Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 20, Issue 1, 2020
PRINT ISSN 2284-7995, E-ISSN 2285-3952

RISK MANAGEMENT TOOLS AND STRATEGIES USED BY THE BULGARIAN GRAIN PRODUCERS

Pavel SHEYTANOV

University of National and World Economy, 1700, Students Town, Sofia, Bulgaria, Phone: +359 897979751, Email: p_sheitanov@yahoo.com

Corresponding author: p_sheitanov@yahoo.com

Abstract

Risk management is an essential part of the farm management process. Nowadays every farm has to pay a special attention to the risk management in order to make the right investments and limit the losses. The grain sector is well developed in Bulgaria and has a great contribution to the gross added value from all agricultural products. This study aims to examine the tools and strategies that are used by the Bulgarian grain producers to reduce the risk in their farms. As a result, the most used tools and combinations of instruments for managing the risk are examined, as well as the connections between the different tools and strategies.

Key words**:** *agriculture, grain, risk, instruments, Bulgaria*

INTRODUCTION

The process of risk management can be defined as a specific system which is responsible for the effectiveness of identifying and mitigating the threads (risks) and the consequences of their occurrence. The main reason for every farmer to take actions related to managing the risks are the potential financial losses [4]. An essential part of risk management is the decision to choose the appropriate risk management tools and strategies to protect the farm from bankruptcy as a result of a variety of unfortunate events [5]. The risk management process consists of five steps [1]. The first one is to identify the risk itself and its nature. The second step is to analyze the risk, which involves establishing the likelihood of occurrence and determining the magnitude of possible consequences, as well as the correlation between the occurrence frequency and the magnitude of losses. The next step is to assess the different risk management strategies that are relevant to the particular farm. It is followed by choosing the most suitable and effective strategy. The last step of the process is to control and monitor the selected strategies. According to [3] and [6] risk management strategies are divided in three main categories, taking in consideration the results from [9] and [10]:

-Risk prevention - risk prevention strategies are in place prior to the occurrence of the risk event, with the aim of reducing the likelihood of the appearance of the risk;
-Risk mitigation - as with risk prevention, these strategies are undertaken prior to the occurrence of the risk event, but their purpose is to reduce the potential negative impact on the farm;
-Coping with risk - The aim of these strategies is to mitigate the impact of the risk once it has already occurred.
Each of the strategies includes various compounds of tools for managing the risk (Table 1).

Table 1. Strategies and tools for risk management

Level/Strategy	Farm-level	Market level
Risk prevention	-Diversification -Risk avoidance -Maintaining liquid assets -Best practices	-Staff training
Risk mitigation	-Informal cooperation -Sharing technical equipment	-Vertical integration -Using derivatives -Production contracts -Insurance
Coping with risk	-Other employment -Mutual assistance -Seasonal migration -Cost reduction Borrowing money	-Sale of assets -Income diversification -Using bank loans

Source: Kirechev, D. (2013), Siegel, P. and Alwang, J., (1999).

MATERIALS AND METHODS

The first part of the paper is based on a research of theoretical review on the authors working in the field of risk management in agriculture. In order to make classification of the usage of the risk management tools, data with the grain producers' preferences needs to be collected.

One of the most popular methods for gathering behavior information is by survey and there are four main methods to reach the target respondents [8]:

-Face-to-face interview
-Telephonic interview
-Mail questions
-Internet questions

In this case the preferred method was the face-to-face interview.

The survey was held in 2018 as part of a scientific project [2] that is focused on the integrated approach of the risk management process in agriculture. The presented analysis is part of the dissemination of PhD thesis as well. Based on the mentioned theory and the presented risk management tools in Table 1, each of the respondents was asked which of the instruments they had used during the last season. The farmers were asked to answer closed-ended questions only with "yes" or "no" whether they used any of the risk management tools. The instruments themselves are divided into two categories: on a farm and market level.

RESULTS AND DISCUSSIONS

The survey that was conducted aimed to cover farms that are harvesting 5% or more of the total area under wheat for the prior year (2017). As a result, 35 grain producers harvesting wheat from Bulgaria were interviewed and the needed data regarding the variety of risk management tools and strategies they had applied was collected. Below the results of the following analysis are presented and they are divided into two categories.

Usage of tools for risk management on farm-level

Fig. 1 is presenting the usage of farm-level instruments by the surveyed grain producers.

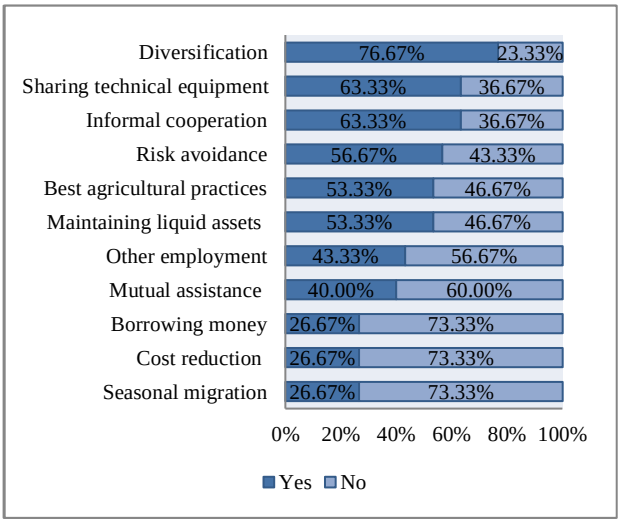

Fig. 1. Usage of different tools for risk management on farm-level
Source: Own calculation.

The results from the survey indicate that the most used risk management tool during 2017 among grain producers is diversification. Diversification is said to be applied by 76.7% of the surveyed farmers as the main risk prevention tool. Also, as part of the risk prevention strategy, used by more than half of the respondents, are the avoidance of risk, best agricultural practices and maintaining liquid assets (56.67%, 53.33%, 53.3% respectively). As a result, the risk prevention strategy becomes the most used method among survey respondents.

The second most common strategy is risk mitigation, which includes tools as sharing technical equipment, warehouses and informal cooperation. Both of these tools are used by 63% of the respondents, which qualifies them as the most used tools after the diversification one. Tools that are part of coping with risk strategy are the least applied methods by farmers, used by less than half of them.

It was also analyzed the usage of a combination of two different tools. The results for the farm-level tools are presented in Table 2.

The two most used pairs of risk management tools are diversification with informal cooperation and informal cooperation with sharing technical equipment.

Table 2. Usage of different combinations of tools for risk management on farm-level

	Tool / Tool	1. Diversification	2. Informal cooperation	3. Sharing technical equipment	4. Risk avoidance	5. Maintaining liquid assets	6.Best agricultural practices	7. Other employment	8. Mutual assistance	9. Seasonal migration	10. Cost reduction	11. Borrowing money
1.	Diversification	100%										
2.	Informal cooperation	50.0%	100%									
3.	Sharing technical equipment	46.7%	50.0%	100%								
4.	Risk avoidance	43.3%	33.3%	33.3%	100%							
5.	Maintaining liquid assets	43.3%	30.0%	26.7%	43.3%	100%						
6.	Best agricultural practices	40.0%	40.0%	33.3%	36.7%	40.0%	100%					
7.	Other employment	33.3%	40.0%	33.3%	16.7%	13.3%	23.3%	100%				
8.	Mutual assistance	30.0%	20.0%	16.7%	26.7%	33.3%	30.0%	13.3%	100%			
9.	Seasonal migration	20.0%	10.0%	20.0%	13.3%	13.3%	6.7%	10.0%	3.3%	100%		
10.	Cost reduction	20.0%	16.7%	13.3%	26.7%	26.7%	20.0%	6.7%	23.3%	0%	100%	
11.	Borrowing money	20.0%	16.7%	13.3%	26.7%	26.7%	20.0%	6.7%	23.3%	0%	26.7%	100%

Source: Own calculation.

Other commonly used combinations of two different instruments at the farm-level are: best agricultural practices with maintaining liquid assets; informal cooperation with the employment in other sectors of the economy; maintaining liquid assets with avoiding the exposure to risk. The surveyed farmers find that the usage of seasonal migration is incompatible with cost reduction and borrowing money from friends and neighbours. Also, only 13% of the farmers have other employment and maintain liquid assets at the same time. On the other hand, 92% of the farmers who have other employment outside of agriculture use informal cooperation with other farmers as a risk mitigation tool. During the analysis were made additional calculations on how much of the farmers using one specific tool are using the rest of the tools as well. The tables with the calculations are not shown in this paper but some of the results are mentioned.

This comes from their side employment and the limited time they have to fulfill all their farm-related obligations.

The relationship between the sharing some of the technical equipment and inventories tool among farmers and the mutual assistance tool can be described as average, meaning that 42% of the respondents who are relying on mutual assistance tend to share their equipment and inventory with other farmers. On the contrarily, only 26% of the farmers who share their equipment use mutual assistance as a tool. This can be explained to some extent by the fact that the farmers who share their machines and inventory in some cases have a written or oral agreement with the other farmer. It is also possible for them to share the costs of purchasing and maintaining the machines. Thus, farmers who seek help from their colleagues to mitigate the consequences of risky events are more likely to do so accidentally and without negotiation.

All of the farmers who said that they were using the cost reduction as a tool also indicated that they borrowed money from friends or others and are accounting for almost 27% of all respondents. The same portion of respondents indicates that they have used risk avoidance and maintain liquid assets. In this case, 87.5% of them also used assistance from other farmers (mutual

assistance) to cope with the effects of risk events.

Usage of tools for risk management on market level

The same analysis was made for the market level tools (Fig. 2) where the results show that the most popular tool used by 70% of the respondents is the bank credit. The second and fourth most used tools are the sale of assets (63.33%) and income diversification (53.33%). The usage of those three instruments forms the strategy for coping with the risk as the most preferred strategy on market level by the Bulgarian grain producers.

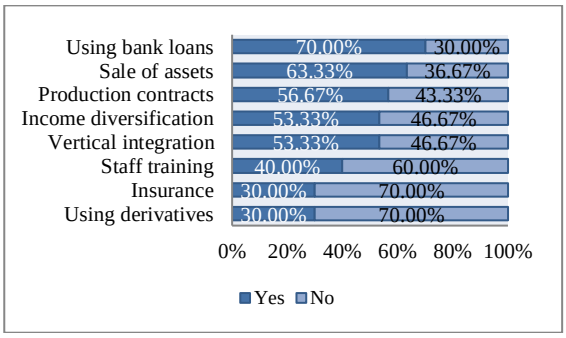

Fig. 2. Usage of different tools for risk management on market level

Source: Own calculation.

The tools from the second most used strategy for mitigating the risk on market level are as follows: production contract (56.67%), vertical integration (53.33%), insurance (30%) and the usage of derivatives (30%). The staff training, which is part of the strategy for preventing the risk, is used by 40% of the farmers.

In Table 3 are presented the combinations of different tools on market level, which are used together at the same time by the farmers. As most used combinations were pointed the usage of bank loans with sales of assets (46.7%) and using bank loans with income diversification (43.3%). While the least used pairs of tools are the insurance with using derivatives (3.3%) and sale of assets with using derivatives (6.7%).

Most of the farmers (67%) who are using bank loans are selling some of their assets as well, while only 29% of those same farmers (who are using bank loans) tend to use derivatives. Also, 77.8% of the farmers who insured their crops are using production contracts.

Table 3. Usage of different combinations of tools for risk management on market level

	Tool / Tool	1. Staff training	2. Vertical integration	3. Using derivatives	4. Production contracts	5. 3 Insurance	6. Sale of assets	7. Income diversification	8. Using bank loans
1.	Staff training	100%							
2.	Vertical integration	20.0%	100%						
3.	Using derivatives	10.0%	16.7%	100%					
4.	Production contracts	26.7%	36.7%	16.7%	100%				
5.	Insurance	16.7%	13.3%	3.3%	23.3%	100%			
6.	Sale of assets	26.7%	33.3%	6.7%	36.7%	23.3%	100%		
7.	Income diversification	20.0%	40.0%	10.0%	33.3%	13.3%	36.7%	100%	
8.	Using bank loans	30.0%	43.3%	20.0%	40.0%	23.3%	46.7%	43.3%	100%

Source: Own calculation.

By analyzing the relation between the tools at farm and market levels, it can be concluded that everyone who uses insurance as a risk management tool, also diversifies their production. Besides that, 92% of the farmers who invest in providing a proper training programme for their employees also use diversification as a tool for risk management. Furthermore, well-established is that 88% of people who borrow money from friends and acquaintances also take out loans from banks.

CONCLUSIONS

After examining the usage of the different risk management tools, it was found that no single farm utilizes all the available tools. However, the surveyed grain producers were familiar

with all of the mentioned tools and had some basic knowledge about them.

The most popular strategies turned out to be different on farm and market level. The surveyed farmers are tending to use risk management tools from the risk prevention strategy on farm-level, while on market level they prefer to use the tools for coping with the risk. The most used instrument on farm and market level are the diversification and the bank loans respectively.

Although insurance is mentioned as one of the most popular and effective instrument in different risk management studies, in this survey the results show that is one of the least used tools from the Bulgarian grain producers.

The process of risk management describes farm decisions on how they should deal or face various risks if they occur. Based on the research it can be concluded that all of the surveyed grain producers are using different risk management toolkits and strategy mixes to fit the specific needs of their farm.

REFERENCES

[1]Hardaker, J., Huirne, R., Anderson, J., 1997, Coping with Risk in Agriculture, Cab International, Wallingford, United Kingdom, pp. 23-37.
[2]Harizanova-Bartos, H., Stoyanova, Z, Petkova, I, Metodiev, N. Sheytanov, P., Dimitrova, A., 2018, Scientific research project NID, NI 16/2018, Integrated risk management approach in the agricultural sector, Sofia: UNWE.
[3]Holzmann, R., Jorgensen, S., 2000, Social Risk Management: A New Conceptual Framework for Social Protection and Beyond, The World Bank, SP Discussion Paper No. 0006.
[4]Just, R., 1975, Risk aversion under profit maximization, American Journal of Agricultural economics, 57(2): 347-352.
[5]Kaen, F., 2005, Risk Management, Corporate Governance and the Modern Corporation, in Risk Management: Challenge and Opportunity, Edited by Frenkel, M., Hommel, U., Rudolf, M., Springer, 2nd edition, pp. 423-436.
[6]Kirechev, D., 2013, Managing production risk in agriculture. Management and sustainable development, 3, pp. 81-87.
[7]OECD, 2009, Managing Risk in Agriculture: A Holistic Approach. Paris: OECD.
[8]Roopa, S., Rani, M., 2017, Questionnaire Designing for a Survey, The Journal of Indian Orthodontic Society, October - December 2012, 46(4): 273-277.
[9]Siegel, P., Alwang, J., 1999, An Asset-based Approach to Social Risk Management – A Conceptual Framework, Social Protection Discussion Paper No. 9926, The World Bank (Washington, D.C.), pp. 17-20.
[10]The World Bank, 1999, Dynamic Risk Management and the Poor – Developing a Social Protection Strategy for Africa, Main report.