% of the respondents made decisions based on the sales price alone. The decision was not influenced by merchants' offers or other factors. 60% of the interviewees could numerically define the order of magnitude of the premium and 14% of the respondents were able to obtain a top price of 30% or even higher. The order of magnitude of the potential top price fluctuated within a wide band according to products and markets, but on the whole it was lower than that mentioned in the professional literature.

According to 71% of the respondents, there was no such product/good with which a spectacularly high top price could be reached, but the remainder (29%) felt that for some products the top rate was extreme. Such products were e.g. potato, spelt (German wheat), oil-pumpkin, sunflower and plant-germs. 14 interviewees felt that even very low top price values could be achieved e.g. for maize, alfalfa, green peas and cereals, and even spelt, which runs contrary the previous statement.

Table 9

Distribution of the premium obtained according to categories

Rate of premium	Number of respondents (capita)	Percentage (%)
0%	4	4%
0-5%	13	12%
5-10%	12	11%
10-15%	11	10%
15-20%	10	9%
20-25%	4	4%
25-30%	1	1%
Above 30%	15	14%
According to the offer of the merchant	23	21%
Own decision on price	5	5%
Did not answer	12	11%

Source: own collection

Examination into the sales processes

In the questionnaire several questions were included to garner information on sales practices, market possibilities and future expectations. 54 of the farmers, or nearly one half of the interviewees sold all of their products. 40% of the respondents marketed only a part of their yield, keeping the rest for their own consumption for alimentary or feeding purposes. For market reasons farmers were sometimes unable to sell the total yield. However, 11 farms, or 10% of the sample, sold nothing as all products were used for internal consumption. Unfortunately, several farmers indicated that they were unable to sell any of their products, not even as conventional products. 2 interviewees didn't sell their crops, but utilized these products for farm animals. Animals or products of animal origin were brought to the market.

For sales channels respondents were asked to mark those types that applied to their farms. Respondents were able to select among several sales channel choices. Table 10 shows the distribution of the answers.

Table 10

Distribution of the sales channels applied

Mode of sale	Percentage
Sales contract	67%
Sales from house/farm	39%
Sales on organic market	15%
Sales is organic (bio)shops	9%
Sales through cooperatives (TÉSZ)	6%
Sales in own shop	4%

Source: own survey

The most frequent forms of sales were contractual sales and sales made directly from the home. The relationship between the farm-size and sales channels was separately investigated and it became clear that only 15% of farms smaller than 1 ha possessed sales contracts. In the case of larger farms this form of sales was overwhelming, and almost all of the large-scale farms had sales contracts. A clear majority of farms on a land area of less than 1 ha sold directly from their farm location (77%). This mode of sales decreased with the increase in productive area, and ceased altogether for farms above 200 ha in size.

According to Frühwald (2003) in Hungary selling directly from one's farm location is a typical practice offering the advantage of maintaing personal contacts, product identity and fewer logistic problems. However, it seems disadvantageous as the farmer does not take into account certain associated expenses. This means that the farmer doesn't have a clear picture of his/her financial situation (I.e. gross income interest). The author of this paper contends that the key markets for organic products are organic shops, supermarkets, but this is still in its initial stage. This is slightly inconsistent with Szente's findings (2005:96-97), according to which 41.4% of the organic products were purchased at markets, 40.7% at supermarkets, 39.4% in organic shops and only 6.6% were purchased from producers, and one could go on to cite more statistics. Results obtained by the author of this study back Frühwald's statements that after sales contracts, the most frequent mode of sales is selling from the farm/house. The proportion of sales in organic markets and organic shops (bio-shops) is lower (Table 10).

Sales price is unequivocably determined by the sales channel chosen by the farm. If the producer sells his/her goods to a merchant or middleman, then the producer must accept the fact that the price will be lower than that obtainable by selling directly to the consumer. With that in mind this study researched the proportion of farms capable of obtaining a top price in terms of the given sales channels. The result showed that farmers can get the top price at organic markets (88% of those who appear on the market). This proportion is also high (83%) for those selling through producer and retail cooperatives. Surprisingly, the proportion of those selling from their own farm location was the lowest (50%). 61% of those selling directly from their farm location and 67% of farms possessing sales contracts were able to fetch the top price.

In terms of sales channels, it was shown that in countries where supermarkets are less prominent in marketing organic products, it was easier for producers to obtain an even higher top price. In these countries, the growth rate in consumption is higher. However, although at

supermarkets the top price may be lower for organic products, these products are nonetheless exposed to a wider array of consumers (Schmid – Richter, 2000).

Therefore, displaying organic products at shopping centres could presumably bring about an increase in consumption thanks to greater exposure, but at the same time price reduction should be taken into consideration. Widespread exposure of organic products at supermarkets may have two consequences; on the one hand, market peneratration and stabilization, and on the other hand reduction in the top price obtainable by the producer.

Of the 105 respondents, 53 (50.5%) were having to cope with sales problems. Among the farms under study, 24% sold only in small lots, 39% only in large lots, and 38% both in small and in large lots. 79% of the respondents possessed their own clientele. 77% of those selling in small lots had their own clientele. This also held true for 68% of those selling in small and large lots and 90% of those selling only in large lots. 60% of the farms continually delivered goods to market while the remainder of the farms only periodically/seasonally brought products to market. Of those who possessed an established clientele, 47% had sales problems. For farms without a private clientele it came to 57%.

58% of those selling in small lots said they had sales problems. This was also true for 49% of those selling in small and large lots and 43% of those selling in large lots. Thus, it was mainly farmers who couldn't transport a large amount of product to marker who were having sales problems. When one related sales problems to farm size, it was expected that small-scale farms would experience more sales problems. However, this expectation did not prove correct as sales problems cropped up regardless of farm size. It was impossible to discern a correlation between sales problems and farm size as sales problems were present in every category.

Sales potential were influenced by whether the given farms were officially certified. Of the farms studied 64 had official certification from the Hungarian supervisory organization. A further 36 farms were certified both from the Hungarian and foreign supervisory organizations and 2 farms had only foreign certification. 7 farms were not certified at all. One of these had no intention of seeking certification in the near future and the other 6 farmers never planned to become certified. Regarding certifcation and supervision, the current author was curious as to the extent certification was held necessary by the farmers. 75% of the respondents thought that without certifcation organic products could not be sold. According to another 12%, organic products could be sold but not at the top price. 11% felt that certification did not indicate quality and therefore it was possible to sell a product without certification.

According to Kürthy's 1997 research, turnover of organic products could be increased through price reductions, increasing sales channels, and displaying organic products more often at super and hypermarkets. One should strive for the widest possible domestic market.

43% of the interviewees stated that Hungarian accession to the European Union has had no effect on organic production. Another 39% stated that EU accession has provided greater market opportunities and simultaneously increased competition. Yet another 16% believed that Hungary's joining the European Union has bolstered market opportunities. Only 2% considered EU accession as negative. As for post-accession price tendencies, Hajmási (2003) stated over the long run there would be price differences between Hungarian and the EU countries, but that agrarian prices would be increasingly calculable. Orbánné's

2002/2003 research stated that during the last decade internal EU prices did not converge (except for a few products) and for this reason one shouldn't expect Hungarian prices to converge with a hypothetical EU unit price. In her view, factors inducing price changes are only indirectly linked to accession, and in some cases they are not at all linked to accession.

Evaluating subsidies

In the case of conventional field crop production, farmers can apply for support on the basis of area (Single Area Payment Scheme) and they can also apply for national "top-up" support. In 2005 a farmer could obtain a total subsidy of 38,046 HUF/ha (A 2005. évi területalapú…). *Organic producers can take part in a target program for organic field crop production, as a surplus subsidy*. During the conversion period they can ask for 44,150 HUF/ha, and after conversion they can seek a 31,395 HUF/ha subsidy. This subsidy was available for farmers who weren't using chemicals. In total a farm in the midst of converting to organic practices can obtain support amounting to 82,169 HUF/ha, and after conversion 69,441 HUF/ha (FVM, 2005).

13 of the studied farms did not meet the minimum size for subsidy payments. Most of the interviewees did not receive conversion subsidies. However, most of the interviewees (72% of the farms) operating on locations meeting the minimum size requirements received subsidy payments. 26% of the subsidized respondents received payments associated with organic production only, and 11% of them were getting subsidies based on area only and/or received national supplementary subsidies. 60% received both organic support and payments on an area basis. Two interviewees were aware that they received support, but they could not say where it came from. Of 110 respondents, 70 got some kind of subsidies and only 55 of them could give a rough monetary figure. On average the 55 organic farms received support amounting to 48,091 HUF/ha. The resulting subsidy average amount exceeded those for conventional production. Another 40 respondents (36% of those included in the survey) were not receiving any subsidies.

Efficiency and profitability

At another stage in the survey participants were asked to state if it was possible to obtain higher farm income through organic production than with conventional production. Of the 110 farms under study, on 5 farms there had not previously been conventional production and thus they did not possess a basis for comparison. Another 4 farms failed to answer this question, thus in comparing efficiency 101 valid answers were gathered. *58% of the respondents felt that higher farm income did not result from organic farming.*

The relationship between efficiency and sales prices was separately studied. According to the answers obtained, 69 farms managed to get top prices, and 32 of them (46%) achieved higher efficiency. 41 farms did not manage to get top prices, but at the same time 10 farms (24%) obtained top prices providing a higher income than with conventional production. This was rendered possible because the organic farmer could get higher subsidies and/or the farmer's costs fell below the conventional cost level.

As for the correlation between support and efficiency, it was found that 70 farms received some kind of production subsidy associated with organic production and or/payments based on area. Twenty-six (37%) of the 70 farms indicated that they could achieve better income from organic production than from conventional farming. Of the 26 farms 5 increased efficiency but without getting the top price.

40 farms failed to receive support payments. In this group, 16 farms operating without subsidies achieved higher income than with conventional farming. There were 5 farms which did not receive subsidies but nonetheless managed to increase efficiency. This was perhaps due to cost reduction and/or yield increase or to a change in sowing structure.

Future expectations

After viewing the data, focus turned to the farmers' future plans. Farmers were asked what kind of changes they would initiate in relation to organic production. 109 valid answers were received. In total 83% of interviewees either intended to retain their farms at the present size or wanted to increase size. 17% of them were thinking of reducing or terminating operations. Among those interviewees wishing to terminate operations, it was felt that organic farming did not bring about higher income. It is however noteworthy that of the 5 farmers wishing to terminate their operations, 4 thought that future demand and prices would increase. The fifth respondent believed demand would remain unchanged, but nevertheless the farmer still decided to cease organic farming operations.

89% of those producers wanting to reduce the size of their organic operation considered that income from organic farming did not exceed that of conventional production. 45% of those not wishing to change the size of their organic operation and 46% of those opting to enlarge felt that organic production would certainly provide higher income than conventional agriculture.

28 producers said they would increase the size of organic production. Of the 28 producers, 25 responded to the question about whether organic farming was more profitable than conventional farming. Since conversion higher income was achieved by slightly more than half of the 25 respondents (13 capita) and perhaps this could justify increasing farm size. Presumably, the 12 farms choosing size increase hoped to enhance profits and to reach a minimum (economic) size. All of the 28 farms were confident that future demand would increase. 16 interviewees anticipated demand and price increase. 11 farmers expected demand increase and essentially unchanged prices and there was only one single farm that expected future price reduction to run parallel with demand increase. This runs contrary to the European tendency where until 2005 there was stagnation in the number of organic farms (Járási, 2006).

It was also asked whether the given farm had the intention of enlarging/modifying its activity or alter the proportion of each activity. Respondents could mark defined categories or if none of them proved to suitable, they could present their opinion under a newly created category. 57 of the respondents said they were not planning to initiate any changes in their present production structure. The majority (45%) of those intending to change would change/enlarge their production structure towards production for consumption purposes and some toward processing activity (42%). 26% of the respondents would steer their operation toward animal husbandry and 15% would cultivate various feed crops. 17% of the farms under study would willingly undertake an integrator role.

It should be noted in examining production structure that the given answers do not reflect in all cases the answers regarding size changes in organic production. Several answers referred to the farmer's desire to reduce the size of organic production. However, these same farmers would strengthen their processing activity and integrating role. For this reason data on production structure and change in production cannot be directly compared.

Regarding future changes, interviewees were asked what sort of changes they anticipated in terms of demand and prices. *82% responded that demand would increase and another 11% expected stagnant demand. Only 7% anticipated a decrease in demand. The majority felt that prices would increase, and only a small minority expected price reduction*. (Table 11). Here the optimists were more numerous, but this could be explained by ignorance of market processes.

Table 11

Price- and demand expectations

Expectation	How many % of the respondents did it choose
Increasing demand, decreasing price	3%
Increasing demand, increasing price alike	46%
Increasing demand, insignificantly changing price	33%
Demand is stagnant	11%
Decreasing demand	7%

Source: own survey

The survey also tried to determine whether producers utilized any advisory services. 55% of the farmers did not utilize advisory services, but 17% of those still considered it necessary, while 82% of them neither wished to utilize such a service nor deemed it necessary. 1% left this question unanswered.

Conclusions

The questionnaire survey indicated a late nineties boom in organic farming. Among the factors behind the conversion, most respondents emphasized personal conviction, health, and environmental protection. Of course economic factors weighed heavily in their decision, including top prices and access to subsidies.

On the surveyed farms nearly one-third operated on areas of less than 5 ha in size. As for the different types of farming, plough land and grassland utilization were in the forefront while gardens, vineyards, and forest areas were fewer. Nearly a quarter of the farms did not have mechanized farm equipment. There were few employees and small and medium farms did not hire much labour. On small-scale farms employees were generally family members. Also the opportunity to be self-employed appeared to be a motivating factor behind conversion to organic farming as it also meant access to greater subsidies.

Financially, conversion to organic farming sometimes entailed greater costs. This was true when it came to labour and machinery as organic farming means not using chemicals, and thus causes greater expenditures for weed control and nutrient supply.

Farm cost data show that most expenditures are for machinery, materials, labour and labour related expenditures. 54% of interviewees felt a change in output of +/-10% could be expected while 53% of the respondents mentioned an output reduction of more than 10%. However, output reduction could be offset by top prcies for organic products. 63% of the farms included in the survey managed to obtain top prices. Top prices vary according to

products and markets. 14% of the respondents were able to obtain a top price of more than 30%. Nevertheless, one now sees a continual erosion in top prices for organic products which potentially could slow or even stop rapid growth in organic production.

46% of the respondents received conversion subsidies and nowadays 72% of those farms exceeding the minimum-size requirement receive basic subsidy payments coupled with national complementary subsidies and/or backing from the organic farming target program. In the sample the average subsidy exceeded 48,000 HUF/ha.

58% of the respondents felt they could not match the profits made in conventional production,, but the remaining farms achieved higher income than that obtained from conventional production.

As for the future, 83% of the farmers said they would either keep the farm size at present level or would enlarge. 17% of the respondents opted for reducing the size of their organic operation or stopping completely. Several farms were willing to enlarge their production structure in order to produce diverse crops and to move into processing. More than 80% of the farmers expected future demand to grow.

On the whole, the results obtained agree with those published in domestic and international literature, although the data reveal large variations. Output changes for participating farms harmonize with the pertinent professional literature data, but for costs and top prices there is a slight difference among the answers. Organic production is not cheaper than conventional production, but one observes an alteration in cost structure and in certain cases a slight increase in cost levels. Most producers are able to get top prices for their products, but the amount generally differs from that, published in the professional literature. Presumably, the reasons for this are price spatial and temporal shifts, expanding production, sharpening competition and market saturation.

One of the preconditions for the development of Hungarian organic farming is growth in domestic consumption. Presently a significant amount of Hungarian organic commodities is exported as raw material. To bolster domestic production processed materials should be exported, and the processing industry should be expanded. Organic products must be on full display and easily accessible by consumers. Also necessary are communication channels linking producers and consumers.

High prices are currently a barrier to people's buying organic products and thus hinder organic production. High sales prices are not necessarily due to more expensive production, but rather to the commercial price differential which is higher than that for conventional products. Organic farming is also hampered because of the lack of information flow between each player in the commercial process and by the lack of a common outlook and forum where the diverse interests are reflected.

Cheap Imports from eastern countries may hinder the competitiveness of Hungarian organic. Another hindering factor is the gradual saturation of the western organic product market.

It is possible to promote Hungarian domestic production through government subsidies, targeted advertising campaigns, and by stressing the need for a healthy lifestyle. Further research is necessary to solve the previously mentioned problems. Such research will reveal the ecological, economic, and social effects of organic production. Also required is sophis-

ticated data gathering at the farm, county, and regional level.. Hungarian organic production needs to develop databases allowing long-term analysis of changes in the field of organic production and also allowing comparitive analysis between conventional and organic production.

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