



RISKS IN THE AGRICULTURE INDUSTRY

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ABSTRACT

The agriculture industry is characterized by a high degree of risk. This has always been the case, but in recent years, there has been a trend toward increasing the danger. Every agricultural organization's strategic management must include the capacity to identify hazards early and effectively manage them. The method and results of a questionnaire study targeted at the presence of risk factors and risk management measures in primary agricultural production businesses in Slovakia are presented in this article. The poll focuses on the risk's unique characteristics. According to the survey's findings, Slovakian farmers consider price risk, output or income risk to be the most significant risk factors, and diversity to be the most essential risk management technique. The most significant positive connections were discovered between the size of the land and the significance of price risk perception, as well as between the number of years in office and the importance of price risk perception. The legal form of company was shown to have a strong positive connection with output or income risk. The risk perception of self-employed farmers was assessed as the most significant factor.

KEYWORDS: *Agriculture, Agribusiness, Risk, Risk factors, Risk management.*

1. INTRODUCTION

Agriculture is a risky industry. This has always been the case; but, during the last several years, the danger has tended to rise. The pricing risk is increasing primarily as a result of the liberalization of agricultural commodity trade, the production risk as a result of tighter regulations for the use of inputs and animal medicine, and the danger of disease transmission over state boundaries[1], [2]. Climate change has an impact on the degree of production risk. The development of specialization in agriculture is one of the current trends, which leads to an increase in both output and price risk.

Risk management is regarded as an issue of insurance and governmental assistance grants in many agricultural businesses, whether via refunds of a portion of the insurance premium or a portion of catastrophic losses[3], [4]. The answer, according to company executives, is to lower insurance rates or boost assistance subsidies. The adoption of certain systematic procedures in this area is necessary in order to minimize risk factors that are beyond the control of the farmers. The insurance of agricultural operations will remain the foundation of such a system, with potential adjustments to the amount of assistance for insurance premiums based on the financial framework. Along with insurance premium assistance, direct ad hoc

state support for risk management in agriculture (measures authorized by the European Commission) and indirect help in the form of reliefs will be important.

Slovakia has the appearance of a rural country. It is unusual in that, against the global trend, Slovak people are moving from cities to rural areas. It is the EU's second-most rural nation, with more than half of the population residing in rural regions[5]. The proportion of Slovakia's rural region is much greater. Slovakia is one of the worst nations in the EU in terms of agricultural performance, according to a rigorous and systematic assessment. Our present agribusiness is having to deal with organizational and legal problems as it tries to put the land market into action and provide the internal market with high-quality, low-cost products. It must, at a minimum, improve productivity, restore land resource production capacity, and create viable units. These entities may compete with other entities, or they could be an appropriate partner in the EU's subsidy system.

Farmers must battle not only external environmental variables, but also many internal management difficulties in order to better their position[6]. While their efforts are frequently focused on survival due to major problems, the overarching goal must become an emphasis on strategic management of the businesses, since agricultural firms lack a cohesive vision of the certainty of their future growth. Risk management is also a component of strategic management. Every agricultural organization's strategic management must include the capability of early identification and effective risk management. Subjects who are unaware of the breadth and magnitude of risk's effects, and who will not devise an appropriate risk management system, are jeopardizing their own life. Only when there is a clearly defined business entity strategy, including a risk strategy; when there is a risk management process supported by an appropriate information system; when there is a defined risk management responsibility; and when there is a functioning corporate culture capable of adapting and taking action can effective risk management be ensured[7], [8].

For a variety of reasons, agriculture requires particular attention when it comes to risk management. Agriculture is undeniably a unique industry in which the production process is inextricably linked to natural phenomena and is directly influenced by climatic conditions, which affect risk levels in various ways in different regions[9], [10]. Many different kinds of hazards have an impact on output, which may have severe consequences and affect the profitability of agricultural production. Agriculture is highly dangerous since, due to the natural nature of the industry, farmers are subjected to unexpected consequences throughout the year. On the one hand, the natural environment is required for such activities; nevertheless, certain climatic variables, such as drought, rain, storms, hailstorms, spring frost, floods, dawn, and so on, may have a negative impact. These variables have an impact on both plant and animal productivity. Aside from the biological nature of the production, another important factor is the liberalization of world trade in food products (increasing competitive pressure, falling prices, retail chains, and the high volatility of agricultural markets), as well as EU political decisions that respond to the current global situation.

2. DISCUSSION

2.1. Socio-Economical Characteristics of the Farmers:

Table 1 shows the reported characteristics of the farmers who were examined using descriptive statistics. The examined package includes 70 agricultural primary production businesses, including agricultural cooperative farms (41.43 percent), business companies (25.71 percent), joint stock companies (4.29 percent), and self-employed farmers (28.57 percent). The average number of workers in the studied sample of companies is 90.2, with 57.14 percent of businesses having between 51 and 250 employees. The remainder is made up of businesses with less than ten workers (28.57 percent) and those with more than ten employees (11 to 50 percent) (14.29 percent). The addressed representatives of the businesses have been in their positions for a variety of years, ranging from 11 to 20 years. The average

number of years spent in the top role, such as managing or owning a business, is 14.73. In two-thirds of the sample, these respondents have had a university degree. The remaining 35.71 percent has completed secondary schooling. In terms of the size of the cultivated agricultural land, the majority of the businesses in the sample had an area of more than 1000 hectares (62.86 percent). The economic outcomes of the agricultural businesses studied are very diverse. The average profit per hectare is 23.02 EUR, but the standard deviation is large (40.79), indicating that there are both profitable and losing businesses in the sample. Limited businesses and self-employed farmers fared more efficiently.

TABLE 1. SOCIO-ECONOMICAL CHARACTERISTICS OF THE INVESTIGATED SAMPLE OF RESPONDENTS

Variable		Frequency	Percentage	Mean	Std. Dev.
Legal form	agricultural cooperative	29	41.43		
	business. companies	18	25.71		
	joint stock company	3	4.29		
	self-employed farmers	20	28.57		
Number of employees	up to 10	20	28.57	90.2	84.93
	11–50	10	14.29		
	51–250	40	57.14		
Years in position	up to 5	17	24.28	14.73	8.32
	6 to 10	3	4.29		
	11 to 20	35	50.00		
	more than 20	15	21.43		
Education	secondary	25	35.71		
	university	45	64.29		
Cultivated land (ha)	up to 5	4	5.71	1909.86	1556.84
	6–100	4	5.71		
	101–500	6	8.57		
	501–1000	16	22.86		
	above 1000	44	62.86		
Economic result (EUR/ha p.p.)				23.02	40.79

2.2. Risk Factors:

There are two types of hazards associated with primary agricultural output. The first category is made up of risks coming from variables in the external environment, while the second group is made up of risks resulting from the agro-internal enterprise's management. Internal environmental variables have a major impact on the agricultural sector, due to the government's extensive involvement in the regulation of the agro-food market, as well as the agricultural industry's heavy reliance on natural circumstances and their unpredictability. We can include among the risks of the external environment: risks resulting from exposure to natural elements and the biological character of the production, risks resulting from an increasing and changing competitive environment, risks resulting from an unstable economic environment, risks resulting from an unstable legal, respectively legislative environment, and risks resulting from an unstable legal, respectively legislative environment, depending on these factors.

The following hazards were found, according to the respondents, in the initial questionnaire, which constituted the pilot study on the incidence of agricultural risks. We have classified them into six categories from A to F. A – price risks (risks of lower output prices, higher input prices), B – production or income risks (risks associated with weather, animal diseases, output variability, crop diseases, and mechanical errors), C – institutional risks (changes in the policy structure in the agricultural sector), D – financial risks, E – human or personal risks, and F – property risks. Table 2 shows the importance of the single risk variables from the respondents' perspective in connection to their companies and the successful accomplishment of the outcomes. The scale was 1 to 50, with 1 being the least significant element and 50 being the most essential.

TABLE 2. THE SIGNIFICANCE OF RISK CONSIDERATIONS IN PRIMARY AGRICULTURAL PRODUCING BUSINESSES

Risk factors	Mean	Std. Dev.
A – price risks	4.67	0.47
B – production of income risks	4.29	0.46
C – institutional risks	3.83	0.85
D – financial risks	3.03	0.74
E – human or personal risks	2.01	0.77
F – property risks	2.36	1.16

Price concerns are seen as the greatest risk element affecting their company, with an average relevance of 4.67 and a standard deviation of 0.47, suggesting a movement in perception of this risk between levels 4 and 5. It primarily concerns the possibility of output prices falling and input costs rising. The risks associated with the weather, the risks associated with animal illnesses, the unpredictability of the result amount, the risks associated with crop diseases, and the risks associated with mechanical faults in the supporting activities were all highly rated. The average significance rating is 4.29, with a low standard deviation once again. From the standpoint of significance, institutional hazards are the third category of risks. The average is 3.83, with a standard deviation of 0.85. The chosen minimum is 3 and the maximum is 5. A portion of the sample considers this danger to be very significant (28.57 percent), while 45.71 percent consider it to be important. 3. The financial risk category is ranked in the middle of the significance scale. The standard deviation is 0.74, and the average value is 3.03. The significance of this risk factor was assigned a score between 2 and 4 by the respondents. The category of human or personal hazards is rated by an average significance perception of 2.01 with a standard deviation of 0.77. It's important to note that these risks, whether in the form of illness, worker injury or death, negligence, a personal crisis, or managerial competence, are seen as having a lesser priority. The property hazards associated with theft, fire, or other losses or damages to the farmer's equipment, homes, and other components of his or her property utilized for production are rated with an average significance of 2.36 and a standard deviation of 1.16.

2.3. Approaches to Risk Management:

Agricultural management must evaluate these risk factors and try to remove them via various measures. We investigated what kind of risk management techniques may be found among the agricultural businesses surveyed, as well as the most prevalent risk reduction methods. Again, respondents were asked to evaluate the significance of various strategies in terms of their effect on company economic success on a 1 to 5 scale (1 – not important, 5 – extremely important). Table 3 displays the findings.

Risk-sharing measures, such as vertical integration, the signing of production contracts, and insurance, are equally represented, as are company-wide strategies, such as the selection of low-risk goods with a short production cycle and diversification. The most important risk management strategies, according to the respondents, are diversification (average score 3.83), conclusion of production contracts (average score 3.71), vertical integration (average score 3.56, but with a high standard deviation), low-risk product selection (average score 3.10), and insurance (average score 3.01).

Other risk mitigation methods are seen as less essential by the respondents. These include choosing goods with a short production cycle (2.87), changing the structure and orienting the business around animal and agricultural production (2.84), obtaining processor assistance (2.46), and changing technology (2.13). Diversification is an important technique of

corporate risk reduction that entails distributing the risk among as many people as feasible. Extending the manufacturing program, the company's services, processing goods, and selling them directly are the most frequent types of diversification. Despite our expectation that there was a link between business size and form, no significant correlations were discovered. Small businesses, according to international studies, are the most prone to diversification; however, this was not confirmed in the sample of our study. The economic outcomes were shown to have a strong positive connection with diversification, which can be explained by the fact that diversification activities need enough financial resources and cannot be carried out without them. Apart from that, businesses are reluctant to diversify since a major risk element for them is price fluctuation risk, which is more systematic and harder to diversify.

In agriculture, there are many kinds of integration. On the one hand, farmers organize their own processing capabilities in order to guarantee the sale of their crops and increase their liquidity. More sophisticated types of vertical integration, on the other hand, have emerged, particularly in the last several years. However, some of the participating businesses may lose their economic or even legal independence in these situations. As a consequence, we explain the findings of the study of the significance of this risk management approach, which are substantial (with a mean value of 3.56), but with a very high standard deviation, indicating a wide range of values. Another explanation may be that many farmers are hesitant to join cooperatives owing to a lack of negotiating power with their consumers, putting pressure on them to reduce their prices.

3. CONCLUSION

In this paper, we report the findings of a study that focused on identifying the most relevant sources of risk in agricultural production businesses in Slovakia, as well as the most essential risk management methods based on the assessment of these factors by company managers. At the same time, we looked at the relationships between the mentioned factors and the socioeconomic features of the sample. Farmers consider price risk to be the most significant risk element, and diversification to be the most essential risk management approach, according to the findings of the study. The most significant positive correlations were discovered between the size of land in hectares and the assessment of the importance of price risk, which is also confirmed by numerous foreign studies, according to which small businesses are disproportionately affected by price risk, as they are unable to achieve the profit or standards of large businesses. We discovered a significant connection between the amount of years spent in a position and the significance of price risk in the research. When it comes to production and yield risk, the business form has a strong positive connection. Farmers who run their own businesses rated this kind of risk as the most significant. A favorable connection was also discovered with the company's financial performance. Significant positive correlations with company form and economic results were found in the field of institutional risk, which has risen to third place in terms of importance, and a negative correlation with the number of years spent in function – presumably due to a lower level of experience in this field and a higher level of uncertainty in doing business. The human and personal danger was not considered to be particularly high. Respondents with more years in the function believe the human risk to be more substantial than those with a greater risk proclivity and who do not consider the human danger to be very important.

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