Economic results of agricultural enterprises in 2005

Ekonomické výsledky zemědělských podniků v roce 2005

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Abstract: Using a file of economic indicators of a sample of selected agricultural enterprises, their economic results have been evaluated according to their production and climatic conditions, production orientation and the system of management since 1996. The long-term tendencies of economic results and the influencing factors shall be defined according to this analysis. The authors aim to assess the influence of external conditions on management of agricultural enterprises and how the economic result can be influenced. Next, the authors aim to analyse the influence of the accession of the Czech Republic to the EU. In 2005 the agricultural enterprises suffered a decrease in their profit compared with 2004, followed by a decrease of the profit rate. The decrease in the number of labour force and at the same time the increase of labour productivity shows a long-term tendency. Subsidies in agriculture have also been increasing in the long-term perspective. There was the first significant increase in 2004. Subsidies are one of the most important factors influencing the economics of agricultural enterprises and the dependence of their earnings on subsidies is increasing.

Key words: production areas, marginal areas, earnings, profit rate, labour productivity

Abstrakt: Výsledky hospodaření výběrového souboru zemědělských podniků jsou hodnoceny s ohledem na jejich výrobně-klimatické podmínky, výrobní zaměření a způsob hospodaření pomocí souboru ekonomických ukazatelů již od roku 1996. Na základě této analýzy jsou definovány dlouhodobé tendence hospodářských výsledků a faktory je ovlivňující. Cílem je zhodnotit vliv vnějších podmínek hospodaření v zemědělských podnicích na výsledky hospodaření a analyzovat vliv vstupu ČR do EU. Rok 2005 znamenal pro zemědělské podniky především pokles výsledku hospodaření proti roku 2004, a s tím související pokles míry zisku. Dlouhodobější tendenci vykazuje pokles průměrného počtu pracovníků současně se zvyšováním produktivity práce. Stejně tak i podpory do zemědělství dlouhodobě rostou, přičemž k výraznému nárůstu došlo v roce 2004. Dotace patří k významným faktorům ovlivňujícím ekonomiku zemědělských podniků a závislost výsledku hospodaření na dotacích roste.

Klíčová slova: produkční oblasti, marginální oblasti, výsledek hospodaření, míra zisku, produktivita práce

In 2005 Czech agriculture saw for the first time a full implementation of the Common Agricultural Policy. A positive profit value was reached in the last two years, although the 2005 profit was by far less satisfactory than that in 2004.

The accession of the Czech Republic to the EU has increased the demands on competition, but at the same time, it has provided wider sales opportunities. The agrarian sector has helped to improve the total foreign exchange of the Czech Republic. The increment of agrarian export has so far been higher than the increment of import. The different pace resulted in decrease of the negative agrarian balance by more than 6 milliards CZK, which contributed to the achievement of positive balance of Czech foreign trade in 2005 (Zelená zpráva 2006).

The important increase in subsidies started with the accession of the Czech Republic to the EU, which accounted for a necessary restructuring and diversification of production.

The European Union accession specifically influences agriculture because agricultural sector has traditionally been strongly regulated by the Common Agricultural Policy (CAP). Almost half of the EU

budget is spent on agriculture. Price support and direct payments are two major policy instruments of the CAP. Direct payments adopted by the accessing states are significantly decoupled, detached from production (Bielik, Sojková 2006).

Yet the increasing dependence on subsidies, unequal position of farmers within the EU 25 and the probability of further reforms of the Common Agricultural Policy are the main sources of mistrust of the businessmen in the agrarian sector.

MATERIAL AND METHODOLOGY

A scale of financial indicators is employed to evaluate the financial and economic situation. These are especially indicators of financial analysis employing ratio indicators, alternatively indicators of the financial health. A thorough evaluation of the enterprises needs considering not only financial characteristics but also quality (non-financial) characteristics. It is possible to reach a relatively objective total evaluation by implementing a combination of mathematic-statistical methods and expert methods (Novák 2006).

The Economic Account of Agriculture, as a comprehensive tool to evaluate and measure the economic performance of the agricultural sector, proved to be a reliable instrument for assessing the individual components of the changes which the sector had to cope with in the period after the accession to the European Union (Blaas, Varoščák 2006).

The economic results of the selected sample of agricultural enterprises have been evaluated since 1996 according to a file of economic factors, regarding their production and climatic conditions, produce orien-

tation and the concept of management. The actual development in a longer time period is evaluated by economic-statistical methods (Střeleček 1991).

The selected sample includes those agricultural enterprises that conduct their bookkeeping. The collection of data includes copies of the standard balance sheet as of 31st December, the income statement, the annual crop plants statement, the annual statement on the areas of crop plants. These data are complemented by a questionnaire.

The sample of enterprises is divided into two groups: enterprises in production areas (up to 450 m above sea level) and enterprises in marginal areas (above 450 m above sea level). Besides this division, the economic indicators of the enterprises in marginal areas are adjusted to the particular elevation above sea level. Further sampling of enterprises is carried out according to the production orientation. The following methodology is used for the standard FADN outputs and next we use sampling according to the LFA. In the sample divided according to these criteria, various economic indicators are observed, namely earnings before tax. It points to other indicators as e.g. the required profit rate, the structure of earnings and the influence of subsidies on earnings. Other monitored indicators are: the structure of yields, labour productivity, fund efficiency and intensity of agricultural production.

All these indicators are compared both in time (regarding the development of the last years) and in space (production and marginal areas respectively).

In the period 1995–2004, in average 150 agricultural enterprises were monitored. For 2005 we put 122 enterprises, 59 of which farm in the production areas and 63 in the marginal areas.

Table 1. The structure of earnings before taxes in an average agricultural enterprise (in thousands CZK)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Production areas										
Operational earnings	492	−302	1 450	−24	3 600	2 809	−733	−267	6 972	5 096
Financial earnings	−1 148	−1 845	−1 732	−1 876	−1 861	−1 225	−718	−1 157	−1 266	−1 204
Extraordinary earnings	444	940	400	1 124	491	519	401	266	303	662
Earnings before tax	−212	−1 207	118	−774	2 232	2 106	−1 050	−1 157	6 021	4 554
Marginal areas										
Operational earnings	−817	−166	1 343	348	1 652	594	−913	−1 208	3 611	2 305
Financial earnings	−712	−1 066	−822	−656	−532	−505	−551	−526	−562	−564
Extraordinary earnings	552	658	601	334	634	575	573	55	180	216
Earnings before tax	−977	−574	1 122	26	1 755	666	−891	−1679	3 230	1 959

Source: Monitoring of agricultural enterprises in the period 1996–2005

RESULTS AND DISCUSSION

Structure of earnings before taxes

The earnings of the accounting period is a complex indicator of management of every enterprise. The earnings were monitored before taxation in order to maintain the comparability of separate data (Table 1). In this form, the earnings indicate both efficiency and economy of the operation process. Besides costs, the earnings are significantly influenced by the conditions of commercialization (Střeleček et al. 2006).

The earnings before taxes fluctuate considerably in the course of the period of observation. In the production areas, the earnings had a negative value in five years out of ten. After two significantly loss-making years, there were, in 2004, achieved the most important earnings for the period of observation, in average 6 millions CZK per enterprise. In 2005 the profit rate dropped to 76% compared with the preceding year.

In the marginal areas, there were four loss-making and six profitable years during the period of monitoring. The presumption that economics of these areas has begun to stabilize since 1998 was shattered in 2002 by a loss of almost one million CZK per enterprise. This unfavourable course was even intensified in 2003 and the loss in marginal areas reached 1.68 millions CZK per average enterprise. 2003 was the worst year during the monitored period. Equally

as in the production areas, the earnings of 2004 were the most positive ones for the whole monitored period, while in 2005 the earnings dropped to 61% of the 2004 values.

The earnings before taxes can be divided into three components that are in additive relation: operational earnings, financial earnings and extraordinary earnings. The operational earnings are the most variable part. In 2003 the operational loss was 267 thousands CZK per enterprise in production areas, on the other hand in 2004 the best earnings were reached (6.9 mil. CZK per enterprise). In 2005 the operational earnings dropped to 73% of the previous year.

In marginal areas, there is evident a positive tendency of the growth of the profit amount in different years. The tendency was interrupted in 2001, when the average enterprise profit decreased to only 594 thousand CZK, followed by loss-making years 2002 and 2003. The operating earnings increased again in 2004 to 3.6 millions CZK. The decrease in 2005 reached 64% compared with the preceding year.

The negative financial earnings are both in marginal and production areas a decisive factor influencing the total development of enterprises. This loss is in the production areas in 2005 lower by 5% than in the preceding year but in marginal areas the loss is by 0.36% higher than in 2004.

The efficiency of management represents an important factor in the evaluation of economic results. This evaluation is carried out by the distribution of
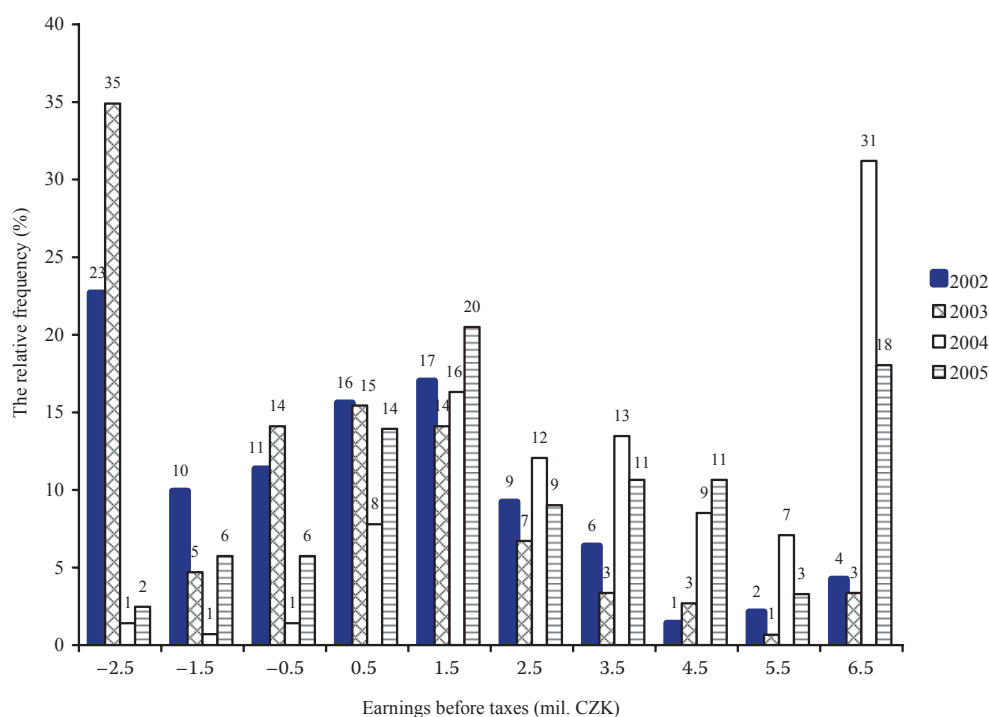

Figure 1. Distribution of enterprises according to the earnings before taxes

enterprises according to earnings before taxes. If the distribution is flat, then there are considerable reserves in enterprise management. On the other hand sharp distribution with low variability means that quantitative reserves in management are depleted and a change can be brought about only by means of different qualitative conditions (Figure 1).

If the distribution of enterprises is compared according to the amount of earnings, it is evident that there was an increase since 2000 to 2003 of the number of enterprises with a loss. For example in 2000, there was 14.3% of the monitored enterprises loss-making, in 2001 26.02%, in 2002 even 54.26% and in 2003 57.7% of enterprises operated with a loss. Extraordinarily favourable climatic and economic conditions in 2004 caused a decrease of loss-making enterprises to 6%. In 2005 the number of enterprises making loss increased to 18%.

In 2000, there were 10.5% of enterprises making a profit higher than 5 millions CZK, in 2001 11%, in 2002 only 4.7%, and in 2003 only 3.4% of enterprises made a higher profit than 5 million CZK. In 2004 the ratio of enterprises the profit of which increased over 5 millions CZK rose to 31.5%. And in 2005 the ratio of enterprises with profits higher than 5 millions CZK was 19%. The general, the shift of enterprises either to a worse or to a better earnings indicates the growing influence of external factors, especially prices, climatic conditions and the total volume of subsidies.

Regarding the low share of non-agricultural production, it is useful to show the earnings before taxes per 1 ha of agricultural land (Table 2). This indicator monitors the same development tendencies as the average earnings. In production areas there was reached the highest profit per ha of agricultural land: 2 806 CZK/ha in 2004. In 2005 the same profit was only 2 064 CZK/ha, which is drop to 74%. The worst result turned out in 1997 – there was a 600 CZK/ha loss and in 2003 with a 540 CZK/ha loss.

Similarly the highest profit per ha of agricultural land was achieved in marginal areas in 2004 (2 194 CZK/ha) and in 2005 (1 392 CZK/ha), which, however, is a drop

Table 2. The profit rate and the earnings before tax according to the elevation above sea level

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Production areas										
Total assets (1 000 CZK)	86 420	100 340	101 690	111 690	103 370	109 650	113 298	122 577	135 105	153 899
Agricultural land area (ha)	1 626	2 004	1 641	1 937	1 873	1 890	1 975	2 149	2 146	2 206
Profit rate (%)	−0.25	−1.20	0.12	−0.69	2.16	1.92	−0.93	−0.94	4.46	2.959
Profit* per ha of agricultural land (1 000 CZK)	−0.13	−0.60	0.07	−0.40	1.19	1.11	−0.53	−0.54	2.806	2.064
Profit* per worker (1 000 CZK)	−2.7	−9.0	1.1	−7.7	23.3	21.1	−10.0	−10.7	56.3	41.8
Required profit* by 4% profit rate (1 000 CZK)	3 457	4 014	4 068	4 468	4 135	4 386	4 532	4 903	5 404	6 156
Required profit* by 6% profit rate (1 000 CZK)	5 185	6 020	6 101	6 701	6 202	6 579	6 798	7 355	8 106	9 234
Marginal areas										
Total assets (1 000 CZK)				81 620	88 380	85 524	81 650	80 806	82 347	81 808
Agricultural land area (ha)	1 540	1 750	1 881	1 425	1 697	1 718	1 555	1 549	1 472	1407
Profit rate (%)				0.03	1.99	0.78	−1.09	−2.08	3.92	2.394
Profit* per ha of agricultural land (1 000 CZK)	−0.63	−0.33	0.60	0.02	1.03	0.39	−0.57	−1.08	2.194	1.392
Profit* per worker (1 000 CZK)				0.3	23.7	9.4	−13.5	−25.1	53.8	36.1
Required profit* by 4% profit rate (1 000 CZK)				3 265	3 535	3 421	3 266	3 232	3 294	3 272
Required profit* by 6% profit rate (1 000 CZK)				4 897	5 303	5 131	4 899	4 848	4 941	4 908

Source: Monitoring of agricultural enterprises in 1996–2005

*The term profit stands here for the term earnings before taxes

to 64% of the preceding year's achievement. The greatest loss was measured in 2003 (1 080 CZK/ha).

The earnings counted per 1 worker show the same tendency in the profit development and they are lower in marginal areas than in the production ones.

It is customary to measure the adequacy of earnings according to the proportional indicator of the profit rate, i.e. the proportion of earnings to the total assets volume. From the point of view of the development of the enterprise, only positive values are acceptable. The negative profit rate is always unsatisfactory. In production areas, the positive profit rate was reached in five years, in 1998 (0.12%), 2000 (2.16%), 2001 (1.92%), in 2004 (4.46%) and in 2005 (2.96%). In marginal areas, the highest profit rate was reached in 2004 as well (3.92%) and in 2005 (2.39%). For the first time during the monitored period, an average agricultural enterprise reached in 2004 an acceptable profit rate. Although the earnings of the average agricultural enterprise in 2004 was by far the best one for the last ten years, the 4% profit rate is a standard result and therefore in the previous years the profit rate was absolutely unsatisfactory. Also the 2005 profit rate is not satisfactory from the point of view of the development of the enterprise. To reach the 4% profit rate the earnings should rise by 35% in the production areas and by 67% in marginal areas.

The earnings per ha of agricultural land classified according to the LFA proportion were in 2005 the highest in enterprises with the LFA proportion higher then 75% (117.2% of the average) and in enterprises reaching up to 25% of LFA area (101.5% of the average). These enterprises also show the lowest profit rate 2.5%, the subsidies they receive are lower than the average by 15% and their profit calculated per a worker is the second lowest. The enterprises within

Table 3. The profit rate in 2005 according to the LFA proportion

The LFA proportion	0–25%	25–50%	50–75%	75–100%
Number of enterprises	43	14	10	55
Agricultural land area (ha)	2 030.3	1 746.5	1 791.5	1 621.3
Total assets (1 000 CZK)	147 458	104 937	103 291	98 023
Earnings before taxes (1 000 CZK)	3 693.5	2 789.6	2 732.1	3 034.0
The profit rate (%)	2.505	2.658	2.645	3.095
Profit* per ha of agricultural land (1 000 CZK)	1.819	1.597	1.525	1.871
Profit* per worker (1 000 CZK)	35.52	33.90	43.71	46.45
Required profit* by 4% profit rate (1 000 CZK)	5 898.3	4 197.5	4 131.6	3 920.9
Required profit* by 6% profit rate (1 000 CZK)	8 847.5	6 296.2	6 197.4	5 881.4

Source: Monitoring of agricultural enterprises in 2005
*The term profit stands here for the term earnings before taxes

Table 4. The profit rate in 2005 according to orientation produce

Orientation produce	Plant production	Milk production	Cattle breeding	Mixed production
Number of enterprises	18	11	22	71
Agricultural land area (ha)	2 132.0	1 058.8	1 750.2	1 835.4
Total assets (1 000 CZK)	140 733	56 356	111 233	121 602
Earnings before taxes (1 000 CZK)	3 085.4	1 455.8	3 013.3	3 580.6
The profit rate (%)	2.19	2.58	2.71	2.94
Profit* per ha of agricultural land (1 000 CZK)	1.447	1.375	1.722	1.951
Profit* per worker (1 000 CZK)	29.09	34.31	39.67	43.88
Required profit* by 4% profit rate (1 000 CZK)	5 629.3	2 254.2	4 449.3	4 864.1
Required profit* by 6% profit rate (1 000 CZK)	8 444.0	3 381.3	6 674.0	7 296.1

Source: Monitoring of agricultural enterprises in 2005
*The term profit stands here for the term earnings before taxes

the LFA that range from 25% to 75% have the substandard earnings and profit rate. In the range from 50% to 75% of the LFA area, there is an above-average profit per worker, which is caused by the above-average subsidies in 2005. These results, however, can be influenced by the small number of enterprises that have been monitored in this range (Table 3).

The classification of enterprises according to the production orientation shows that the highest number of the monitored enterprises is orientated to mixed plant production and animal husbandry (58%). An average enterprise with such orientation reaches the highest earnings (Table 4), the highest profit rate and the highest profit rate per a worker, even though the subsidies are slightly substandard (98.5%). An average enterprise specialized in cattle breeding reaches slightly substandard earnings. The profit rate and the profit per worker are both substandard. On the other hand, the subsidies in CZK/ha represent 114% of the average.

We can also see the substandard earnings in an average enterprise specialized in plant production or milk production. The milk oriented enterprises reach a higher profit rate and a higher rate per worker and the subsidies reach the highest values and represent 125% of the average.

Evaluation of indicators of production process efficiency

The efficiency indicators compare the revenue volume with three main factors, i.e. land, labour and capital. The relation between revenues and agricultural land characterizes the production intensity, the relation between revenues and the average number of labour characterizes labour productivity. The relation between revenues and assets is characterized by activity indicators (Table 5).

In the case of profitable production in the basic period, the increase of revenue volume results in profit from production increase. The growth of labour productivity causes relative saving of workers and the secondary decrease of labour costs. The fund efficiency increase results in relative savings of the fixed assets, related to the relative saving of depreciation reduction and saving of further costs. A faster turnover of short-term assets results in decrease of the storage and material manipulation costs. Relative savings of fixed assets and farmland are connected with higher interest rate. On the other hand, decreasing the volume of revenues under the otherwise stable conditions results in a relative excess of basic production factors and thus to associated additional

costs. The decrease of revenues rate causes the decrease of profit rate from the production extent. Lower revenues volume is related to cost remanence which results in higher cost to revenues ratio of the production (Střeleček et al. 2006).

The revenue volume of an average agricultural enterprise in production areas shows an increasing tendency in 1995–2005, with a certain stabilization in 1999–2002 (Table 5). The growing revenue volume is followed by the growing turnover rate of the total assets, with a slight decrease in 2002 and 2003. In 2005 the turnover rate in production areas enterprises equalled 0.734 and it decreased compared with 2004 to 96%.

In marginal areas, the revenues volume growth is much slower compared with 1995 and in 2002 and 2003 a decrease was recorded. In 2004 there is an increase in revenues by 13% compared with the preceding year, but in 2005 the revenues decrease once again to only 92% of the 2004 values. The turnover rate is lower compared with the production areas, which results in a longer turnover time of 113 days. The lower revenues volume and the turnover rate are second top factors of a worse economic situation of enterprises in marginal areas.

The average number of workers calculated per 100 ha of agricultural land has been decreasing due to the growing labour productivity in the last three years. In 2005 there was labour productivity in production areas 1 037.52 thousand CZK/worker. It increased compared with 2000 to 126% and compared with 2004 it rose to 108%. The labour productivity increase in 2005 represents a relative saving for an average production area enterprise by 8.4 workers.

Also in marginal areas, there has been an increase in labour productivity in 2005. The value equals 936 thousands CZK/worker, which is rise to 103% of 2004. The relative saving of workers made in marginal areas due to labour productivity is 1.2 workers in 2005 (Table 6).

The causes of growth of labour productivity are different in particular areas. In production areas, we can speak of a faster revenues volume growth with a slower reduction in the number of workers, while in marginal areas, the labour productivity is caused by the reduction of the number of workers with a slower revenues volume growth. This fact is confirmed by comparison of land area per worker. In production areas in 2005, the average land area per worker was 20.3 ha, while in marginal areas 25.9 ha. The given dependence has a general character, since with growing elevation above sea level the number of workers in the enterprise decreases and the rate of land area per worker increases.

In general, the fund efficiency reflects the same tendencies, which influence the revenues volume. In production areas there was not recorded any development of this indicator since 1996, only its annual oscillations (Table 7).

In marginal areas, the fund efficiency grows steadily since 1996 to 2001. In 2002 and 2003, a decrease of fund efficiency and its recurrent growth in 2004 was recorded in both production and marginal areas. In 2005, the fund efficiency was going down and it means the relative excess of fixed assets by 1 164 thousand CZK in production areas. In marginal areas, the fund efficiency represented the relative excess of fixed assets by 3 977 thousand CZK.

Neither the economic theory nor practice deal sufficiently with the evaluation of the technical development i.e. the relation between the fixed assets and the revenues of the enterprise. The evaluation of investment efficiency is usually carried out before the investment itself and it is carried on for several years after the investment has been included into operation. The goal of this evaluation is to assess the acquired investments. The goal of technical development assessment is to assess the proportional development among the development of the fixed assets, the average number of workers and the volume of revenues of an agricultural enterprise (Střeleček, Lososová 2003).

In 2005 an average agricultural enterprise in the NON LFA (the LFA proportion in the total area of agricultural land is less than 50%) carried out a fund-intensive type of technical development, which was connected with growth of labour productivity. The enterprise implements relative savings in the number of workers and relative savings in personal costs. The fund efficiency compared with 2004 dropped to 95%. Due to the drop in fund efficiency, there was

Table 5. Activity indicators of an average agricultural enterprise according to the elevation above sea level

Elevation above sea level (m)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Index 2005/95
Revenues of enterprise in mil. CZK												
−450	59.16	60.52	68.49	72.55	80.95	79.08	85.61	87.98	89.92	103.08	112.91	1.91
450−500	48.67	50.67	64.96	76.46	66.19	62.96	75.39	62.69	71.58	70.05	61.25	1.26
500−550	43.82	47.15	55.28	52.03	46.97	57.60	53.17	47.35	43.20	50.50	51.32	1.17
550−600	42.25	41.25	43.01	42.51	35.29	46.74	49.22	47.56	36.55	47.18	39.96	0.95
600−650	47.44	39.51	69.27	47.98	62.24	60.58	55.05	49.92	45.20	55.64	53.69	1.13
650−	31.23	39.50	34.41	36.37	19.07	18.38	19.54	20.34	25.48	27.87	30.66	0.98
450−					49.55	55.66	56.48	50.41	48.51	54.94	50.80	
Total assets in mil. CZK												
−450	90.61	86.42	100.34	101.69	111.69	103.37	109.65	113.30	122.58	135.11	153.90	1.70
450−500	77.01	79.88	99.45	102.46	86.79	93.53	107.19	100.22	114.94	98.06	91.05	1.18
500−550	66.00	76.79	90.72	83.06	85.30	87.72	82.44	75.62	73.31	76.77	87.23	1.32
550−600	70.96	72.95	77.94	82.32	59.61	80.27	78.49	77.97	62.77	76.43	64.03	0.90
600−650	75.12	70.48	121.59	83.19	94.73	105.78	84.67	84.17	80.40	84.96	90.74	1.21
650−	53.47	55.41	53.83	61.99	118.15	26.71	29.11	30.27	34.59	41.80	50.48	0.94
450−					81.62	88.38	85.52	81.65	80.81	82.35	81.81	
Total assets turnover rate												
−450	0.65	0.7	0.683	0.718	0.725	0.765	0.781	0.777	0.734	0.763	0.734	1.13
450−500	0.632	0.634	0.653	0.717	0.763	0.673	0.703	0.626	0.623	0.714	0.673	1.06
500−550	0.662	0.632	0.609	0.626	0.551	0.657	0.645	0.626	0.589	0.658	0.588	0.89
550−600	0.601	0.565	0.552	0.516	0.592	0.582	0.627	0.61	0.582	0.617	0.624	1.04
600−650	0.634	0.56	0.569	0.577	0.657	0.573	0.65	0.593	0.562	0.655	0.592	0.93
650−	0.582	0.713	0.639	0.587	0.161	0.688	0.671	0.672	0.737	0.667	0.607	1.04
450−					0.607	0.63	0.66	0.617	0.6	0.667	0.621	

Source: Monitoring of agricultural enterprises in 1996–2005

Table 6. Labour productivity and remuneration in an average agricultural enterprise

Elevation above sea level (m)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Revenues including financial and extraordinary ones (in thousand CZK)											
−450	59 160	60 520	68 490	72 554	80 954	79 082	85 605	87 984	89 920	103 077	113 845
450–500	48 674	50 670	64 960	76 464	66 190	62 955	75 387	62 693	71 577	70 049	67 867
500–550	43 820	47 145	55 280	52 025	46 970	57 603	53 166	47 351	43 199	50 501	50 567
550–600	42 246	41 249	43 010	42 510	35 292	46 742	49 224	47 557	36 546	47 181	43 403
600–650	47 443	39 506	69 270	47 982	62 242	60 582	55 050	49 919	45 203	55 637	46 689
650–	31 226	39 504	34 410	36 368	19 068	18 375	19 543	20 342	25 482	27 871	30 663
450–					49 552	55 660	56 475	50 406	48 512	54 942	51 433
The wages (in thousand CZK)											
−450	7 106	7 450	14 220	14 210	11 736	11 935	13 351	15 036	15 699	17 215	18 540
450–500	8 639	9 440	10 064	11 317	9 545	9 940	10 435	10 633	13 171	11 260	10 132
500–550	7 011	8 165	12 632	8 978	9 162	9 834	9 373	9 238	8 764	8 855	8 985
550–600	7 458	7 410	8 269	6 600	7 294	7 014	7 750	8 409	6 930	8 130	7 486
600–650	7 167	7 567	9 400	11 154	12 362	9 854	10 018	9 466	9 756	10 339	10 804
650–	5 246	6 968	6 871	7 198	3 652	3 528	3 717	3 944	4 916	4 945	4 915
450–					8 906	9 837	9 151	9 195	9 464	9 460	9 073
The average number of workers											
−450	90	79	134	108	100	96	100	105	108	107	109
450–500	105	99	95	100	78	75	80	73	92	69	59
500–550	89	90	126	83	81	79	71	68	62	58	53
550–600	95	83	81	65	66	57	61	58	47	51	45
600–650	90	85	97	105	117	100	79	72	71	69	68
650–	71	78	76	68	30	26	28	29	34	35	31
450–					78	74	71	66	67	60	54
Labour productivity											
−450	657.3	766.1	511.1	671.8	809.5	823.8	854.9	837.3	830.84	959.14	1 037.52
450–500	463.6	511.8	683.8	764.6	848.6	839.4	937.3	862.9	780.32	1 015.91	1 046.49
500–550	492.4	523.8	438.7	626.8	579.9	729.2	748.2	701.3	694.99	877.75	968.26
550–600	444.7	497	531	654	534.7	820	806.3	814.7	769.87	932.64	888.11
600–650	527.1	464.8	714.1	457	532	605.8	701.3	698.2	636.66	808.39	792.54
650–	439.8	506.5	452.8	534.8	635.6	706.7	709.2	707.5	755.48	798.70	974.89
450–					635.3	752.2	799	767.6	726.17	910.27	935.78
The average annual wages per worker (in thousand CZK)											
−450	79.37	94.44	106.35	129.79	117.14	127.99	133.32	143.10	145.06	160.19	170.36
450–500	82.40	94.74	105.54	112.42	121.78	132.53	129.74	146.37	143.59	163.30	173.11
500–550	78.88	90.23	100.58	106.73	113.11	121.93	131.91	136.82	140.99	153.91	169.52
550–600	78.45	81.90	101.58	100.49	110.70	119.76	126.94	144.05	145.99	160.71	166.36
600–650	79.59	89.02	96.66	106.10	105.79	119.91	127.62	132.40	137.41	150.23	159.47
650–	74.08	65.36	96.49	105.59	121.73	117.02	134.89	137.18	145.76	141.70	156.27
450–					113.63	123.99	129.47	140.03	141.67	156.73	167.15

Source: Monitoring of agricultural enterprises in 1996–2005

a relative excess of fixed assets by 3 639 thousand CZK. The relative exceed of fixed assets resulted in depreciation excess by 437.4 thousand CZK. This type of technical development can be efficient if the absolute value of the savings is higher than the depreciation excess (Table 8).

In 2005 an average agricultural enterprise in the LFA (the LFA proportion in the total area of agricultural land is more than 50%) carried out a fund-intensive type of technical development, which was connected with the growth of labour productivity. The enterprise implements the relative savings in the number of workers and the relative savings in personal costs 695.33 thousand CZK. The fund efficiency compared with 2004 dropped to 95%. Due to the drop in fund efficiency, there was a relative excess of fixed assets by 2694.28 thousand CZK. The relative exceed of fixed assets resulted in depreciation excess by 329.06 thousand CZK. As well as in the NON LFA, this type of technical development can be efficient in the LFA provided the absolute value of personal

costs savings is higher than the depreciation excess (Table 9).

To evaluate whether the production volume increase is economically effective is one of the key problems of the evaluation of the economy of production of an enterprise. The degrees of cost effectiveness provide a useful knowledge about this problem.

The degrees of cost effectiveness show the qualitatively different development tendencies in the dependence between the volume of production and costs. These tendencies influence the essential changes in the dynamics of profit ratio, the profit (loss) volume and volume of production. The degrees of cost effectiveness can be used to evaluate the efficiency of cost development within the whole enterprise, its sections or the individual sectors (output) (Střeleček 2004).

An average enterprise both in the NON LFA and LFA incurred a decreasing cost effectiveness related to the decreasing volume of profit. This degree of effectiveness represents an increase of the costs to

Table 7. The average fund efficiency of agricultural enterprises

Elevation above sea level (m)	Fund efficiency										
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
−450	1.13	1.34	1.32	1.2	1.32	1.323	1.388	1.359	1.315	1.38	1.3139
450−500	1.1	0.98	1.02	1.21	1.35	1.189	1.187	1.018	1.013	1.206	1.1383
500−550	1.11	1.06	1.09	1.12	0.94	1.081	1.103	1.056	0.996	1.137	0.9541
550−600	0.97	1.16	0.94	0.98	1.18	1.139	1.21	1.125	1.052	1.085	1.1953
600−650	1.01	1.21	0.91	1.06	1.01	0.987	1.12	0.971	0.934	1.085	0.9506
650−	0.89	0.86	0.94	0.9	0.33	1.111	1.157	1.162	1.408	1.426	1.3282
450−					1.07	1.106	1.153	1.042	1.011	1.143	1.0548

Source: Monitoring of agricultural enterprises in 1996–2005

Table 8. The dynamics of chosen indicators in dependence on the type of technical development in NON LFA

Indicator	Measuring unit	Evaluated period (2005)	Basic period (2004)	Index	Difference	Relative change	Index of the relative change
Average number of workers	worker	98.6	100.02	0.99	−1.42	−7.17	−0.07
Fixed assets	1 000 CZK	76 278.7	68 690.73	1.11	7 587.97	3 638.92	0.05
Revenues	1 000 CZK	98 754.4	93 385.63	1.06	5 368.77		
Personal costs	1 000 CZK	16 400.4	15 884.41	1.03	515.99	−1 192.64	−0.08
Depreciation of fixed assets	1 000 CZK	9 169.35	7 751.91	1.18	1 417.44	437.43	0.06
Labour productivity	1 000 CZK/worker	1 001.57	933.67	1.07	67.90		
Technical equipment	1 000 CZK/worker	773.62	686.77	1.13	86.85		
Fund efficiency		1.29	1.36	0.95	−0.06		

Source: Monitoring of agricultural enterprises in 2005

revenue ratio of the enterprise due to a relative excess of costs (1 952 thousand CZK in NON LFA and 1 007 thousand CZK in LFA). The increase of costs to revenue ratio is so high that it is not eliminated by the increase of profitable production of the basic period (Table 10 and 11).

The intensity of agricultural production in accounting statements is expressed by the revenues per 1 ha

Table 9. Dynamics of chosen indicators in dependence on the type of technical development in LFA

Indicator	Evaluated period (2005)	Basic period (2004)	Index	Difference	Relative change	Index of the relative change
Average number of workers (worker)	64.9	65.77	0.99	−0.87	−4.01	−0.06
Fixed assets (1 000 CZK)	57 788.4	52 580.23	1.10	5 208.17	2 694.28	0.05
Revenues (1 000 CZK)	65 124.3	62 152.74	1.05	2 971.56		
Personal costs (1 000 CZK)	11 240.90	10 435.1	1.08	805.8	−695.33	−0.07
Depreciation of fixed assets (1 000 CZK)	7 057.95	6 179.05	1.14	878.9	329.06	0.05
Labour productivity (1 000 CZK/worker)	1 003.46	945	1.06	58.45		
Technical equipment (1 000 CZK/worker)	890.42	799.46	1.11	90.97		
Fund efficiency	1.13	1.18	0.95	−0.06		

Source: Monitoring of agricultural enterprises in 2005

Table 10. The dynamics of chosen indicators in dependence on cost effectiveness in NON LFA

Indicator	Evaluated period (2005)	Basic period (2004)	Index	Difference	Relative change
Revenues (1 000 CZK)	98 754.4	93 385.63	1.06	5 368.77	
Costs (1 000 CZK)	95 753.7	88 701.79	1.08	7 051.91	1 952.42
Profit (1 000 CZK)	3 000.7	4 683.84	0.64	−1 683.14	269.28
Costs to revenues ratio (CZK/CZK)	0.97	0.95	1.02	0.02	
Profit to costs ratio (CZK/CZK)	0.03	0.05	0.59	−0.02	
Profit to revenues ratio (CZK/CZK)	0.03	0.05	0.61	−0.02	
Differential cost (CZK/CZK)		1.31			
Cost efficiency (CZK/CZK)	1.03	1.05	0.98	−0.02	

Source: Monitoring of agricultural enterprises in 2005

Table 11. The dynamics of chosen indicators in dependence on cost effectiveness in LFA

Indicator	Evaluated period (2005)	Basic period (2004)	Index	Difference	Relative change
Revenues (1 000 CZK)	65 124.3	62 152.74	1.05	2 971.56	
Costs (1 000 CZK)	62 304.2	58 500.18	1.07	3 804.02	1 007.09
Profit (1 000 CZK)	2 820.1	3 652.56	0.77	−832.46	174.63
Costs to revenues ratio (CZK/CZK)	0.96	0.94	1.02	0.02	
Profit to costs ratio (CZK/CZK)	0.05	0.06	0.72	−0.02	
Profit to revenues ratio (CZK/CZK)	0.04	0.06	0.74	−0.02	
Differential cost (CZK/CZK)		1.28			
Cost efficiency (CZK/CZK)	1.05	1.06	0.98	−0.02	

Source: Monitoring of agricultural enterprises in 2005

of agricultural land. The following tendency has been derived from comparison of 2000 till 2005: the volume of revenues decreases with the increasing elevation above sea level. An average enterprise in marginal areas reaches only 71% in CZK/ha of revenues and enterprise in production areas.

The average enterprise in marginal area is smaller than in production areas (Table 12). An average enterprise in marginal areas reaches 6% of land area of an enterprise in production areas, 56% of fixed assets, 50% of average number of workers and 45% of revenues per enterprise. A disproportion concerns especially the revenues volumes, which is caused by the influence of extensive production, signalled by the decrease of revenues per 1 ha of agricultural land. With the elevation above sea level this intensity decreases significantly. Lower production intensity in marginal regions influences higher costs to revenues ratio, which results in a lower profitability level.

Should we classify the enterprises according to the LFA proportion, we would find out that the differences are not so significant as if the classification were done according to the elevation above sea level. An average enterprise in the LFA area (LFA cover over 50% of the area) is smaller than the average enterprise outside the LFA. The average enterprise in the LFA reaches to 65% of agricultural land of a NON LFA enterprise, 76% of the fixed assets, 66% of the average number of workers and 66% of revenues per enterprise.

The most of the monitored enterprises specialize in mixed agricultural production. Regarding the

Table 12. The intensity of agricultural production of an average agricultural enterprise

Elevation above sea level (m)	2000	2001	2002	2003	2004	2005
Revenues (thousand CZK)						
−450	79 082	85 605	87 984	89 920	103 077	112 913
450–500	62 955	75 387	62 693	71 577	70 049	61 250
500–550	57 603	53 166	47 351	43 199	50 501	51 318
550–600	46 742	49 224	47 557	36 546	47 181	39 965
600–650	60 582	55 050	49 919	45 203	55 637	53 695
650–	18 375	19 543	20 342	25 482	27 871	30 663
450–	55 660	56 475	50 406	48 512	54 942	50 797
Agricultural land area (ha)						
−450	1 873.2	1 890.25	1 974.98	2 149.13	2 145.96	2 206.77
450–500	1 816.3	1 867.97	1 762.2	2 104.78	1 784.92	1 676.90
500–550	1 763.5	1 692.65	1 550.39	1 382.79	1 367.22	1 341.39
550–600	1 653.1	1 624.48	1 435.71	1 092.61	1 128.59	1 074.76
600–650	1 626.8	1 834.79	1 564.36	1 680.22	1 608.66	1 568.04
650–	1 046.3	1 025.86	1 016.5	1 062.15	1 235.56	1 134.45
450–	1 697.1	1 718.53	1 554.83	1 549.4	1 472.19	1 406.94
Revenues per ha of agricultural land (thousand CZK)						
−450	42.218	45.288	44.549	41.84	48.03	51.17
450–500	34.661	40.358	35.576	34.007	39.24	36.53
500–550	32.664	31.41	30.541	31.241	36.94	38.26
550–600	28.275	30.301	33.125	33.449	41.81	37.18
600–650	37.24	30.004	31.91	26.903	34.59	34.24
650–	17.562	19.05	20.012	23.991	22.56	27.03
450–	32.797	32.862	32.419	31.31	37.32	36.10

Source: Monitoring of agricultural enterprises in 1996–2005

Table 13. The subsidies volume of an average agricultural enterprise

Elevation above sea level	The subsidies volume (thousand CZK)										
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
−450	23.23	818	1 411	1 856	3 420	5 308	3 432	3 503	6 193	10 798	13 593
450–500	31	1 450	1 196	3 279	4 110	5 352	4 268	4 308	5 948	10 404	11 103
500–550	19.49	1 769	1 872	2 798	3 806	4 770	3 920	4 320	4 126	8 897	10 041
550–600	15.02	1 235	1 649	2 159	4 040	4 620	3 819	3 747	3 586	6 956	7 716
600–650	16.82	2 362	2 791	3 995	6 670	4 753	5 566	4 561	5 099	10 807	13 049
650–	5.03	2 383	3 387	4 647	3 904	4 356	4 368	4 532	5 672	8 935	10 006
450–	18.03	1 739	1 921	3 090	4 330	4 849	4 339	4 246	4 807	9 293	10 419
Total	19.36	1 552	1 765	2 703	3 945	4 997	3 978	3 952	5 439	9 955	11 954

Source: Monitoring of agricultural enterprises in 1996–2005

area of agricultural land, an average enterprise with mixed agricultural production is by 14% smaller than an enterprise concentrated on plant production and by 73% bigger than an enterprise concentrated on milk production, by 5% bigger than an enterprise oriented on cattle breeding. The fixed assets reach for a mixed production enterprise 90% of a plant production enterprise, 216% of a milk production enterprise and 111% of a cattle breeding enterprise. The total revenues of an enterprise with mixed production reach 77% of plant production, 221% of milk production and 117% of an enterprise specialized in cattle breeding.

The influence of subsidies on earnings before taxes

The volume of subsidies shows a steady growth in the years 1995–2000. In 2000 there was a significant increase in subsidies caused by the drought subsidies, the settlement of which continued in 2001 (Table 13). In 1995–1998 the subsidies in marginal areas surpassed those in production areas, e.g. in 1999 the index comparing marginal and production areas was 126.6%. In 2000 this proportion changed to 91.16% and in 2001 the volume of subsidies was almost equal in both marginal and production areas to the 1999 rate (126.4%).
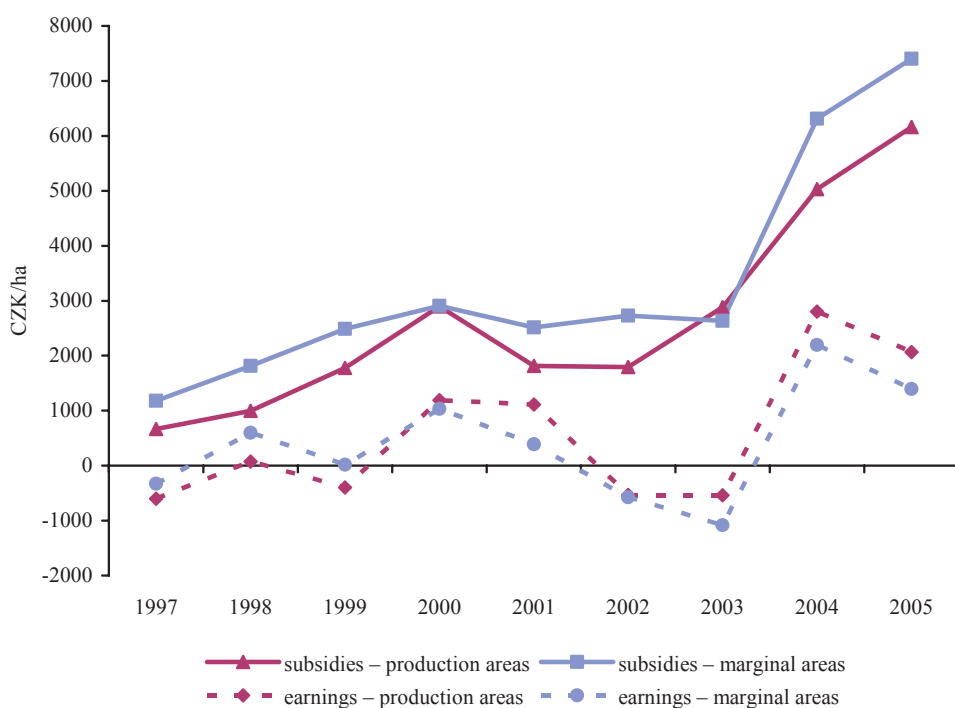

Figure 2. The development of the earnings and subsidies
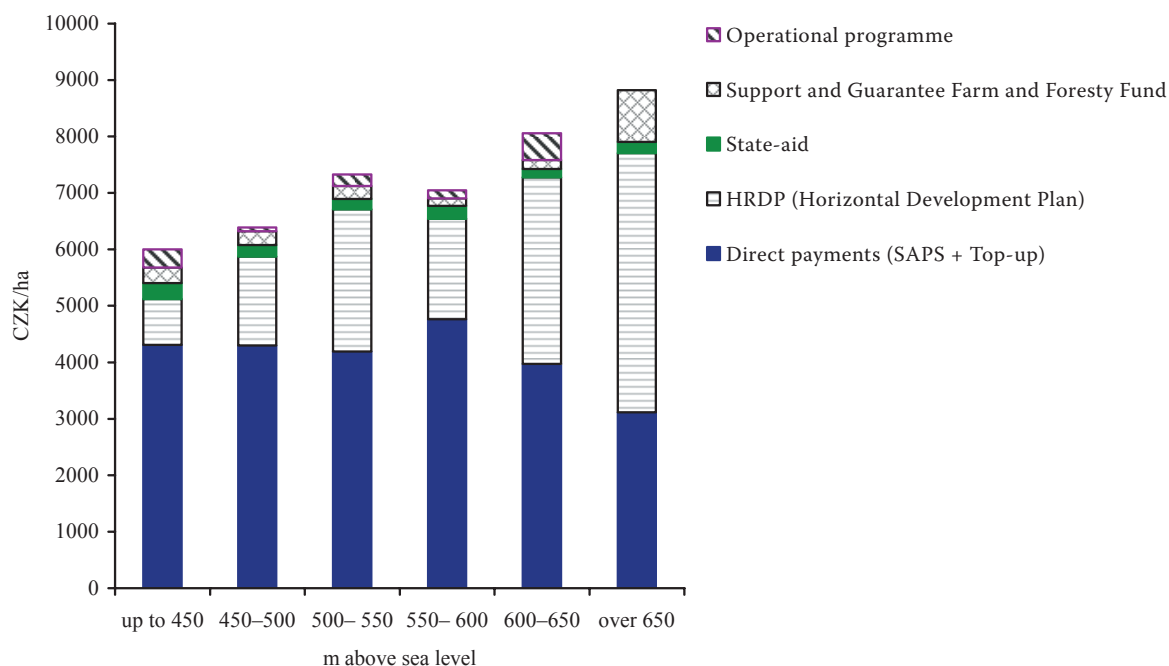
Figure 3. Subsidies in 2005 according to elevation above sea level

There is almost no difference in the volume of subsidies per average agricultural enterprise in 2002 compared to 2001. In 2003 there was an increase of subsidies per enterprise especially in production areas (index 03/02 = 176%). 2004 is marked by a significant increase of subsidies into agriculture. In the separate sea level areas, the volume of subsidies per enterprise increased in the range from 57% to 110% in comparison with the previous year.

To compare more easily the volume of subsidies in production and marginal areas, the subsidies volume was calculated per 1ha of agricultural land. Figure 2

shows a relatively high dependence of earnings on subsidies in CZK/ha of agricultural land, which is confirmed by the correlation coefficient, equal to 0.801 in production areas and 0.719 in marginal areas.

In 2004 the entrepreneurs could claim not only the state paid subsidies but also subsidies according to the Common Agricultural Policy. Despite the fact that these means are significantly lower than subsidies paid in the original EU countries (EU 15), the subsidies volume rose by 60% compared with the preceding year.
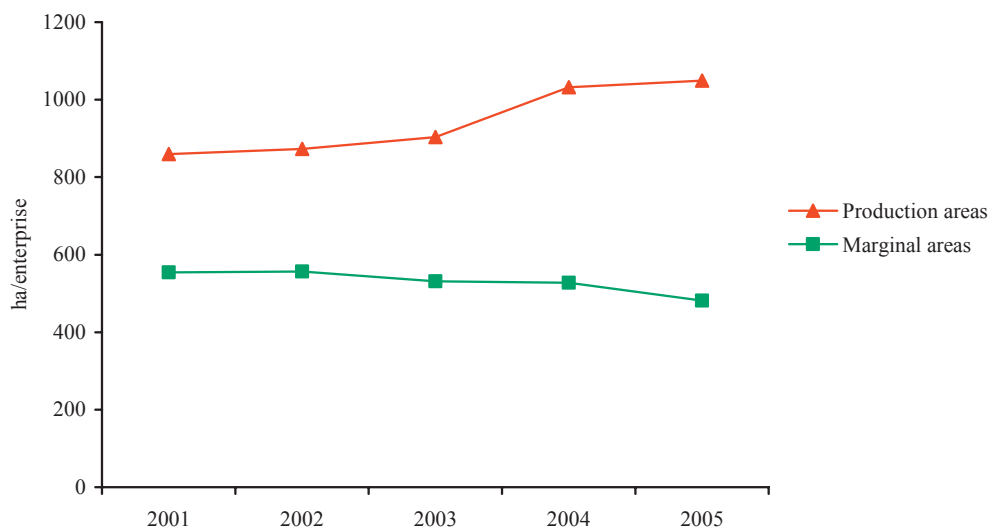

Figure 4. Development of areas sowed by grain crops

Direct payments (including Top-up) represented the greatest share of subsidies in 2004. The second greatest share represented payments within the Horizontal Rural Development Plan (HRDP). An average enterprise in the production area was paid 4 310 CZK/ha of agricultural land as direct payment, which is 70% of all subsidies. From the HRDP 808 CZK/ha (13%) was paid, and as the State-aid 288.5 CZK/ha (4.7%). Concerning other subsidies, the highest proportion was paid from the funds of the Operational Programme (5.2%).

In marginal areas, the greatest share of the paid means represented also direct payments 4 215 CZK/ha (57%) per average enterprise. Further 2 372 CZK/ha of the HRDP payments, which is 32% of the total subsidies. The State-aid payments covered 190 CZK/ha (2.6%) and the Operational Programme covered 2.6%. The increasing elevation above sea level marks a significant decrease in direct payments in CZK/ha of agricultural land and a steep rise in the HRDP payments (Figure 3).

At present, the subsidies to agricultural enterprises are an important factor influencing profitability of agricultural business. Accounting subsidies into operational earnings marked significantly the change of operational earnings in 2004 and 2005. The important increase of subsidies caused the relatively favourable operational earnings.

Structure of plant production

In 2005 in production areas 47.5% of agricultural land was sowed by grain crops, which is by 2.5 percentual points less than in 2004. In 2005 an average grain crops yield was 5.3 t/ha in production areas, which is by 13% less than in 2004. Potatoes covered 0.4% of agricultural land in production areas and sugar beet covered 3.3%, which is by 0.9 percentual points less than in 2004. The yield 49.7 t/ha was a 5.7% rise compared with the previous year. The area of colza was 8.6% of agricultural land and the yield reached 2.69 t/ha (74% of 2004 yields).

In marginal areas, 34.2 % of agricultural land was sowed by grain crops, which is drop by 1.6 percentual points. The average grain crops yield was 4.57 t/ha, which is 84% of 2004 value. Potatoes covered 1.2% and colza covered 7.9 % of agricultural land, the yield of colza was 2.96 t/ha (82 % of 2004 value).

Structure and utility of animal husbandry

Since 1999 there was a slight increase in the number of cattle in an average enterprise in the production areas. In 2005 the number of cattle grew to 110% and the number of cows grew to 106% of the preceding year. The accrual of cattle dropped to 99.7% and the utility of dairy cows grew by 1.8% compared with 2004. The number of pigs grew by 2.6% and the utility grew by 1% compared with 2004.

In marginal areas, there was a decrease in the number of cattle since 1999 (Figure 5), in 2005 the decrease was 5%. The average number of cows dropped by 1.4%. The cattle density is higher in marginal areas but there is a decreasing tendency, contrary to the production areas, where the cattle density has had an increasing tendency (Figure 6). The accrual in cattle rose by 3.9% compared with 2004 and the utility was growing by 0.23 %. The number of pigs dropped to 98 % compared with 2004 and the utility rose by 0.6 %.
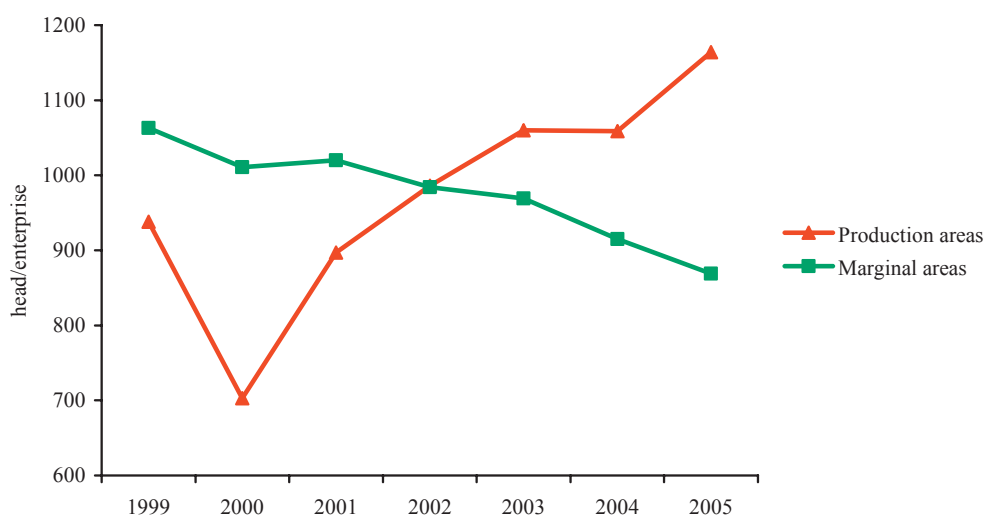

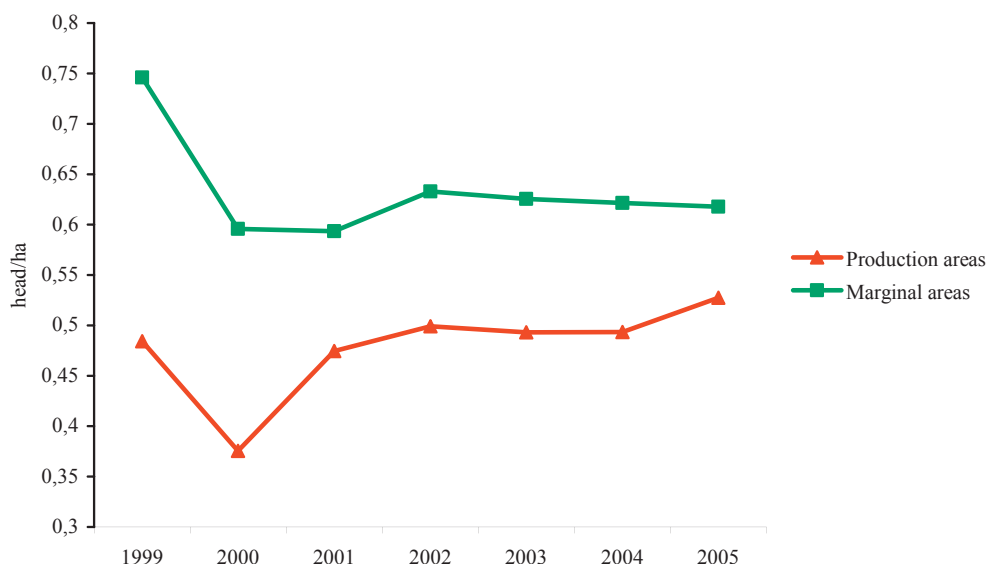Figure 5. Development of number of cattle in an average enterprise

Figure 6. Development of cattle density in head/ha of agricultural land

It is possible to state that the utility of animal husbandry was growing in the production areas faster than in the marginal areas since 1999. The daily increments in cattle rose in production areas since 1999 by 11%, to 0.899 kg in 2005. During the same period, there was the increments in cattle by 2.7% to 0.801 kg. A similar situation was stated in the increments of pigs. In production areas, they increased by 13.3% to 0.680 kg/day, in marginal areas the increments rose by 7.2% to 0.643 kg/day. The annual utility of dairy cows grew since 1999 by 49% and it represented in 2005 6 349 l/dairy cow. In marginal areas, the annual utility of dairy cows grew by 18.3% since 1999 and was 5 670 l/dairy cow in 2005.

CONCLUSION

The earnings in agriculture were not so successful in 2005 as in 2004. Yet the tendency of a significant improvement of economic indicators was kept, compared with the years preceding the accession of the Czech Republic to the EU.

The earnings in 2005 were 1 792 CZK/ha for an average agricultural enterprise, which is 71% of the preceding year. The profit per worker in an average agricultural enterprise was 39 679 CZK, which is 72% of 2004. The number of enterprises suffering from a loss grew from 6.4% in 2004 to 18% in 2005. The profit rate of an average agricultural enterprise dropped from 4.22% (2004) to 2.75% in 2005.

The average number of workers calculated per 100 ha of agricultural land has been decreasing in the last three years and it is in close relation to labour productivity. In 2005 the labour productivity reached in an average agricultural enterprise 1 002.16 thousand CZK/worker and it increased compared with 2004 to 107%. The rise of labour productivity represents for an average enterprise a relative saving of five workers.

The accession of the Czech Republic to the EU represents an increase of competition in the common market and full implementation of the Common Agricultural Policy. The improving credit policy and the increasing subsidies can encourage the agricultural enterprises to change business plans and programmes to achieve the necessary restructuring and diversification of production.

The total subsidies for an average agricultural enterprise rose in 2005 to 118% of the 2004 value in CZK/ha of agricultural land. The greatest proportion of subsidies in 2005 were direct payments (64%). Although these payments are significantly lower than in the EU 15 countries, the rise compared with 2004 was 26%. The second top proportion were the HRDP payments reaching 1 441 CZK/ha (22%) and the State-aid payments according to the "Principles" reached 249 CZK/ha (3.7%). In other subsidies, the greatest amount was paid in the frame of the Operational Programme (4.1%).

The incessantly increasing dependence on subsidies, the tedious administrative application process and the unequal situation of farmers compared with the EU 15 countries are the most negative symptoms. Besides the Czech enterprises are disqualified by one of the highest taxation burdens and a high social and health insurance compared with the new EU countries.

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