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**PROBLEMATIKA ŘÍZENÍ RIZIK
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**RISK MANAGEMENT ISSUES
IN THE CZECH AGRICULTURAL HOLDINGS**

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EXECUTIVE SUMMARY

The need to solve the issue follows from the current state of knowledge concerning efficiency and effectiveness of income risk management tools in agricultural enterprises. Ex-post evaluation of effectiveness of selected risk management measures, while respecting their mutual interactions, is the first step to the application of holistic approach to the analysis and to risk management in agriculture (OECD).

The problem lies in the character of the agricultural insurance subsidies in the Czech Republic in which the uniform insurance rate subsidy of 50 percent. Moreover, the poor risk management system setting in agriculture in the Czech Republic is illustrated by the fact that the overall expenditures on ad hoc payments and insurance are one of the highest in the European Union. In the Czech Republic there is no clear strategy to support risk management in agriculture, as is the case in most EU countries. In addition, the current system does not respect a different risk nature in terms of the farms with various size and production structure. It is particularly the problem of the size of farms that is very specific in the Czech Republic. The importance of analyzing the support effectiveness of selected risk management measures concerning farms' income variability in the Czech Republic also arises with the necessity to identify the needs for the purpose of setting Rural Development Program for the new programming periods 2014-2020. According to the proposal of the European Commission, one of the priorities in the new programming period should be risk management in agriculture.

The aim of the study is to evaluate risk management mechanisms in agriculture in the Czech Republic with emphasis on the role of public sector and subsequently to formulate recommendations on setting support system of risk management in the Czech Republic after 2013. In order to achieve this global objective, it was necessary to quantify the level of yield and price risk in agriculture on the individual (farm) and aggregated level concerning main agricultural crops grown in the Czech Republic on a set of small, medium and largest agricultural enterprises. Furthermore, it was necessary to evaluate the influence of insurance effectiveness of crop production on the risk level of small and largest agricultural enterprises specialized in field crop production.

The production and price risk analysis on the level of farms and on a higher level of spatial aggregation is based on data from the sample of agricultural commodities costs and yields survey which is carried out annually by the Institute of Agricultural Economics and Informatics (IAEI) at the office in Brno. Additionally, the data on premiums and on compensations from the Farm Accountancy Data Network (FADN CZ) were used. The data panel of 100 medium-sized, large and largest agricultural enterprises was available for the period 2000–2009. For the purposes of production and price risk analysis, three main crops grown in the Czech Republic with the adequate representation in the selected data sample were selected, i.e. wheat, barley, oilseed rape.

To verify the hypothesis about the influence of spatial data aggregation upon perception of risk and to verify the hypothesis about the crop area size influence upon risk exposure, variation coefficient was chosen as the indicator of relative variability; this is calculated as the ration of standard deviation and the absolute value of the arithmetic average of the feature in the file.

Furthermore, the insurance effectiveness was checked in small and largest farms depending on the farm size. As the plant production insurance has been recently of the interest, the simulation of gross value added by method of Monte Carlo is carried out in typical farms with specialization in field production. The difference between agricultural insurance effectiveness in small and largest farms for this production focus category is being monitored. The assumption is the insurance of the three most

important crops – wheat, barley, oilseed rape. The holistic approach lies in parallel simulation of all stochastic variables taking into consideration their mutual correlations.

From the research results it follows that there is a difference between the yield risk character and price risk in a farm – the difference between the average of the farm and aggregated yield variability is higher than in the case of price variability. The risk of price fluctuation has a generally more systematic character and is diversified in a more difficult way. The individual risk character in agriculture also has agrarian-political consequences. The support of public sector should not be directed at the creation of unified spatial system of agricultural risk management and at long-term support of selected risk management tools. An example of such a measure is a spatial support of insurance in the Czech Republic at the level of 50 per cent concerning the agricultural crops and livestock. The policy measures should stimulate farms to look into its own optimal mix of tools in terms of strategic farm management in view of risk sources that a farm has to face. State interventions should not interfere with the sphere of normal risks which are manageable by the farms on their own but rather to interfere with the sphere of tradable or even better catastrophic risks. In the sphere of tradable risks, which are possible to mitigate by means of e.g. insurance or by other market tools, the state subvention should be only temporary and with the market development the public support should be reduced.

From the results a parallel also follows between the risk exposure of farms and states as “average farms.” It has been acknowledged that the farm mean crop yield variability in Germany is higher (or equals in the case of wheat) than in the Czech Republic. It is possible to explain this phenomenon by the fact that in Germany the farms are, on average, smaller than in the Czech Republic and from the natural conditions point of view (due to the size of Germany) more diverse. On the contrary, the aggregated yield variability in the Czech Republic is higher than Germany, which might be the consequence of the fact that the utilized agricultural area in the Czech Republic is smaller than in Germany and also the Czech Republic as a whole has relatively diverse production conditions. This is consistent with the observation that the bigger/larger a farm is the more stable the yields are and the lower the production risk is. Germany as a whole can be perceived as a larger farm at the aggregated level while the Czech Republic at the individual (farm) level because of large agricultural enterprises.

It is possible to make recommendations for the farm/business sphere by confirming the hypothesis that the efficiency of crop production insurance is bigger in small enterprises with specialized in field production than in largest enterprises and also by combining the hypothesis results concerning the degree of risk depending on crop acreage in an enterprise. For small agricultural enterprises, it is the commercial agricultural insurance by the income risk management strategy that is more suitable. These farms generally face a higher risk of income variability and the insurance efficiency to reduce the loss due to the damage realization has been proved. The recommendation that may be made to small-size enterprises is the cooperation strategy and farm enterprises cooperation, e.g. in the form of establishing producers' organizations and mutual funds of risk management. The CAP draft after 2013 even presumes a financial aid to these associations and a co-financing of mutual funds to cover consequences of infection and mass animal diseases, plant diseases, environmental damages and a drop in revenues (pension). In contrast, large agricultural enterprises generally should take advantage of the diversification strategy and this means both production diversification and spatial. The insurance efficiency in largest agricultural enterprises (from the size point of view, above all in public limited companies and in cooperatives) is low and insurance represents for these enterprises rather costs than benefits.

From the analysis of risk management system in agriculture in the Czech Republic it is possible to draw a conclusion that in the Czech Republic there is a sufficient offer of insurance products for management of insurable risks. The strength of the system is also efficient and affective system for risk prevention and for addressing the damage consequences caused by diseases in livestock and crop production (mainly preventive measures of disease fund, ex post compensation measures from the livestock insurance). On the other hand, it is possible to criticize the existing system for the lack of effective tools and systematic ex-post policies focused on the solution of catastrophic risks of systematic character. Ad hoc damage compensations are provided in a relatively large volume and they do not stimulate enterprises to proactive approach to risk management, such as e.g. mutual funds where the farmers themselves would be financially involved. Independent consultancy in the sphere of management of agricultural risks is also insufficient.