

The economic performance analysis of organic farms in the Czech Republic

IVANA BROŽOVÁ

*Department of Economics, Faculty of Economics and Management,
Czech University of Life Sciences Prague, Czech Republic*

Abstract: The research presented in the paper was aimed at analyzing the economic performance of organic farms in the Czech Republic and at evaluating their operation in variants (i.e. including or excluding subsidies). The research was targeted solely at legal entities due to a limited data base. The performance of organic farms (individual kinds of legal entities) was compared by regions with the agricultural enterprises farming conventionally. The organic farms economic profit was as well assessed in relation to their field of activity. Based on the analysis made, the economic situation is more favourable for the organically farming enterprises. Their economic results are actively influenced by subsidies without which an absolute majority of enterprises would be operating at a loss. (When including subsidies in the yields, 84.9% farms of the sample were profitable. On the other hand, while excluding subsidies, 95.7% of the enterprises were loss-making.) Economic success of the farms is influenced – together with subsidies – by the natural and climatic conditions as well as and by their field of activities. The enterprises farming permanent grassland (solely or in combination with a different culture) prevail. A lower intensity of this farming is reflected in the more favourable economic results.

Key words: organic farm, analysis, economic performance, costs, yields, subsidies, economic result

The need for sustainable and environment-friendly behaviour has been increasing recently. Organic farming is a system that significantly contributes to fulfilling the above-mentioned need by the means of its production processes and practices. That is basically why the state is inclined to the organic farming sector and contributes – not only by the program documents but as well by a substantial financial support – to its successful development. All the more, the need for investing public financial resources in this particular sector and its purposefulness should be explained to both professionals and the general public. Even if the sector development and its evaluation has been given attention in the recent years (e.g. the Ministry of Agriculture of the Czech Republic, control bodies – KEZ o.p.s., ABCERT AG and Biokont CZ Ltd.; the Institute of Agricultural Economics and Information – Division of Agro-environmental Policy Brno; the Pro-Bio Association of Organic Farmers), a vast room for economic evaluation of organic farming as a whole certainly exists and remains open. There is a wide range of methods to monitor its economic profit. The examples include:

– The comparison of costs and yields within the chosen organic products – the focus of e.g. Jánský (2004)

or Poláčková et al. (2006), or as well Šarapatka and Urban (2006);

- Kouřilová (2010) is concerned with the effectiveness of organic and conventional agriculture in the mountain and submontane areas
- McCrory (2001), Connolly (2002) and Moudrý (2005) deal with the effectiveness evaluation of organic and conventional agriculture
- Kouřilová et al. (2009) consider the subsidies influence on the profitability development of organically and conventionally farming enterprises.

However, the research in our conditions remains (due to a rather complicated searching for economic effects and data) mostly theoretical or it is usually carried out within smaller samples that are provided by own surveys of the authors, e.g. Brožová (2010). The existing databases (the Ministry of Agriculture of the Czech Republic, the Institute of Agricultural Economics and Information) administered by state authorities mostly lack the relevant economic data. These data are monitored only on a limited scale whereas the main focus is on the data concerning the production base of the enterprises. The Institute of Agricultural Economics and Information Prague is concerned with the detailed economic characteris-

Supported by the Ministry of Education, Youth and Sports of the Czech Republic (Project No. MSM 6046070906).

tics in the FADN (*Farm Accountancy Data Network data network*). Nevertheless, this database (comprising both conventional and organic enterprises) includes only about 8% of the organically farming agricultural enterprises.

In the view of the above mentioned information, the research was concerned with the analysis of agricultural enterprises economic performance (within a greater sample of organic farms than ever before) and a variable evaluation of their farming operation, i.e. including or excluding subsidies. The research was focused solely on legal entities and not the individual owners (natural persons), as legal entities are obliged to publish their financial statements in the Collection of Documents at the Registration Court.

The main research objective was subdivided into the following aims:

- evaluating the economic level of organically farming enterprises (legal entities) in comparison with those farming conventionally – by regions;
- profitability analysis of organic farms (legal entities) in context of their production focus.

MATERIAL AND METHODS

For the sake of the economic performance analysis, the following data were exploited:

- financial statements of 139 organic farms (legal entities) as by 31st December 2008. The data were retrieved from the Creditinfo database – Company Monitor (Creditinfo Czech Republic, Ltd.);
- database of the Ministry of Agriculture of the Czech Republic – a free-of-charge public database – List of Organically Farming Enterprises – as at 31st December 2008.

The sample of organic farms represented 36.3% of the total number of legal entities. Apart from the above mentioned data, several complementary data (enterprise size, area of farmed land, information on combining organic or conventional farming etc.) were verified by the author of this paper (by the means of on-the-spot enquiries or telephone surveys within the development of a map portal of eco farms in the Czech Republic – Vaněk et al. (2010) and then confronted with public databases. A wide range of complementary resources was used comprising the *Farm Accountancy Data Network* (FADN), the Institute of Agricultural Economics and Information – Brno database and the Land Parcel Identification System

(LPIS). The following analytical tools and methodology were adopted in order to meet the main research objective:

- document analysis – focused on mapping the production base of the enterprises, subsidy policies in organic farming and evaluation of the previous economic research within organic farms;
- economic data analysis – on the basis of the corporate financial statements;
- elementary technical analysis methods;
- comparison of the data and the chosen indicators – in geographical perspective and also within the framework of the individual kinds of enterprises;
- synthesis in which the findings were processed and evaluated.

As for the software used, the calculations were performed in the MS Excel 2007.

RESULTS AND DISCUSSION

While talking about the conventional economic performance indicators, profit indicators are the first to be mentioned. To measure the organic farms economic efficiency, the profit indicator (net profit, i.e. after taxes) in absolute values has been used. The share of profit-making and loss-making farms has been monitored. The profit as such is influenced by both costs and yields. The level of yields is [according to many authors, e.g. Hrabalová and Zander (2006) or Šarapatka and Urban (2006)] considerably dependent on the volume of subsidies (operational subsidies¹). That is why the profit has been calculated variantly, i.e.

- (1) profit perceived as subtracting the enterprise's total costs from the total revenues (including subsidies, or other operation revenues that can be considered as their equivalent) – hereinafter referred to as **PROFIT I**;
- (2) profit perceived as a difference between the total yields (excluding subsidies, or other operation revenues) and the total costs – hereinafter referred to as **PROFIT II**.

The results of the above-mentioned practice are shown in Table 1. Regional distribution of profit-making or loss-making farms is due to the different natural and climatic conditions that, together with subsidies, influence significantly the prosperity of enterprises.

¹*Operational subsidies* include, apart from the organic farming subsidies within the agro-environmental measures, other agro-environmental subsidies, the Single Area Payment Scheme (SAPS), TOP UP, Less Favoured Areas (LFA) payment scheme etc.

Table 1. Distribution of profitable farms by regions in 2008

Regions	Number of ecofarms	PROFIT I				PROFIT II			
		positive		negative		positive		negative	
		abs.	(%)	abs.	(%)	abs.	(%)	abs.	(%)
1 Central Bohemian	2	2	100.0	0	0.0	1	50.0	1	50.0
2 South Bohemian	17	14	82.4	3	17.6	0	0.0	17	100.0
3 Plzeň	13	13	100.0	0	0.0	1	7.7	12	92.3
4 Karlovy Vary	13	11	84.6	2	15.4	0	0.0	13	100.0
5 Ústí nad Labem	10	9	90.0	1	10.0	0	0.0	10	100.0
6 Liberec	7	6	85.7	1	14.3	1	14.3	6	85.7
7 Hradec Králové	12	10	83.3	2	16.7	0	0.0	12	100.0
8 Pardubice	3	3	100.0	0	0.0	0	0.0	3	100.0
9 Vysočina	8	6	75.0	2	25.0	1	12.5	7	87.5
10 South Moravian	16	10	62.5	6	37.5	1	6.3	15	93.8
11 Olomouc	7	7	100.0	0	0.0	0	0.0	7	100.0
12 Zlín	20	18	90.0	2	10.0	1	5.0	19	95.0
13 Moravian-Silesian	11	9	72.7	2	18.2	0	0.0	11	100.0
Total	139	118	84.9	21	15.1	6	4.3	133	95.7

Source: own elaboration, based on the Creditinfo database

It stems from the chart that 84.9% (118 farms) out of the total number of 139 organic farms reached a positive profit. However, it was the profit including subsidies (PROFIT I). The figures for PROFIT II are completely different, where 95.7% (133 farms) were recorded a loss. This implies that the enterprises are definitely dependent on subsidies. These subsidies constitute significant financial resources that actively influence their economic results and without which most enterprises would be operating at a loss. Within our sample, the subsidies represented 48% (average value) of total yields. Šarapatka and Urban (2006) affirm that organic farms depend on subsidies to a high extent and that these stand for 15–20% of their income. The author of this paper (Brožová 2009) came to similar conclusions by processing the primary data provided by the Institute of Agricultural Economics and Information Brno within the framework of its statistical surveys and enquiries at farms. Inspectors delegated by the Institute of Agricultural Economics and Information addressed the enterprises and enquired about their economic results in 2008. The survey, however, was not focused on the exact economic result but on the fact whether the enterprise in question recorded a profit or a loss. The survey showed that 80.8% farms out of the total number of 1849 addressed agricultural enterprises reached a positive economic result in 2008.

Furthermore, the chart shows the percentage occurrence of positive and negative economic results by regions of the Czech Republic. For the analysis sake, only PROFIT I was taken into account as the percentage of farms operating at a loss within PROFIT II is so high that the analysis of this category would miss the point. Nevertheless, PROFIT I also brings along several issues that need to be clarified and put into some kind of a wider perspective. While taking a look at the number of organic farms in some regions, the sample of enterprises might seem far too small and therefore the results might not seem relevant. Several explanations have to be made here:

- The dislocation of organic farms (i.e. all organically farming enterprises in the Czech Republic) within the regions of the Czech Republic is remarkably uneven (at the end of 2008, the highest number of organic farms was recorded in the South Bohemian Region and the Karlovy Vary Region, while the lowest number was seen in the Central Bohemian Region and the Vysočina Region). This can partly explain the small number of farms in the Central Bohemian Region sample.
- As for the legal form of the enterprises, individual owners/natural persons prevail (they accounted for 79.1% of the total number of farms according to the database of the Ministry of Agriculture – as by 31st December 2008). It means that the

proportion of legal entities in the sample is significantly lower.

- The number of legal entities in the sample was further limited by the data accessibility as only a certain percentage of them submitted mandatory financial statements for the sake of the Collection of Documents at the Registration Court.

Based on the above mentioned facts, two regions with the smallest number of enterprises – the Central Bohemian Region and the Pardubice Region – were discarded from the evaluation. A follow-up analysis showed that the highest percentage of enterprises operating at a loss is in the South Moravian Region and the Vysočina Region. On the other hand, the highest share of profitable farms was found in the Olomouc, Plzeň, Ústí nad Labem and Zlín regions. In those regions, the permanent grassland with animal husbandry prevails (representing more than 80% of land resources) while arable land accounts for less than 10%. On the contrary, the regions that recorded a loss have a significantly higher share of arable land (60% in the South Moravian Region and approximately 30% in the Vysočina Region). In comparison with the farms where permanent grassland prevails, this farming is more intensive and not even higher subsidies

on these cultures can compensate higher costs and lead to more favourable economic results.

Another way of how to evaluate the profitability of organic farms is to relate the profit to the area of the cultivated farmland. The total profit (PROFIT I) per 1 hectare was then compared to the respective profit of the conventional agricultural enterprises. However, it is hard to make an objective comparison of the two systems. The comparability of conditions, i.e. natural conditions, regional specificities, the nature and size of the farms etc., is essential. The exact specification of the variables in this case depends highly on the availability, or the existence of the data. That is why the results were sorted at least according to the legal form and region (Table 2).

Sorting enterprises in terms of legal entities is again a little disputable within the framework of organic farming, namely regarding cooperatives in some regions. Generally speaking, the proportion of cooperatives in the total number of legal entities in the Czech Republic is very low (in 2008, there were only 18 cooperatives out of the total number of 383 legal entities, i.e. business companies, especially limited liability companies, prevail by far). The sample included only 12 cooperatives. Blank fields denote either a region where there is no organically farming

Table 2. Economic result of legal entities in regions of the CR – 2008

Regions		Economic result over the accounting period (CZK/ha)					
		conventional farming*			organic farming		
		cooperatives	business companies	legal entities total	cooperatives	business companies	legal entities total
1	Central Bohemian	2 270	2 428	2 364	–	22 867	22 867
2	South Bohemian	633	1 725	1 036	–	1 877	1 877
3	Plzeň	–115	1 527	1 010	–	3 536	3 536
4	Karlovy Vary	870	3 787	2 580	–	899	899
5	Ústí nad Labem	1 183	3 066	2 455	–	1 338	1 338
6	Liberec	–101	2 642	700	–	3 468	2 932
7	Hradec Králové	7 632	1 285	4 059	2 233	3 448	3 346
8	Pardubice	579	1 470	1 191	–	5 149	5 149
9	Vysočina	975	1 618	1 226	3 688	14 873	13 475
10	South Moravian	1 991	3 034	2 658	2 744	–4 015	–3 170
11	Olomouc	3 705	3 503	3 639	–	4 601	4 601
12	Zlín	2 700	2 321	2 460	2 856	6 334	5 290
13	Moravian-Silesian	3 074	1 937	2 476	2 300	784	1 060
	Total	2 007	2 245	2 152	2 762	3 164	3 105

*Hanibal J. et al. (2010)

Source: own elaboration, based on the Creditinfo and Ministry of Agriculture databases

cooperative at all or a region where no relevant data were available.

It stems from the chart that while comparing the average values for all organically farming and conventionally farming enterprises, the situation is more in favour of organic farming (both cooperatives and business companies). The above regional comparison also shows the disproportions that are especially significant in organic farming. A closer look at the individual kinds of enterprises in the regions also reveals certain differences. These differences can be interpreted not only separately within the framework of the farming methods but as well between the systems. When comparing the figures for cooperatives across the regions, conventional farming apparently shows bigger disproportions than the organic one. In case of business companies, there are differences not only between the two systems but at the same time inside the organic farming sector.

To sum up, we can say that the organic farms in the sample reached higher average profits – subsidies included – than conventional enterprises. A cross-regional comparison, however, shows that there is a greater value variation than within the conventional farming sector. We can assume that this situation

results not only from different natural and climatic conditions but as well from a higher production risk rate (stricter norms, the limited number of agricultural products processors, different production processes, objective risks etc.). Nevertheless, their economic performance depends as well on entrepreneurial skills of the individual farmers, their strategy and activities that can enhance their economic activity. Farms differ very much in this aspect which, is very likely reflected in different economic results.

The economic result is dependent, together with subsidies, on the line of business (production orientation) of the enterprise. To illustrate the organic farms economic performance at large, the relationship between their profitability and farmland utilization was used. The findings are shown in Table 3.

Table 3 shows the number and percentage of profit-making and loss-making farms according to the individual cultures, i.e. permanent grassland; arable land (= arable land without vegetables and herbs); permanent cultures; other areas; ponds – solely or in combination. It is obvious from the chart that most enterprises farm permanent grassland – either solely or in combination with a different culture. This is true not only for the sample presented but as well

Table 3. Farms profitability according to the field of activity in 2008

Use of farmland	Number of organic farms	Positive economic result		Negative economic result	
		abs.	(%)	abs.	(%)
Permanent grassland	27	21	77.8	6	22.2
Arable land*	3	2	66.7	1	33.3
Permanent cultures	10	7	70.0	3	30.0
Permanent grassland + arable land	22	22	100.0	0	0.0
Permanent grassland + other areas	35	31	88.6	4	11.4
Arable land + permanent cultures	1	0	0.0	1	100.0
Arable land + other areas	1	1	100.0	0	0.0
Permanent grassland + arable land Permanent cultures	2	2	100.0	0	0.0
Permanent grassland + arable land + other areas	27	22	81.5	5	18.5
Permanent grassland + permanent cultures + other areas	3	3	100.0	0	0.0
Permanent grassland + other areas + ponds	1	0	0.0	1	100.0
Permanent grassland + arable land permanent cultures + other areas	6	5	83.3	1	16.7
Permanent grassland + arable land + permanent cultures + other areas + ponds	1	1	100.0	0	0.0
Total	139	117	84.2	22	15.8

*Arable land = arable land total, i.e. arable land without vegetables and herbs + vegetables and herbs

Source: own elaboration, based on the Creditinfo and the Ministry of Agriculture databases

for the organic farming sector in general. Permanent grassland accounts approximately for 82% of the organic farming land resources in the Czech Republic. This rather extreme share of permanent grassland is not just the present case, but it is more or less given historically as the enterprises adopted this orientation at the beginning of the 90s:

- as a result of the Czech agrarian sector transformation process and the EU stress on reducing the production volume of the chosen commodities;
- in consideration of less intensive farming and therefore a lower risk rate in comparison with the arable land cultivation.

Moreover, this narrow orientation is even intensified by a small differentiation of subsidies among the individual cultures. A lower farming intensity leads to better economic results. The chart shows that the situation is in favour of those enterprises that target on the permanent grassland farming – either solely or in combination with a different culture. Permanent grassland farming then relates to the enterprise focus on animal production while cattle breeding is the most common (suckler cows especially) followed by sheep, eventually goat and horse breeding.

CONCLUSIONS

The main research objective, i.e. the economic performance analysis of organic farms, was fulfilled only partly due to a limited data base. Primarily, the intention was to analyse a bigger sample of enterprises – both natural persons and legal entities. Due to the non-existence of relevant data for the individual owners/natural persons (no institution administers a relevant database that would serve the research objective); only legal entities (those that submitted their financial statements to the Collection of Documents at the Registration Court) were finally included in the survey. In spite of the above mentioned deficiencies, the results illustrate a better economic performance of organically farming enterprises. We have to say that the role of subsidies is crucial and their range is significantly wider for the organic farmers than for the conventional farmers. The subsidies are provided in order to compensate lower incomes, or yields; it thus means the loss-of-profit compensation. What is equally important is that subsidies should be granted and publicly recognized for their environment-friendly dimension, in other words, for the publicly beneficial service the organic farmers provide.

The author of this paper would recommend that the state institutions (the Institute of Agricultural

Economics and Information, Brno and the Institute of Agricultural Economics and Information. Prague administering the FADN database) extend the existing organic farming databases to economic data. These data would offer opportunities for further economic analyses, i.e. the analyses that this sector has been missing recently.

The findings presented in the paper were obtained as a result of the Research Program titled “Economy of the Czech Agriculture Resources and Their Efficient Use within the Framework of the Multifunctional Agri-food Systems” of the Ministry of Education, Youth and Sports of the Czech Republic No. MSM 6046070906.

REFERENCES

- Brožová I. (2009): Vybrané aspekty multifunkčního zemědělství v souvislosti s rozvojem venkova (Chosen aspects of multifunctional agriculture in relation to countryside development). [PhD. Thesis.] Czech University of Life Sciences, Prague.
- Brožová I. (2010): Economic profit of organic farmers in the Czech Republic. *Agricultural Economics – Czech*, 56: 37–42.
- Connolly L. (2002): Costs and margins in organic production in comparison with conventional production. In: *Signposts to Rural Change. Proceedings Rural Development Conference 2002*, 12 February, pp. 93–100.
- Hanibal J. et al. (2010): Výběrové šetření hospodářských výsledků zemědělských podniků v síti FADN CZ za rok 2008 (A Selective Survey of Agricultural Enterprises Economic Results in the FADN Network 2008.) A separate supplement to the Report on the State of the Agriculture in the Czech Republic 2008. Institute of Agricultural Economics and Information, Prague.
- Hrabalová A., Zander K. (2006): Organic BEF fading in the Czech Republic: structure, development and economic performance. *Agricultural Economics – Czech*, 52: 89–100.
- Jánský J. (2004): Economic evaluation of the production of the selected organic products in the Czech Republic. In: *European Summer Academy on Organic Farming*. Lednice na Moravě; ISBN 80-244-0868-6.
- Kouřilová J., Pšenčík J., Kopta D. (2009): Dotace v zemědělství z hlediska komplexního pohledu a s přihlédnutím k ekologickému zemědělství (Subsidies in Agriculture from a Complex Point of View with Regard to Organic Farming). 1st ed. Academic Publishing House Cerm, Ltd., Brno; ISBN 978-80-7204-637-9.
- Kouřilová J. (2010): Multifunkční ekologické a konvenční zemědělství se zřetelem na podhorské a horské oblasti (Multifunctional Organic and Conventional Farming with

- Regard to Mountain and Submontane Areas). Part II, 1st ed. Academic Publishing House Cerm, Ltd., Brno; ISBN 978-80-7204-683-6.
- McCrory L. (2001): An Economics Comparison of Organic and Conventional Dairy Production and Estimations on the Cost of Transitioning to Organic Production. North-east Organic Farming Association – Vermont, Dairy Technical Assistance Program. Technical Report.
- Moudrý J. (2006): Hodnocení efektivnosti produkce vybraných plodin v ekologických a konvenčních systémech hospodaření (Evaluation of Chosen Crops Production Effectiveness in Organic and Conventional Farming Systems). In: Agroregion. University of South Bohemia, Faculty of Horticulture, České Budějovice; ISBN 80-7040-869-3.
- Poláčková J., Jánský J., Boudný J., Živělová I., Mládek Z. (2006): Nákladovost a výnosnost vybraných ekologických produktů v letech 2001–2005 (Cost Effectiveness of Chosen Organic Products between 2001 and 2005). 1st ed. MSD, Ltd., Brno; ISBN 80-86633-71-3.
- Šarapatka B., Urban J. (2006): Ekologické zemědělství v praxi (Organic Farming in Practice). 1st ed. PRO-BIO Association of Ecological Farmers, Šumperk; ISBN 978-80-903583-0-0.
- Vaněk J., Brožová I., Jarolínek J., Šimek P., Vogeltanzová T., Červenková E. (2010): Map Resources – ECO Farms in the Czech republic. AGRIS on-line Papers in Economics and Informatics, 2: 115–121; ISSN: 1804-1930.

Arrived on 23th February 2011

Contact address:

Ivana Brožová, Czech University of Life Sciences Prague, Kamýcká 129, 165 21 Prague 6, Czech Republic
e-mail: brozovai@pef.czu.cz
