Evaluation of the agrarian businesses results according to their legal form

Peter ADAMIŠIN[1], Rastislav KOTULIČ[2]

[1]Department of Environmental Management, Faculty of Management, University of Prešov, Prešov, Slovak Republic
[2]Department of Economic Sciences and Economy, Faculty of Management, University of Prešov, Prešov, Slovak Republic

Abstract: The entry into the new market environment after 1990 marked the beginning of complicated structural, economic and social changes for agricultural companies that brought a measurable improvement in only few aspects of the technical performance and competitiveness. New forms of enterprise were created, the number of subjects increased and their average concentration decreased. Based on the analysis, it is claimed that in the majority of selected economic indicators, there was a significant difference in the reached parameters among the groups of the analyse subjects using land, differentiated according to their legal status. Based on the results of testing, it is possible to claim that business companies show a higher extent of economic success evaluated through the selected economic indicators. Only in one case – the indicator of the amount of subsidies per 1 ha of agricultural land – it is impossible to establish a statistically significant difference. This impossibility in that particular indicator only shows even more notably the fact that business companies are able to manage better than cooperatives even with subsidies per hectare of agricultural land that have not been statistically significantly different.

Key words: business company, agricultural cooperative, paired t-test, economic performance

Agriculture represents a very important part of the national economy of all countries, the European Union and the associated states including (Pokrivcak et al. 2006). The European perception of the importance of agriculture for the society is not restricted only to its production functions (Andrejovský and Dušecinová 2006). A huge emphasis is placed on the non-production functions of agriculture – anti-erosion, environmental, cultural, relaxation, etc. There are different expert estimates used for the quantification of these non-production functions. The non-production assets of the Slovak agriculture are valued at more than € 0.5 billion (Hudáková 2003). According to several experts, this amount is considerably undervalued, since all non-production functions were not included in the assessment (Huttmanová 2005). There has been an increase in the share value of non-production functions of agriculture during the agriculture transformation.

The transformation of the economy from the centrally planned economy into the market economy is accompanied by the decrease of the GDP and industrial production in practically all the countries of the Central and Eastern Europe (Matejkova et al. 2008).

The decrease was caused by a number of factors, such as the deformed structure of the economy, the loss of the former CMEA markets, trade liberation (and the related creation of a tough competitive environment).

The development of the agricultural sector until 1989 was influenced by the collectivization executed on the principle of the central planning in the Slovak Republic, similarly to the majority of other countries of the Central and Eastern Europe (Adamišin and Torma 2002). The main objective became the quantity, while the quality and efficiency was attributed only the secondary importance (Kotulič and Pavelková 2012). The entry into the new market environment after 1990 marked the beginning of complicated structural, economic and social changes for agricultural companies that brought a measurable improvement in only few aspects of the technical performance and competitiveness (Bielik and Rajcaniova 2008). New forms of enterprise were created, the number of subjects increased and their average concentration decreased.

In addition to the Unified Agricultural Cooperatives as the dominant legal form of subjects utilising land, which were transformed mostly to a new form of

agricultural cooperatives, there were created other legal forms – legal persons (usually a limited liability companies and joint stock companies) and natural persons (private farmers) (Naščáková and Hudák 2004).

Subsequently, the entry of the Slovak Republic to the European Union opened a vast European agrarian market to the Slovak agricultural producers; but also there were removed all protecting barrier of the domestic market. This has led to new challenges in the area of competitiveness of the domestic agriculture (Grznár et al. 2009).

By analyzing of the performance of agriculture farms by their business form, Deininger (1995) states that one of the major reasons why small (family) farms are dominated by the large (corporate) types of farms is that the members of family farms are the final beneficiaries of profit and so they are more interested to spend some effort than the hired labour force. They are willing to take risks and they can also be much more flexibly employed on the farm or outside of the farm without an increase of costs.

Mathijs (2002) dealt with the performance and management efficiency of agrarian enterprises depending on their organizational and legal forms of business. In his study, he compared the efficiency of farms by different organizational legal forms in selected symplex in1998 in Hungary and Bulgaria, taking into account a greater number of factors. The analysis results of Hungarian enterprises with the focus on crop production showed that the highest average level of efficiency was achieved by family farms (58%), followed by business companies (50%) and agricultural cooperatives (44%). An analogous analysis in Bulgaria presents in average as the most efficient business companies (51%), followed by family farms (44%) and agricultural cooperatives (43%).

In the long run, Monke et al. (1998) state that also for the agricultural enterprise it is very important that the enterprise yields were comparable to the yields that flow from the alternative use of production factors. If these yields are lower for a long time, there is a pressure for the reallocation of the production resources from agriculture to other sectors of the economy. Such reallocation need not be done immediately and it usually requires a longer period of time, which allows for solving problems by the sale of assets of the companies utilising land.

The company is not a slave plantation, where its owner reigns with an unlimited power. It is a "network of contractual relations", which helds the business participants together, and everyone can "get off" from the company. The interests of people who form the company are not identical, but rather contradictory.

On the one hand, there is an entrepreneur who is trying to achieve the greatest profit and on the other hand, there are the employees who want to get the highest wages. Then there are the banks that lend capital to entrepreneurs and for their money, they require the greatest interest rate, and the leasing companies that would like to have rents as high as possible. All would like the biggest share in the income of the entrepreneur and therefore the objectives of all stakeholders in this regard are contrary. The objective of profit maximization may be at a risk if the entrepreneur employs a manager to manage the company. It is in fact a phenomenon that is usually called the Principal-Agent Problem or simply the Agency Problem. The Agency Problem occurs mostly when the manager has a fixed salary and he/she is not involved in the profit, but pursues his/her own objectives, which may be in conflict with the profit maximization, which is then reflected in the economic performance of such an entity. This problem is faced by the cooperative enterprises, too. The direct control of the co-op members over the cooperative management is very weak and the indirect control through the market control over the firms does not exist. The cooperative managers then rather follow then own goal than the goal of the members of the cooperative (Holman 2002).

The analysis of the economic performance of farms has become the centre of attention of numerous scientific studies (Chrastinová 2008; Rosochatecká et al. 2008; Sojková et al. 2008; Hečková and Chapčáková 2010; Střeleček et al. 2011), according to which the decisive factors of the differentiated performance and efficiency of agricultural entities can include natural conditions, the concentration of agricultural land, the legal form of the management and the work of the managers.

This scientific contribution builds on the previous scientific studies and disseminates the knowledge about the impacts of legal form on the economic performance of entities utilising land. The added value of the contribution represents the original scientific output with highly relevant data, while the long time period of the analyzed data allows a greater degree of objectivisation of the provided conclusions.

This article evaluates whether the change of legal status can influence the reached economic performance of the subjects.

MATERIAL AND METHODS

The material for this analysis was gained form the official data of the Ministry of Agriculture, the

Research Institute of Agricultural and Food Economics and the Statistical Office of the Slovak Republic for the period of 1999–2008, i.e. the last decade. The analysis processing was done via the SPSS.

The aim of this paper is to evaluate the economic performance of farms according to their legal form in the period prior to the entry of the Slovak Republic to the European Monetary Union. This very specialized issue fills in a gap in the field of research for the period under review that was specific for the integration processes related with the accession of the Slovak Republic to the European Union. We assume that the legal form, exactly the way of organizing and managing of the processes in the agricultural subjects has an impact on the economic performance of the farms.

The economic and financial indicators of primary agricultural production for the monitoring period were analyzed from the agricultural holdings data. The data were ensured by the Ministry of Agriculture of the Slovak Republic in the form of information sheets which we obtained from the company Radela, Ltd. The evaluated file included 2509 subjects of legal and natural persons up to 19 and over 20 employees. The information sheets capture the data from agricultural holdings which cultivate 81.3% of the area of the agricultural land of Slovakia (1 930 570 ha) and create a file that is not exhaustive. Therefore, the results were recalculated per 1 ha of agricultural land.

The analysis is focused on the following indicators: proceeds from the sale of own products and services, added value, granted subsidies (since 2005, all subsidies granted), labour costs, management results (income from operations) and the share of profit-making enterprises.

All analyzed parameters (in addition to the share of profit-making enterprises) were recalculated per a single area, 1 ha of agricultural land (a.l.). All parameters were analyzed individually for the group of agricultural cooperatives (AC) and individually for the group of business companies (BC).

For each parameter, the normality of division was verified. Due to the fact that there was not a single case when we would not rejected the hypothesis of the abnormal division of data, the parametrical *t*-test of reliant data was used for the testing of the congruence of mean value. The testing characteristics have the Student division, so if the calculated value in its absolute value is lower than the table value on the level of significance 0.05 and the given number of levels of latitude, the zero hypothesis on the congruence of mean values is not rejected.

$$t = \frac{\overline{d}}{\sqrt{\dfrac{\sum\limits_{i=1}^{n}(d_i - \overline{d})^2}{n \times (n-1)}}} \tag{1}$$

where:
t = *t*-test
d_i = differences between values of the analyzed parameter in the i period
n = numerousness

RESULTS AND DISCUSSION

The dominant position among the legal persons utilising land is held by agricultural cooperatives and business companies. During the first years of transformation, these newly emerging business companies were in advantage, because they were cleared of different ineffective properties and mainly former debts during the transformation process and thus created a better starting position for further development. The difference in management is visible in the long term. The summary indicator is the management result. Its progress during the analyzed period is shown in the Figure 1.
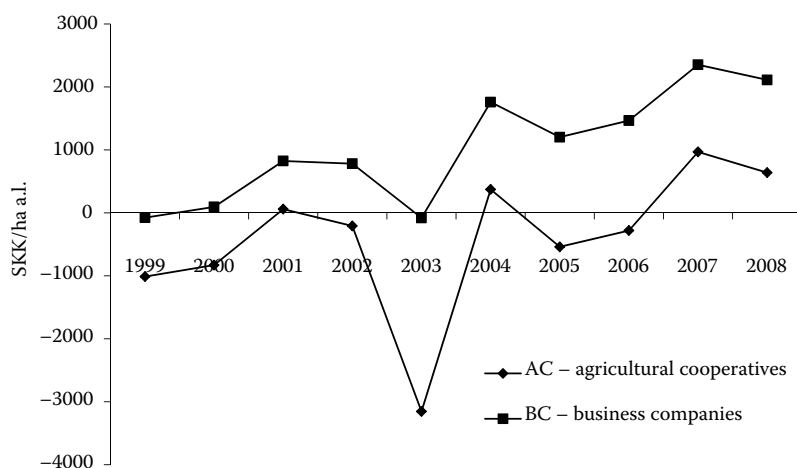

Figure 1. Management result progress according to legal status (SKK per 1 ha of agricultural land)

Source: own research processing

Table 1. Paired sample statistics of the selected economic indicators

		Mean	N	Std. deviation	Std. error mean
Pair 1	BC_proceeds	26 655.2	10	6 916.75126	2 187.26880
	AC_proceeds	23 801.2	10	3 716.64953	1 175.30778
Pair 2	BC_added_value	5 959.2	10	1 117.57205	353.40731
	AC_ added_value	7 416.0	10	999.57135	316.09222
Pair 3	BC_subsidies	5 992.5	8	2 768.04433	978.65146
	AC_ subsidies	6 031.8	8	2 648.49336	936.38381
Pair 4	BC_labor_costs	4 891.8	10	744.33353	235.37893
	AC_labor_costs	6 381.0	10	741.68187	234.54040
Pair 5	BC_mng_results	1 043.2	10	888.25494	280.89088
	AC_mng_results	-398.6	10	1 153.09576	364.64089
Pair 6	BC_profit_share	77.1	8	9.21858	3.25926
	AC_profit_share	65.5	8	12.44416	4.39968

Pair 1 = Proceeds from the sale of own products and services per ha agricultural land (SKK/ha a.l.)
Pair 2 = Added value per ha a.l. (SKK/ha a.l.)
Pair 3 = Subsidies granted (since 2005 all Subsidies granted) per ha a.l. (SKK/ha a.l.)
Pair 4 = Labour costs per ha a.l. (SKK/ha a.l.)
Pair 5 = Management results per ha a.l. (SKK/ha a.l.)
Pair 6 = Share of profit making enterprises (amount)

Source: author's calculation and research processing

The management result progress in the period has a similar development in both analysed legal form groups. There are differences in the value of the parameter. The business companies (BC) were reaching a better result per hectare of agricultural land from 925 to 3072 SKK/ha a.l., than agricultural cooperatives (AC). The summary of values of the analyzed parameters is presented in the Table 1 and Table 2.

Due to the fact, that in the analysis of companies, there we take into account only those utilising land, it is not possible to conclude that the better results of companies in all measured parameters are determined by a very low to zero acreage of farmland.

Table 2. Results of the t-test paired testing

		Paired differences						t	df	Sig. (2-tailed)
		mean	std. deviation	std. error mean	95% confidence interval of the difference					
					lower	upper				
Pair 1	BC_proceeds AC_proceeds	2 854.00	3 484.04	1 101.75	361.67	5 346.33		2.590	9	0.029
Pair 2	BC_added_value AC_added_value	−1 456.80	806.41	255.01	−2 033.67	−879.93		−5.713	9	0.000
Pair 3	BC_subsidies AC_subsidies	−39.25	519.42	183.64	−473.50	395.00		−0.214	7	0.837
Pair 4	BC_labor_costs AC_labor_costs	−1 489.20	174.17	55.08	−1 613.79	−1 364.61		−27.039	9	0.000
Pair 5	BC_mng_result AC_mng_result	1 441.80	669.45	211.70	962.90	1 920.70		6.811	9	0.000
Pair 6	BC_profit_share AC_profit_share	11.63	4.27	1.51	8.05	15.20		7.693	7	0.000

Source: author's calculation and research processing

However, since the sample of subjects represents only a selected file data, the application of the method of statistical induction is required for the results generalization (Table 2).

The results of the testing of the congruence of mean values, except for one of the tested parameter (amount of subsidies per ha a.l.), enables us to reject the zero hypotheses on the mean values congruence.

Our claim is that the economic performance of the subjects utilising land is conclusively determined by the legal status of the subjects. The subjects formed as business companies reach in the parameters of proceeds from the sale of own products and services per ha a.l., added value per ha a.l., labour costs per ha a.l., management results per ha a.l. as well as of the share of profit making enterprises significantly
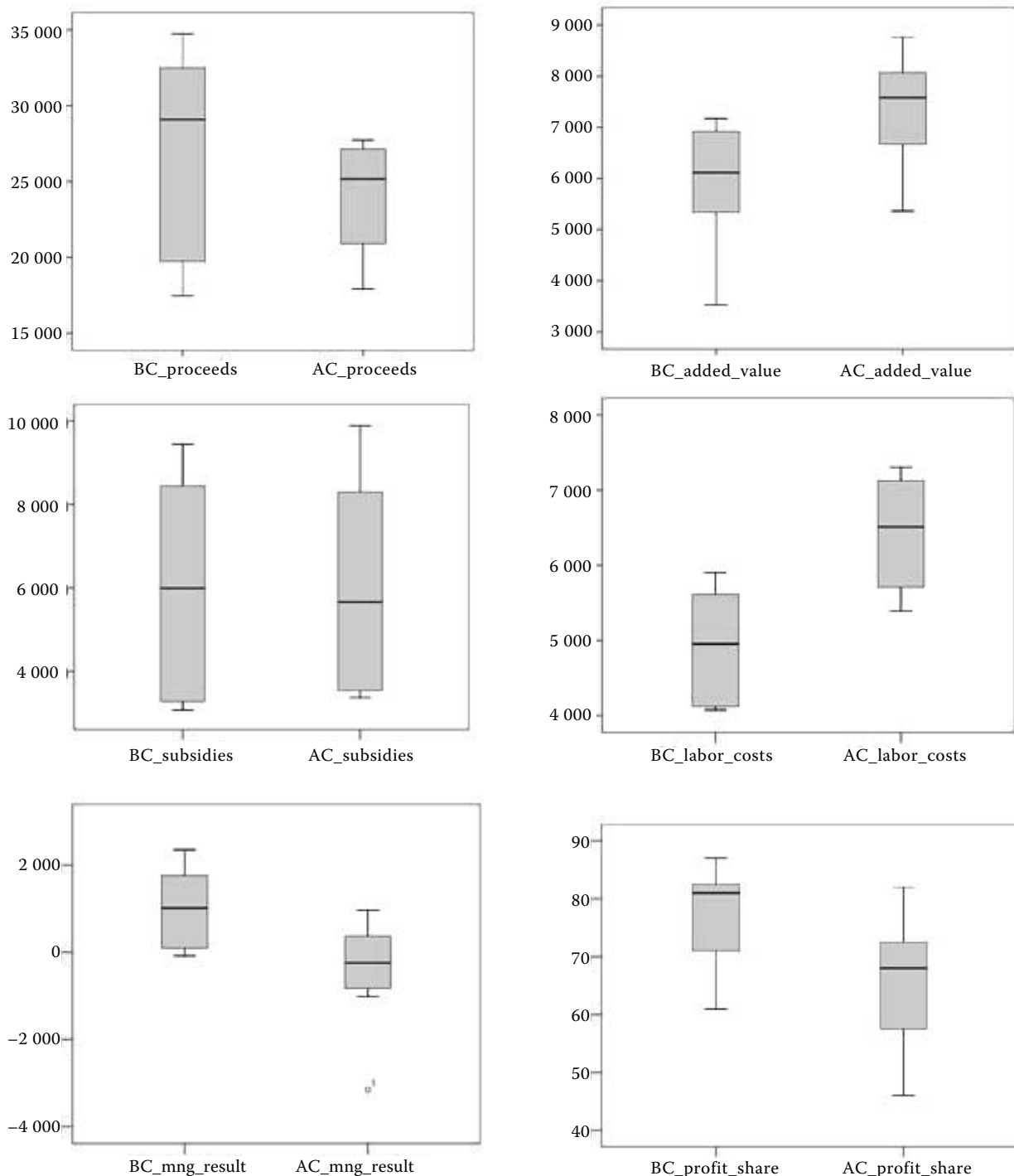

Figure 2. Box plots of the analyzed economic parameters according to legal status

Source: author's calculation and research processing

better results than the subjects based of the legal status of agricultural cooperatives. The differences in the analyzed parameters in the selected data files are presented in box plots in Figure 2.

CONCLUSION

Based on the test results, it is possible to claim that business companies show a higher extent of economic success evaluated through the selected economic indicators. In only one case – the indicator of the amount of subsidies per 1 ha a.l. – it is impossible to establish a statistically significant difference. This impossibility in that particular indicator only shows even more notably the fact that business companies are able to manage better than cooperatives even with the subsidies per hectare of agricultural land that have not been statistically significantly different.

It can be argued whether it is just the legal status of management that determines to such a significant extent the difference in economic performance of subjects. A higher economic performance of business companies can be determined not only by different approaches to the management of subjects, but as well by a better starting situation in the past (contrary to cooperatives), or even the potentially inconveniently selected basis for comparison of economic performance (agricultural land). Further analyzes will be focused on measuring of the differentiated economic performance of subjects according to other criteria with the goal to make the obtained results more objective.

The conclusions are consistent with the economic theory and the phenomenon known as the Principal-Agent Problem. The analysis results confirm that in addition to the production factors (labour, capital and natural resources) agricultural enterprises need the subjective assumptions such: imagination, ambition, willingness to bear risk, better organizational and management skills, patience and sense for the innovation. The bearer of these assumptions are mostly business companies that can effectively deal with the organization and management of the enterprise processes and thus to save the transaction costs.

REFERENCES

Adamišin P., Torma S. (2002): Analýza konkurencieschopnosti slovenského poľnohospodárstva. (The analysis of the competitiveness of Slovak agriculture.) In: Teoretické aspekty prierezových ekonomík. Zborník vedeckých prác. Royal Unicorn, Košice, pp. 1–6; ISBN 80-968128-9-0.

Andrejovský P., Dušecinová A. (2006): Ekologické poľnohospodárstvo a bioprodukcia. (The ecological agriculture and the bioproduction.) In: Ekologické poľnohospodárstvo ako súčasť agroenvironmentálneho programu. Zborník vedeckých prác z vedeckého seminára s medzinárodnou účasťou. SPU, Nitra, pp. 11–15; ISBN 80-8069-719-1.

Bielik P., Rajcaniova M. (2004): Competitiveness analysis of agricultural enterprises in Slovakia. Agricultural Economics – Czech, *50*: 556–560.

Deininger K. (1995): Collective agricultural production: a solution for transition economies? World Development, *23*: 1317–1334.

Grznár M., Szabo Ľ., Jankelová N. (2009): The agrarian sector of the Slovak Republic after the entry to the European Union. Ekonomický časopis, *57*: 903–917.

Hečková J., Chapčáková A. (2010): Future of European agricultural in context of global economic and regional environmental scenarios. In: Analýza základných ekonomických faktorov a ich využitie pri reštrukturalizácii poľnohospodárstva a zabezpečení trvaloudržateľného rozvoja Slovenska. Zborník vedeckých prác z vedeckého seminára. PU, Prešov, 16. november 2010, pp. 34–48; ISBN 978-80-555-0294-6.

Holman R. (2002): Mikroekonomie: Stredne pokročilý kurz. (Microeconomics: Intermediate Course.) 1st ed. C.H. Beck, Praha; ISBN 80-7179-737-5.

Hudáková M. (2003): Ekonomické a ekologické aspekty rozvoja poľnohospodárskej výroby na Slovensku. (The economic and environmental aspects of the agricultural production development in Slovakia.) In: Stav poľnohospodárstva v predvstupovom období do Európskej únie. Zborník referátov a diskusných príspevkov z vedeckej konferencie s medzinárodnou účasťou Odboru Ekonomiky a manažmentu Slovenskej akadémie poľnohospodárskych vied. SPU, Nitra, pp. 17–21; ISBN 80-968665-8-3.

Huttmanová E. (2005): Konvenčné a ekologické poľnohospodárstvo, ich špecifiká a význam pre trvalo udržateľný rozvoj. (Conventional and organic agriculture, their specifics and importance for sustainable development.) In: Manažment a ekonomika ekologickej poľnohospodárskej výroby. Zborník príspevkov z medzinárodného vedeckého seminára. SPU, Nitra, pp. 65–68; ISBN 80-8069-565-2.

Chrastinová Z. (2008): Economic differentiation in Slovak agriculture. Agricultural Economics – Czech, *54*: 536–545.

Kotulič R., Pavelková J. (2012): Prosperita a produktivita subjektov hospodáriacich na pôde v Slovenskej republike na prelome druhého tisícročia: Analytický pohľad na efektívne riadenie zdrojov pre zabezpečenie finančného

zdravia podniku. (The prosperity and productivity entities working on the land in the Slovak Republic at the turn of the second millennium: The analytical view of the effective management of the resources to ensure the financial health of the company.) 1st ed. PU, Prešov; ISBN 978-80555-0574-9.

Matejkova E., Qineti A., Serences R. (2008): Macroeconomic aspects of the development of Slovak regions in the post-accession period. Agricultural Economics – Czech, *54*: 367–375.

Mathijs E. (2002): Microecnomic Analysis of farm restructuring in East and Middle Europe. Agricultural Economics – Czech, *48*: 104–109.

Monke E., Avillez F., Pearson S. (1998): Small Farm Agriculture in Southern Europe (CAP Reform and Structural Change). Ashgate, Aldershot; ISBN 1-84014-162X.

Naščáková J., Hudák J. (2004): Ekonomické výsledky podnikania na poľnohospodárskej pôde v Slovenskej repub-

like. (The economic results of business on agricultural land in Slovakia.) In: Regióny, vidiek, životné prostredie. Medzinárodná vedecká konferencia, SPU, Nitra, pp. 1–6; ISBN 80-8069-438-9.

Pokrivcak J., Crombez C., Swinnen J.F.M. (2006): The status quo bias and reform of the Common Agricultural Policy: impact of voting rules, the European Commission and external changes. European Review of Agricultural Economics, *33*: 562–590.

Rosochatecká E., Tomšík K., Žídková D. (2008): Selected problems of capital assets of Czech agriculture. Agricultural Economics – Czech, *54*: 108–116.

Sojková Z., Kropková Z., Benda V. (2008): Slovak agricultural farms in different regions – comparison of efficiency. Agricultural Economics – Czech, *54*: 158–165.

Střeleček F., Lososová J., Zdeněk R. (2011): Economic results of agricultural enterprises in 2009. Agricultural Economics – Czech, *54*: 103–117.

Contact address:

Peter Adamišin, Rastislav Kotulič, University of Prešov in Prešov, Faculty of Management, 17. November 1, 080 01 Prešov, Slovak Republic

e-mail: peter.adamisin@unipo.sk, rastislav.kotulic@unipo.sk