Trend analysis of revenues and costs within the chosen commodities under the conditions of organic agriculture

Analýza vývoje výnosů a nákladů v ekologických podmínkách hospodaření u vybraných zemědělských produktů

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Abstract: This paper deals with the analysis of the trends in costs and revenues of selected agricultural products grown and bred under the conditions of organic agriculture. The analysis of the trends in revenues and costs is performed for the cattle breeding, beef cows and for the plant production of spelt, oat and potatoes. Costs are evaluated in the relationship with the direct and indirect costs. Revenues are traced with the help of per hectare yield, efficiency and market prices. Data of the selected file of the organically farming companies for the controlled commodities are compared with the same commodities of the selected file of the conventionally farming companies worked by the Research Institute of Agricultural Economics (RIAE) in Prague.

Key words: organic farming, prices and costs, beef cows, cattle fattening, spelt, oat, potatoes

Abstrakt: Příspěvek je zaměřen na analýzu vývoje výnosů a nákladů u vybraných zemědělských produktů pěstovaných a chovaných v ekologických podmínkách hospodaření. Analýza vývoje výnosů a nákladů je provedena u výkrmu skotu, v chovu krav bez tržní produkce mléka a u rostlinných produktů pšenice špaldy, ovsa a brambor. Nákladovost je posuzována ve vazbě na přímé a nepřímé náklady. Výnosnost je sledována pomocí hektarových výnosů, užitkovosti a tržních cen. Údaje výběrového souboru ekologicky podnikajících subjektů u sledovaných komodit jsou porovnávány se stejnými komoditami z výběrového souboru konvenčně hospodařících podniků zpracovávaných VÚZE v Praze.

Klíčová slova: ekologické zemědělství, ceny a náklady, krávy bez tržní produkce mléka, výkrm skotu, pšenice špalda, oves, brambory

Consistently with the goals and tasks of the common agricultural policy of the EU as well as the Czech agrarian sector, the importance of the fulfilment of the non-production function of agriculture is increasing. To these non-production functions belong the economic and ecological usage of the permanent pastures, maintainance of the countryside in the state of nature and cultural state and preservation of the employment mainly in the mountain areas. The fulfilment of these functions is ensured mainly by the ruminants breeding in the marginal areas that are favourable for ruminants breeding, mainly for cattle. A cattle breeding has got an unreplaceable function in the agriculture while as an organic has got, fertilization producer, an important influence on the land yield and simultaneously is an important end user of biomass and that mainly in the areas with a high portion of permanent pastures that are characteristic for organic agriculture. The

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importance of the permanent pastures maintainance evidenced by the almost 50 percent share of these pastures in the total agricultural land and almost 90 percent share on the agricultural land that belongs to the organic farming.

The condition of the competitiveness of each production is its economic effectiveness. However, in the conditions of organic agriculture the competitiveness is influenced by the duties and restrictions resulted from the observance of the rules of law and as well by the prices that do not often related to the quality of production. The differences between the costs and revenues between the organic and conventional production have to be objectified with the focus of the background preparation for the decision-making about the possibilities of the increase of organic products competitiveness.

GOALS AND METHODOLOGY

The paper has arisen within the research project of the FBE MUAF Brno, MSM 6215648904 "Czech economy in the process of integration and globalization and the development of agrarian sector and sector of services in new conditions of the European integrated market" of the thematic direction 05 "Social-economic context of sustainable development of multifunctional agriculture, and actions of agrarian and regional policy".

The aim of this paper is to analyse costs and revenues in the cattle fattening, beef-cow breeding and plant production of spelt, oat and potatoes in organic farming.

The costs of the organic products is evaluated, again in the compliance with approved methodology, with relationship to direct and indirect costs in the similar structure as the ones calculed for animal products in the test net of the companies submitted to the sample survey of the RIAE in Prague so that the results of the sampling file of organic farms could be compared with this file. The productiveness of the individual commodities in the agricultural production is evaluated by the efficiency or the yields per hectare and by the average exercise prices per one unit of the chief product.

The average costs and prices of the selected commodities are calculated by the weighted arithmetical

Table 1. Trends and structure of costs and revenues of fattening cattle

Indicators	Costs together per head and year (CZK)							
	organic agriculture				conventional agriculture			
	2001	2002	2003	2004	2001	2002	2003	2004
Feeding (litter)	5 747	5 432	6 263	7 586	6 921	7 152	6 897	7 060
– purchased	766	1 063	761	677	1 271	1 182	1 146	1 173
– own	4 981	4 369	5 502	6 910	5 649	5 970	5 751	5 887
Pharmaceuticals and disinfection	138	8	13	74	11	9	10	13
Other direct material	155	863	183	120	432	460	514	647
Direct material costs together	6 040	6 302	6 459	7 780	7 364	7 621	7 421	7 721
Other direct costs and services	532	467	659	705	599	467	532	836
Labour costs together	2 044	2 873	2 847	2 153	2 246	2 295	2 369	2 421
Costs for associated operations	1 267	811	927	639	650	713	688	738
Depreciations of long-term assets	634	367	239	146	326	341	340	351
Indirect costs	1 699	1 154	1 102	1 080	1 420	1 350	1 089	1 259
Costs together	12 217	11 974	12 236	12 503	12 606	12 790	12 435	13 327
Efficiency (kg/FD)	0.80	0.84	40.78	0.84	0.85	0.86	0.86	0.85
Costs per increment (CZK/kg)	39.44	36.04	39.22	37.55	38.37	37.77	36.38	39.94
Average market price (CZK/kg)	36.70	39.04	39.44	42.91	33.90	36.28	35.18	37.16

Source: Výběrové šetření o nákladovosti zemědělských výrobků v síti FADN CZ a vlastní šetření za období 2001–2004

average while the weights are the fattening days or the hectares of the harvested land. The results are compared with the same commodities in the file of conventionally farming companies.

The costs and prices comparison for the selected commodities of organic and conventional agriculture is made with the help of year-on-year indices.

THE RESULTS AND DISCUSSION

The cost and revenues of the fattening cattle

The cattle fattening is oriented on ensuring the beef-cattle production to the extend of fulfilment of the requirements of the domestic market and export abroad. With respect to the requirement on the superior meat, the importance of the organic cattle fattening in Czech Republic is increasing.

In the sector of the cattle fattening is the sector in which there was in 2004 involved 59.8 percent (in 2003 64 percent) of the organic farms. The data about the costs and revenues of this sector are stated in Table 1.

In the case of the cattle fattening, it could be said that the total costs per piece and year are similar to conventional farming. In the case of organic agriculture, the costs present around 95 percent of the costs of the conventional farms. Also the cost structure is similar. Since 2001, there is an increase in the total costs per feeding so the costs reach the real values.

The difference between the costs of cattle fattening in the organic and conventional agriculture could be seen mainly in their structure while in the case of the conventional farms feeds are mainly purcharsed but in the case of organic farms they are mainly own feedings with the high portion of pastures are used. This difference is caused by the effort of organic farmers for the maximal usage of own feedings for the cost reduction, because purchased feedings are too costly.

In 2004, the efficiency of organic farms has increased up to the level of the conventional farms (i.e. 0.84 kg per feed ration) and that because of the superior quality of the pasturage. The significant increase of the efficiency has positively influenced the costs per production unit that have decreased by 4.3 percent to 37.55 Czech crowns (CZK) per kg of the increment, what was less than in the case of the conventional farm (Figure 1).

In 2003, the file has increased in the number of respondents and thereby in the number of animals in the cattle fattening (some of the farms have been converting from the transition period to the organic) and thereby have increased other direct costs and services by 45 percent. Also compared to the conventional file other direct costs and services in 2003 were higher by 27.6 percent (Mládek et al. 2005).

The comparison of market prices of conventional and organic products shows that the conversion of organic meat into money is in 2002 (by 8 percent), in 2003 (by 12 percent) and in 2004 by 15 percent better than in the case of conventional meat. With regard to the significant increase of prices of the agriculture producers (PAP) after the entry to the EU, where the demanded amount is higher than the amount supplied, there could be expected further increase of the market prices of the beef-animals from the organic breeding as it is mentioned by Živělová et al. (2003). In 2003, the average total exercise price (PAP) for bulls was 41.3 CZK/kg (Figure 1).

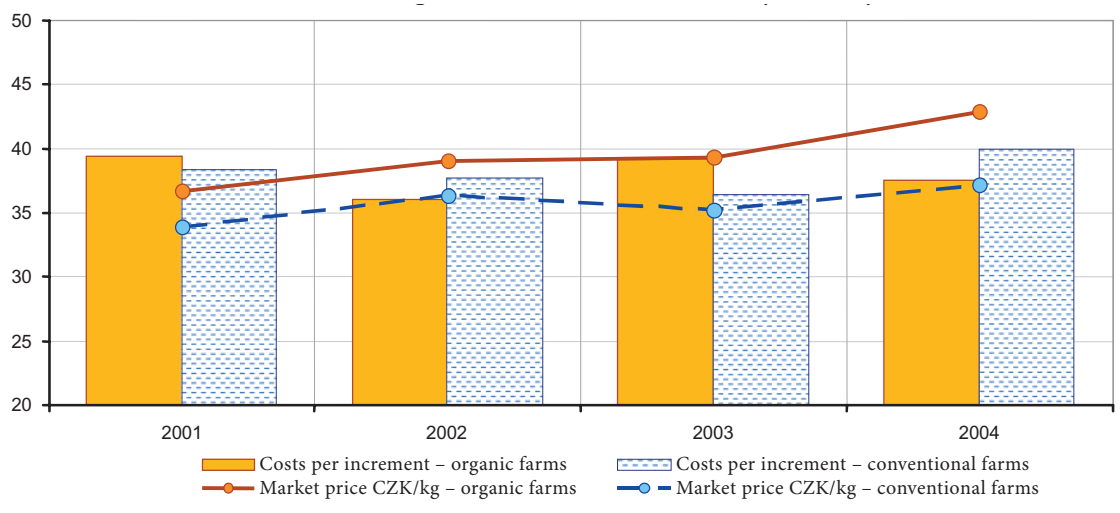

Figure 1. Comparison of costs and market prices in the cattle fattening of the organic and conventional farms (CZK/kg)

Costingness of beef-cows breeding

From the operational-economic point of view the beef-cow breeding is typical by the the extensive usage of permanent pastures for the purpose of the production of a superior quality of fattening cattle and keeping the relevant areas and territories in natural and cultural state.

The product of the beef-cow breeding is a weaned calf of the age 7 to 9 months. That is why the aim of producers of this category of cattle have be one calf per one cow per year. That is the reason why the fertility of beef-cows should be considered to be one of the main factors involving the economic results of this way of breeding.

In the reproduction sphere, one of the main tasks of beef-cow management is the selection of the breed and stock bulls, reaching of the optimal weight and age, low injuries (deaths and necessary slaughters) of calves and other categories of animals, optimal usage of cows in breed (longevity) and minimalization of breeding and veterinary operations.

In our conditions, there prevails so far the breed of the combined type of cattle with the aim to produce at the same time market milk and meat. That is why in the case of cows in the category beef-cow there takes place conversion to the cross-breeds with the meat usage type that is preferable for more intensive fattening. It has a more superior meat and therefore better presumptions for further processing.

With the respect to the character of beef-cow breed (seasonal mating, pasture breed, et al.), there is in the reproduction organization preferred natural animal breeding than insemination.

According to data of the Czech Statistical Office, the number of beef-cows in the Czech Republic was between 2003 and 2005 124 thousands, in 2005 141 thousands. From that in 2003, there were 33 678 animals bred in organic agriculture conditions and 9 140 animals in transitional period. In 2003, there were made in this category c. 44 200 first inseminations.

The result of necessary seasonal nascence of calves is one of the crucial condition for economic efficiency of beef-cow breed a high and regular fertility. As a

Table 2. Trends and structure of costs and revenues of beef-cows

Indicator	Costs together per piece and year (CZK)							
	organic agriculture				conventional agriculture			
	2001	2002	2003	2004	2001	2002	2003	2004
Feeding (litter)	5 243	6 044	5 710	6 270	5 402	5 971	5 908	4 674
– purchased	230	362	650	596	456	354	481	305
– own	5 013	5 682	5 060	5 674	4 946	5 617	5 427	4 369
Pharmaceuticals and disinfection	49	98	104	125	80	74	91	74
Other direct material	117	309	271	371	303	285	248	530
Direct material costs together	5 409	6 451	5 931	6 766	5 784	6 330	6 246	5 278
Other direct costs and services	663	900	1 105	1 488	999	1 060	1 271	1 051
Labour costs together	1 161	3 018	3 126	3 687	3 560	4 090	3 068	3 493
Costs for associated operations	888	389	579	591	651	535	521	844
Depreciations of long-term assets	756	246	1 057	462	121	151	178	138
Indirect costs	3 304	3 750	3 525	3 489	3 554	3 727	4 103	3 223
Costs together	2 973	2 715	2 336	2 173	3 336	2 973	2 022	2 854
Efficiency (kg/FD)	15 155	17 469	17 660	18 657	18 005	18 867	17 410	16 883
Costs per increment (CZK/kg)	–	–	–	–	–	–	–	–
Average market price (CZK/kg)	–	–	–	–	–	–	–	–
Feeding (litter)	–	–	–	23.7	–	–	–	–

Source: Výběrové šetření o nákladovosti zemědělských výrobků v síti FADN CZ a vlastní šetření za období 2001–2004

good fertility is usually regarded 90 or more weanling calves from 100 cows per year with the injuries not higher than 5 percent of the number of born. For the birth of calves in optimal term, it is necessary to keep the length of the interval around 365 days.

Most organic farmers/our respondents were oriented on the cow production, in 2004 52.2 percent (in 2003 58.8 percent). The data about the costs and revenues are stated in Table 2.

In the period 2001 to 2004, the total cost in beef-cow breeding were increasing, as stated in Mládek et al. (2005). The largest cost item are costs per feeding that in 2004 reached more than 33 percent of the total costs. The lower costs in conventional farms in 2004 are due to the wrong assessment of pasture growth and the preserved bulk feed (mainly hay) that is the base of the nourishment of beef-cows (Mládek, Boudný 2005). Higher labour costs in organic farms reflect the higher need of direct labour while the concentration of animals is lower and the technology is obsolete (in 2001 only labour direct costs are stated).

Last it could be mentioned that with respect to the above stated, costs for beef-cows in both agricultural systems could considerably differ.

Economic evaluation of the beef-cows breeding would require also the evaluation of the revenues part of this system. In this state, it would not be objective to carry out this evaluation, because there are concerned mainly the companies that have got in their sales covered also revenues for the sales of adult or gravid heifers or they do not carry out the calf evaluation while shifting after them the weaning intra-plant.

Costs and revenues of spelt

Spelt is a typical market product with respect to its usage in food-processing industry suitable for the organic way of production. In the selected file of organic farms 4–8 companies were involved in spelt production between 2001 and 2004. The ratio of spelt producers in the total number of respondents was in 2001 13.5 percent, in 2004 it has decreased to 6.5 percent mainly due to the widening of selected file by the companies with the cattle breeding and permanent pastures without arable land. Economic results of organic spelt are compared with the results for the sector of winter wheat because in the file of conventional agricultural farms, there are not available data for spelt. Data about costs and revenues for both compared files of companies are stated in Table 3.

During the period 2001–2004, there were reached already double average market prices than in the case

Table 3. Trend and structure of costs and revenues of spelt

Indicator	Costs per 1 hectare of harvest land (CZK)							
	organic				conventional			
	2001	2002	2003	2004	2001	2002	2003	2004
Seeds	1 935	2 042	2 337	1 397	1 303	1 526	1 778	1 460
Fertilizers	1 209	1 451	1 808	394	2 523	2 571	2 432	3 032
Plant protection agents	13	0	43	0	1 978	2 162	2 050	2 177
Other direct material	618	15	37	12	142	155	101	169
Material costs together	3 775	3 508	4 224	1 802	5 946	6 413	6 361	6 295
Other direct costs and sevices	2 401	3 161	2 405	5 952	1 683	1 519	1 531	1 612
Labour costs together	1 503	1 420	1 724	542	2 092	2 413	2 373	2 597
Costs for associted operations	1 526	712	986	120	2 316	2 547	2 396	2 639
Indirect costs	1 738	1 895	2 062	1 964	2 162	2 587	2 129	2 281
Costs together	10 943	10 696	11 401	10 380	14 200	15 478	14 789	15 425
Yield per hectare (t/ha)	2.81	4.18	1.83	3.81	5.03	4.88	4.30	5.92
Cost for main products (CZK/t)	3 427	2 253	5 490	2 399	2 485	2 797	3 025	2 296
Average market price (CZK/t)	4 786	6 693	7 186	7 092	3 394	2 939	3 304	3 096

Source: Výběrové šetření o nákladovosti zemědělských výrobků v síti FADN CZ a vlastní šetření za období 2001–2004

of conventional wheat (e.g. 7 029 CZK/ton of grain against 3 096 CZK in 2004). Lower differences in prices in 2001 (4 786 CZK per organic spelt against 3 394 CZK per conventional winter wheat) are probably caused by the lower prices in the transitional period.

Total costs per 1 hectare of harvest area are in individual years by 3 to 5 thousand CZK higher in the file of conventional farms than in the file of organic farms. The main reason for lower costs consists in the minimal usage of chemical agents and purchased industrial fertilizers in the case of organic subjects. Costs per fertilizers and agents for plant protection are significantly lower. In addition, labour costs per 1 hectare are lower in the case of organic products. In the case of spelt higher costs per seed appeared, what is due to higher price of spelt seed than winter wheat. Higher are also other direct costs and services with respect to the higher ratio of labour supply.

In the case of spelt, there is yield per hectare significantly lower than in the case of winter wheat, what resulted in much higher costs per 1 ton of grain. In both selective files, there is in the period 2001–2004 noticeable decreasing trend of per hectare yield. In the very favourable year 2004, the yields per hectare of conventional winter wheat have increased to the highest level of the whole period under consideration (5.98 tonnes per hectare) and to the second highest level in the case of spelt (3.81 tonnes per hectare). The reached yields per hectare implicated the differences in production costs per one unit of production. In the case of organic products, product costs were by 100–2 000 CZK/ton higher when compared with conventional products. Only in 2002 was the situation inverse due to the high yield per hectare. Because in 2004 only four companies were included in the evaluation, the calculated values are only orientative (Poláčková et al. 2005).

In spite of the higher production costs, spelt reached profit in period 2001–2004, as a result of favourable prices. It could be stated that spelt could be regarded as an economically interesting plant. Significant is its benefit for food purposes.

Costs and revenues of oat

Both from the point of view of the number of companies and their portion in the total number of respondents of the selected file, oat is the most relevant cereal in the investigated file of organic farms. It is affected mainly by the production of oat as an organic seed feeding and by the involvement of a significant number of respondents in sheep breed-

Table 4. Trend and strucuture of costs and revenues of oat

Indicator	Costs per 1 hectare of harvest land (CZK)							
	organic				conventional			
	2001	2002	2003	2004	2001	2002	2003	2004
Seeds	851	945	1 623	1 390	1 203	1 289	1 278	1 332
Fertilizers	584	952	1 455	946	1 375	1 183	1 179	1 081
Plant protection agents	8	0	0	17	600	521	542	458
Other direct material	245	210	148	125	125	175	49	194
Material costs together	1 688	2 106	3 226	2 478	3 302	3 168	3 048	3 065
Other direct costs and services	1 426	2 109	1 919	1 710	1 012	991	1 151	824
Labour costs together	1 216	1 621	1 556	2 224	1 876	1 765	1 784	2 060
Costs for associated operations	1 713	655	1 194	1 183	1 963	1 711	1 710	1 667
Indirect costs	3 732	1 417	2 150	3 086	1 902	1 869	1 962	1 665
Costs together	9 775	7 908	10 046	10 680	10 055	9 502	9 654	9 280
Yield per hectare (t/ha)	2.14	2.16	2.44	2.31	3.05	2.82	3.10	3.99
Cost for main products (CZK/t)	3 883	3 107	3 494	3 935	2 788	2 855	2 633	1 977
Average market price (CZK/t)	3 038	2 715	3 139	3 546	3 603	3 758	3 020	3 258

Source: Výběrové šetření o nákladovosti zemědělských výrobků v síti FADN CZ a vlastní šetření za období 2001–2004

ing and with own feeding production. The highest number of companies with organic oat production was involved in the survey in 2003 (35 companies), in 2004 the number decreased to 29 companies. The results of costs and revenues comparisons of organic and conventional oat are stated in Table 4.

Only part of organic oat was realised in the market, because a lot of oat is used as an organic feeding in own livestock production of the respondents. Reached average market prices of organic farms were in 2001 and 2002 lower than in the case of conventional oat. There has probably taken effect of the conversion period in which some of the companies have been, because in that period the products have been sold as conventional. Since 2003, the average market prices of organic oat are higher than in the case of conventional oat and the difference is still increasing.

The differences in the total costs per one hectare of harvest area are not definite. In years 2001 and 2002, the total costs in the file of organic farmers were mainly by influenced the lower material costs, especially for seeds (in the file of organic farms was higher ratio of cheaper own seeds) and fertilizers, costs for plant protection agents almost do not occur. Since 2003, total costs per one hectare of harvest area of oat in the file of organic farms were higher than in the file of conventional agriculture (in 2003 for 392 CZK/hectare, in 2004 yet for 1 400 CZK/hectare). It is influenced mainly by the higher ratio of individual entrepreneurs with the lower average of harvest areas in the file of organic farms that show higher total costs than farms with larger acreage.

With regard to the lower yield per hectare the costs per one tone of grain in the file of organic farms are by 1–2 thousands CZK higher than in the file of conventional farms. Even if the organic farms have since 2003 a higher average market price than the conventional ones, high product costs caused loss in the production of organic oat. Loss per one ton of grain reaches approximately 350–800 CZK (the highest was in 2001), while the conventional farms reached profit during all the period under consideration.

Organic oat is the crop that is not profitable. Oat is grown mainly as a feeding crop; to a great extent for consumption in own livestock production. It could be said that for the company as a whole, oat is beneficial.

Costs and revenues of potatoes

In the selected file of organic farmers, there are involved in growing of potatoes approximately 15 percent of respondents and their absolute number was

Table 5. Trend and structure of costs and revenues of potatoes

Indicator	Costs per 1 hectare of harvest land (CZK)							
	organic				conventional			
	2001	2002	2003	2004	2001	2002	2003	2004
Seeds	18 187	18 145	13 877	11 087	16 473	18 526	16 709	20 851
Fertilizers	7 582	4 729	6 875	5 127	4 558	4 396	4 289	4 791
Plant protection agents	0	396	210	716	6 022	7 130	6 104	7 159
Other direct material	4 348	2 027	1 043	1 081	2 523	1 807	896	1 724
Material costs together	30 116	25 297	22 005	18 010	29 576	31 859	27 998	33 712
Other direct costs and services	5 341	2 974	3 184	3 631	5 530	4 082	5 212	4 575
Labour costs together	4 074	10 443	11 545	13 116	14 797	13 792	11 498	12 591
Costs for associated operations	10 459	9 447	9 934	5 605	8 965	10 099	7 676	8 199
Indirect costs	17 985	8 961	10 381	13 352	11 966	12 640	11 126	11 396
Costs together	67 975	57 122	57 049	53 713	70 835	72 471	63 510	70 472
Yield per hectare (t/ha)	11.33	12.38	13.47	13.40	27.26	24.64	20.19	24.49
Cost for main products (CZK/t)	6 000	4 612	4 235	4 010	2 601	2 938	3 164	2 881
Average market price (CZK/t)	4 805	5 504	5 785	4 918	3 079	3 307	3 703	2 978

Source: Výběrové šetření o nákladovosti zemědělských výrobků v síti FADN CZ a vlastní šetření za období 2001–2004

increasing during the period under consideration (from 8 respondents in 2001 to 14 respondents in years 2003 and 2004). The review about costs and revenues of both compared systems of potatoes growing is stated in Table 5.

The average market prices during period 2001–2004 were in all years under consideration higher in the file of organic farms, in average approximately by 2 000 CZK/ton of potatoes. Even though the higher market price in 2001 advantageous for organic farmers, the loss per one ton was 1 194 CZK. The decreasing product costs and better realisation in 2001–2004 resulted in the profitability of organic potatoes (in 2002 the profit was 892 CZK, in 2003 1 550 CZK and in 2004 909 CZK per one ton of potatoes).

Total costs per one hectare of harvest potatoes were during all the period under consideration lower in the file of organic farmers than in the file of the conventional farmers. The biggest difference in the level of total costs was in 2002, when the average costs in the file of organic farmers were 57 122 CZK, in the file of conventional farmers 72 471 CZK per one hectare of harvest area. In the development of the total costs per one hectare of harvested area in the file of organic farmers, there is evident a downward trend, in the file of conventional farmers the total costs are fluctuating. Within all the period 2001–2004 total cost per one hectare of harvest area decreased in the file of organic farmers by 16 758 CZK, i.e. 21 percent.

Bigger differences than in the level of total costs appear in their allocation into single cost items. Different are the costs per seedlings by what it is evident that organic farmers use owns seedlings while the conventional farmers mainly the purchased one. In the case of costs per fertilization the minimization of usage of industrial fertilizers and chemical protection agents by the organic farmers takes effect. Low labour costs in 2001 in the file of organic farmers were influenced by the fact that part of the private enterprising farmers who were sole respondents of the selected file in 2001 in this section recorded labour costs as the indirect costs.

Analogous to other organic crops, also in the case of potatoesare the yields per hectare are significantly lower (approximately half) and on the other side, revenues per product are higher per one production unit. If we, compare the trend of the average yield per hectare and production costs per one ton of potatoes in the period 2001–2004, the trends are different. In the file of organic subjects, the yields per hectare are increasing until 2003 while the production costs are decreasing. In 2004, the yield per hectare slightly decreased but because of decrease of total costs per one hectare of harvest area, there continued also the decrease of product costs per one ton of potatoes. In the file of conventional respondents, the yields per hectare on the contrary decreased during 2001–2003 and in 2004 the yields increased by 21.3 percent when compared with 2004 and production costs were, because of the decrease of yields per hectare, the highest in 2003.

CONCLUSION

On the base of the results of costs and revenues, the analysis of the selected sectors of livestock production shows that the cost for cattle and beef-cow fattening are not significantly different in both systems of agriculture. The difference could be seen in the structure of total costs and that mainly regarding the costs per feedings, labour costs, cost for associated operations and indirect costs.

However, from the price analysis of cattle fattening according to the Czech Statistical Office (CSO), it is evident that after entry to the EU, the sales of start-of-fattening cattle increased as well as the sales and market prices of superior meat of fertile bulls. The market prices increased also in 2005, the most significant was the increase in the case of start-of-fattening cattle.

To ensure of better economic results in the case of beef-cattle is (beside strict observance of the breeding principles that should bring near the ideal state, i.e. one calf per one cow per year), there is necessary a significant improvement of feed base. It is necessary to significantly better the quality of pastures that is the base of the summer feeding ration and to increase the quality of mixed industrial feedings. For the increase of number of calves, it is necessary to supply the feeding ration by the superior nutritious grain.

The usage of permanent pastures is possible mainly as a cattle-range. That is why it is necessary, for the optimal usage of permanent pastures, to optimize the number of beef-cows and others herbivores to the acreage of permanent pastures, because another way of the permanent pastures maintenance is too costly. The economy of beef-cows breeding is unprofitable without the European subsidies. That is why it is necessary to finance the beef-cows that are breed above the European quote from the sources of the Czech Republic.

The increase of the average market prices of organic plant products oriented on the market production shows that higher production costs are covered by the better price of superior organic products and the production is profitable. In the case of feeding-crops

(in this paper analysed oat), the main part is used in own livestock-production what to the main benefit of these crops.

Even thought the total costs per one hectare of harvest land are universally lower in the file of organic farms than by the conventional crops, significantly lower yields per hectare result in higher costs per one ton of grain.

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