

Risk Management Promotion and Bulgarian Farmers' Participation in the Insurance Market

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Abstract

Agriculture is a particularly risky business. Along with the inherently high levels of production risk, the long-term changing climate contributes to the frequency of risky events in the sector - in recent years, weather events have become more extreme, and the frequency of damage is increasing. All this raises the question of the strategies used to manage production risk in agriculture. This paper analyses the participation of Bulgarian farmers in the insurance market and the impact of policy techniques to promote this risk mitigation strategy. The share of insured holdings in the total number is evaluated by comparing on the one hand with other member states of the European Union. On the other hand, a comparison is made between different types of farms in the country. On the basis of accepted criteria for assessing the degree of realization of the objectives of the public instruments for promoting insurance, the conclusion is made that the support has an insignificant effect on agricultural holdings in the country.

Keywords: insurance, risk management, agriculture, public support

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Introduction

It is often assumed that risk management in agriculture encompasses the decisions of three groups of actors: farmers; other economic actors who, under certain conditions, bear part of the risk faced by farmers and participants who create policies and apply policy instruments to influence risk management in agriculture. The need for the participation of the third group - political actors with input into the creation of national and supranational legislation, strategies, programs and instruments - is necessitated by a complex of reasons, among which the failure of the market mechanism to economically efficiently allocate resources for risk management in agriculture, due to the existence of catastrophic risks, asymmetric information and moral hazard accompanying insurance; the achievement of a certain level of social justice given the unequal resource status of farmers, etc.

Support from the European Union through the financing of farming risk management strategies is mainly focused on insurance. However, insurance support is related to intervention in the relationship between farmers and economic actors who operate outside agriculture. In addition, although the European Union has a number of instruments designed to manage the risk accompanying the production of agricultural products through insurance, support to stimulate insurance can be implemented mainly as financial assistance to farmers, intended for the payment of an insurance premium. The promotion of insurance by covering part of the insurance costs is based on the assumption that the price of the insurance service is a major factor that determines the participation/non-participation of farmers in the insurance market. In fact, it is normal to expect the insurance activity of farmers to be the result of a complex of factors. Among these are likely to be existence of compulsory insurance, range of risks that insurance organizations cover, traditions of voluntary insurance, perceived reliability and responsibility of insurance organizations, risk appetite of farmers, degree of awareness of insurance services offered, convenience and cost on time when concluding an insurance contract, speed of payment of compensation, prices of insurance services, etc. Many of these factors fall outside the scope of impact of the Common Agricultural Policy and therefore they cannot be used as a policy mechanism for promotion. All this raises the question of how successful political intervention is in the insurance market and in individual countries.

This research aims to examine the impact of the instruments of the Common Agricultural Policy on insurance in agriculture in Bulgaria. The share of insured holdings in the total number is evaluated by comparing on the one hand with other member states of the European Union. On the other hand, a comparison was made between different types of farms in Bulgaria.

1. Common Agricultural Policy instruments designed to promote agricultural insurance in the European Union

The European Union has a number of instruments designed to manage the risk accompanying the production of agricultural products through insurance. Elements of this toolkit are included both in the scope of the support schemes under the two pillars of the Common Agricultural Policy (CAP) and in the rules and regulations for the provision of state aid in the agricultural sector. In the first pillar, in 2008, a reform was carried out in the legislation of the European Union which introduced a financing model in the viticulture sector through support programs, including measures chosen by the member states. Among the options are three tools designed to prevent crisis situations. One such possibility is support for crop insurance. Risk management assistance under the current National Support Programs in the Wine Sector from 2008 to 2023 is exclusively aimed at promoting insurance. The possibilities to support insurance under the second pillar of the CAP were introduced after 2013 with the "Risk Management" measure. Insurance promotion aid is one of the three instruments covered by this measure and is not new within the framework of the European Union's agricultural policy. Before the 2014-2020 reform, it existed as part of Pillar 1 and was also optional for Member States. During the period 2008 - 2014, the countries of the Union can use for risk management up to 10% of the national ceilings under the single payment scheme. Before 2014, such a choice was made in only four Member States (ECA, 2013). Among the main problems related to the implementation of the scheme are a large administrative burden and deficiencies in the inspection systems.

The 2014 CAP reform included an important change to the framework of the risk management toolkit - the risk management measures that until then existed as part of the first pillar direct payments scheme were moved to Pillar 2. The effects of this change assessed by a number of experts (Berdaji, 2016) as negative for the following main reasons: firstly, the financing of initiatives aimed at encouraging farmers to manage risk is separated from direct payments - this is, in practice, the suspension of one of the few possible mechanisms to deal with the negative impact of direct support of income on farmers' propensity to implement risk mitigation strategies; secondly, the toolkit meets the budget constraints of Pillar 2 - this in turn leads to an uneven and weak implementation of this policy in individual member states. After 2014, the support of risk management under the second pillar of the CAP is implemented through three instruments, one of which is for Insurance. According to this measure, part of the costs of the farmers is covered when concluding an insurance contract. The insurance covers losses caused by adverse weather events, animal or plant disease, pest infestation or environmental incident. Member countries have some freedom regarding the mechanisms for implementing the instrument, but the subsidy ceiling must be 65% of the policy price, and the activation of the insurance occurs at at least a 30% loss of the average production of the farm/region (calculated historical average based on the previous three years or three of the previous five years excluding the lowest and highest output value). Compared to the other two risk management instruments offered under the second pillar, this measure is the most preferred - out of 12 member states that in 2015 included risk management measures under pillar 2 in their national programs - Bulgaria is not among them - ten have chosen the crop insurance measure (Berdaji, 2016). In addition, the impact of the instrument on the insurance activity of agricultural producers in the European Union is limited - as of 2019, only about 8% of farmers in the Union who insure their production received support under Pillar II. The rest paid for insurance with their own or national funds (ECA, 2019).

State aid that is provided to support risk management is specified in the State Aid Guidelines. Legislative acts (Commission regulations) regulate the provision of aid under the same conditions as those prescribed by the guidelines. State aid intended for risk management after 2014 is regulated in Part II, Chapter 1, Item 1.2 of the Guidelines of the European Union. According to this document, the support of risk management in agricultural production compatible with the internal market can be directed to the following two directions: 1) Aid to compensate for damage caused by adverse climatic events that can be equated to natural disasters. This scheme covers part of the costs of dealing with the consequences of the realization of climate risks. In addition, the aid aims to incentivize producers to take action to mitigate the risk before it occurs - if a farmer has not taken out insurance covering at least 50% of his average annual production or production-related income, the aid is reduced by 50%. It is necessary that the competent authority of the respective member state has officially recognized the nature of the event as an adverse climatic event that can be equated to a natural disaster. In Bulgaria, this state aid scheme supports farmers in the crop production sector in the event of 100% failed areas. 2) State Aid for payment of insurance premiums. The costs of farmers in the member states of the European Union to mitigate climatic and sanitary risks through insurance are supported - costs for insurance premiums for insurance coverage of damages caused by natural disasters or extraordinary events, adverse climatic conditions, animal diseases are eligible and plant pest infestations. In Bulgaria, this aid is provided to producers of fruits, vegetables, essential oil crops and tobacco to mitigate climate risk.

2. Methodology

The insurance activity of agricultural holdings, measured as a share of insured holdings in the total number, was evaluated by means of comparisons in two directions: 1) between the values of this indicator for Bulgaria and for other member states of the European Union; 2) between the values of the indicator for farms with different types of farming in the country.

The following criteria were adopted for assessing the degree of realization of the objectives of the insurance promotion instruments: (1) Impact of the instrument on the target holdings - measured as the share of the holdings on which it influenced the total number of holdings on which it aims to affect (%). Failure to meet the target may be due to a lack of interest in the support shown by farmers or insufficient financial resources provided for the promotion of insurance. (2) Degree of utilization of the initially determined budget of the instrument - calculated as the share of the absorbed budget in the initially determined budget (%). The purpose of each of the instruments is specified in the regulation that introduces it and is specified in the country by means of an instruction or program. If the initially defined budget has been absorbed to a high degree (the values of the indicator "budget utilization rate" are high), and the degree of impact on the target farms is relatively small, the low impact can be explained by budget constraints of the measure. If the impact of the instrument on the target farms is low, but also the budget of the instrument is poorly absorbed, the situation can be explained by the lack of interest of the farmers in the support. In addition, the impact of the support on the total number of insured holdings and the total number of holdings in the country were also examined. (3) Impact of the instrument on insurance activity in agriculture - share of supported farms in the total number of insured farms (%). It shows what proportion of farmers who have decided to use this climate risk mitigation strategy are affected by insurance support. Farms that have received such support are considered to be affected. (4) Impact of the instrument on agricultural holdings in the country - share of assisted holdings in the total number of holdings in the country (%). The value of the indicator depends on the share of the target holdings in the total number of holdings, on the interest of these holdings in the support and may be limited by the size of the designated budget under the scheme or measure. The indicators for assessing the degree of realization of the objectives of the insurance promotion instruments and the impact of the support on the insurance activity of agricultural holdings in the country are summarized in Table 1.

Table 1. Indicators for assessing the realization of the objectives of the insurance promotion instruments and the impact of the support on the insurance activity of agricultural holdings in Bulgaria

Indicator	Formula	What does it show?
Share of farms supported through measures to stimulate insurance out of the total number of farms targeted by the instrument (%)	$\frac{\text{number of farms supported}}{\text{number of farms targeted by the instrument}} \cdot 100$	To what extent the objective of the insurance support scheme/measure has been met.
Share of the utilized budget in the originally determined budget (%)	$\frac{\text{utilized budget}}{\text{originally determined budget}} \cdot 100$	What are the reasons for not fulfilling the purpose of the support - budget constraints or insufficient interest on the part of farmers in the support
Share of supported farms in the total number of insured farms (%)	$\frac{\text{number of supported farms}}{\text{total number of insured farms}} \cdot 100$	Aid impact on holdings that have insured their production.
Share of supported farms in the total number of farms in the country (%).	$\frac{\text{number of supported farms}}{\text{total number of farms in the country}} \cdot 100$	Impact of aid on agricultural holdings in the country

The main data sources needed to calculate the indicators were MAFF Annual Agricultural Reports (Ministry of Agriculture and Food(b), FSS 2016 (Ministry of Agriculture and Food(a) and Agricultural Census in Republic of Bulgaria 2020 (<https://www.mzh.government.bg/en/statistics-and-analyses/census-2020/>), European Commission reports.

3. Results and discussion

Table 2 presents some general data on the number of insured farms, the average number of production groups (by type) for which farmers have taken out insurance and the share of the insured in the total number of farms in Bulgaria in 2016 and 2020.

Table 2. Insured farms, average number of production groups (by type) for which farmers have taken out insurance and share of the insured in the total number of farms in Bulgaria in 2016 and 2020

Indicators	2016	2020
Total number of insured holdings by type of production (1) (i.e. if a holding has insured two types of production from those specified in the survey, it is present twice in this calculation)	2789	1644
Total number of insured holdings (2)	1992	n.a.
Average number of production groups (by type) for which farms have taken out insurance $3=(1)/(2)$	1.4	n.a
Total number of holdings (4)	201014	132742
Ratio between the insured holdings for which insurance was concluded by type of production and the total number (%) $(3)/(4)*100$	1.39	1.24
Share of insured holdings in the total number of holdings (%) $(2)/(4)*100$	0.99	n.a

Source: FSS 2016, Agricultural Census in Republic of Bulgaria 2020

Produce insurance is a risk management strategy relied on by an extremely small number of farms in the country. During the period 2016 - 2020, about 1% of all agricultural producers in Bulgaria have insured some or all of their production. In contrast, more than half (64%) of farmers in the European Union uptake insurance (ECA, 2019). The share of insured agricultural holdings is over 50% in ten Member States. In only three of the national markets, the high share of risk transferors can be explained by a legally regulated insurance obligation (Table 3).

Table 3. Existence/absence of obligation for farmers to insure agricultural production against climate risks in European Union member states with over 50% share of farmers who have insured crop production

Country	Compulsory insurance
Croatia	no
France	no
Hungary	yes
Germany	no
Czech Republic	no
Spain	no
Austria	no
Cyprus	yes
Greece	yes
Luxembourg	no

Source: own elaboration based on data from EC (2017)

On average, a farm in Bulgaria has taken out insurance for less than 2 groups of the crops and animals listed in Table 4. The propensity to insure non-specialized farms in the country is relatively low (EC, 2017). For this reason, we compare the number of farms that have taken out insurance for each group of production with the number of specialized farms of the corresponding type to draw conclusions about the degree of use of this risk management strategy by farmers with different types of farming (Ivanov, B, et.al., 2019). According to the "share of insured holdings" indicator, producers of plant products are superior to livestock holdings. The most actively involved in the insurance market are the producers of field crops, perennial crops and grain-eating animals (pigs and poultry). The weakest and decreasing interest in this risk management strategy is shown by vegetable growers and herbivore farms (the shares of insured farms of the total number of representatives in these groups are the smallest and decreasing in 2020 compared to 2016).

After 2010, under the line of state aid, certain groups of farmers in Bulgaria have the opportunity to receive support for co-financing insurance premiums when insuring agricultural production. The scheme is applied within two periods - 01.03.2010 - 31.12. 2014 in accordance with Regulation 1857/2006, with a planned maximum amount of state expenditure of BGN 33.6 million and from 23.02.2015 - 31.12.2020, in accordance with Regulation (EC) No. 702/2014. with a maximum aid budget for the period of implementation of the scheme - BGN 21 million. In the first period, the intensity of support for a farmer is determined depending on the severity of the losses that the insurance covers - 80% of the costs of insurance premiums are supported, if the insurance policy states that it only covers losses caused by adverse climatic events that can be equated to natural disasters and 50% of the cost of insurance premiums if the policy states that it also covers other damages. In the second period (after 2014), the aid intensity is not differentiated depending on the severity of the risks covered - the state covers 65% of the costs for the insurance premium of a farmer.

The purpose of the support is to encourage small and medium-sized enterprises - agricultural producers, to voluntarily insure agricultural production against adverse weather conditions, by means of partial compensation of the costs of concluding an insurance policy. The aid in the first period is aimed at farmers who operate within the "Fruits and Vegetables" sector. After 2015, the

scope of the supported enterprises was expanded, with the scheme also supporting farmers growing essential oil crops and tobacco.

Table 4. Agricultural holdings by groups of insured products and by specialized type of farming, 2016 and 2020

Groups of insured crops/livestock	Number of holdings that have taken out insurance (by type of insured production)		Number of specialized holdings (by type of farming)		Share of holdings that have taken out insurance in specialized holdings (by type of farming), (%)	
	2016	2020	2016	2020	2016	2020
Crops	2209	1328	79770	64 616	2.7	2.0
1.1. Field crops	1564	775	48580	39 933	3.2	1.9
1.2. Horticulture	132	105	7380	7 146	1,8	1.5
1.3. Perennials	513	448	23810	17 537	2.1	2.5
1. Livestock	580	243	70630	41 816	0,8	0.6
2.1. Cattle and buffaloes, Sheep and goats	406	160	63720	39 293	0,6	0.4
2.2. Pigs and poultry	83	83	6910	2523	1.2	3.3

Source: FSS 2016, Agricultural Census in Republic of Bulgaria 2020, own calculations

During the entire period of implementation of the scheme, the share of the target farms receiving support did not exceed 2%. Less than 1% of farms in the Fruit and Vegetables sector (during the period 2010 - 2014) and less than 2% of farms in the supported sectors after 2014 received support under this state aid (Table 5).

The total amount of funds paid out to stimulate the insurance activity of producers in the "Fruits and vegetables" sector in the period 2010 - 2014 amounted to BGN 2,518,000 (less than 10% of the planned maximum budget was paid out). The amount of aid is determined each year in the annual budget of the State Fund "Agriculture" within the framework of the national budget. During most of the years of the period, the allocated initial amounts were fully committed to submitted applications by the farmers, which is the reason for granting additional funds under the scheme by decision of the management board of the State Fund "Agriculture". The funds paid out during the years from 2015 to 2018 are BGN 4,921,789 (MAFF, 2023). The utilized financial resource amounts to 23% of the maximum aid budget for the period of implementation of the scheme (2015-2020). The amount of aid determined by the Agriculture Fund, together with the

additional funds allocated under the scheme in the period 2015-2020, is BGN 11,900,000, i.e. 57% of the planned amount.

Table 5. Utilized financial resource, number of beneficiaries who received State aid for co-financing insurance premiums and share of target farms that received support

Year	Utilized financial resource (BGN)	Number of beneficiaries	Groups of agricultural holdings for which aid has been granted (target holdings)			Share of the targeted farms receiving support (%)
			Farms specializing in the production of fruits and vegetables	Tobacco growers	Total number	
2019	1078529	403				
2018	1151562	353	n.a.			
2017	1197165	354	n.a.	3877		
2016	1434 837	471	18710	6110	24820	< 1.89
2015	1138225	285	n.a.	2164		
2014	510 000	145	n.a.	-		
2013	594000	136	18738	-	18738	< 0.73
2012	358000	128	n.a.	-		
2011	520000	238	n.a.	-		
2010	536000	193	29890	-	29890	< 0,64

Sources: MAFF Agricultural reports, FSS, Public register of tobacco producers in the Ministry of Agriculture, Food and Forestry, own calculations

Along with stimulating fruit and vegetable producers, in 2012 and 2013, state aid for co-financing insurance premiums was also provided for insuring beehives and bee colonies. The parameters of this scheme are similar to the aid targeted at fruit and vegetable producers in 2010-2014, as they have the same legal basis. The duration of the scheme is from March 15, 2012 to December 31, 2013. The total annual amount of the planned budget under the scheme: BGN 1.81 million.

Table 6. Number of beneficiaries and degree of implementation of the budget under the scheme "State aid for financing insurance premiums for insurance of beehives and bee families"

Year	Maximum budget. (BGN)	Number of Beneficiaries	Disbursed funds (BGN)	Budget utilization rate (%)
2012	1 805 754	2	1000	0.05
2013	1 805 754	2	1000	0.05

Source: State Fund "Agriculture" Guidelines for state aid scheme "Support for co-financing of insurance premiums for insurance of beehives and bee colonies", MAFF. Agricultural reports 2013 and 2014, own calculations

The reaction of the beekeepers seriously deviates from the expected stimulating effect of the state aid - in each of the two years aid was granted to two beneficiaries. The total amount of the disbursed funds in the two years amounted to BGN 2,000. In connection with the possibility provided by Regulation (EC) No. 479/2008, Art. 14, one of the selected measures within the framework of the 2008/2009 – 2013/2014 National Program to Support the Viticulture Sector is "Insurance of wine varieties of vineyards". The measure supported wine grape producers who insured their crop for one or more insurance risks, such as hail, storm, flood, heavy rain. The intensity of the financial aid was identical to that of the state aid granted for the co-financing of insurance premiums granted to fruit and vegetable producers within the same period, namely - 80% for insurance risks equated to natural disasters and up to 50% for others insurance risks. Although the regulation on which the program was based allowed support for insurance against "drought" and "plant diseases" risks, farmers in Bulgaria do not have the opportunity to benefit from such a policy, since insurance companies in the country do not take responsibility for such events.

Table 7. Implementation of the measure "Insurance of wine varieties of vineyards" within the framework of the National program to support the viticulture sector 2008/2009 – 2013/2014

Financial year	Initially determined budget under the measure (BGN)	Budget of the measure after transfer of funds to other measures (BGN)	Number of applications for which funds have been transferred	Disbursed funds (BGN)	Utilization of budget funds after transfer of funds to other measures (%)	Utilization of funds according to the originally allocated budget (%)
2008/20	2 933 745	1 234 129	58	1 026 091,89	83,14	35

Financia l year	Initially determined budget under the measure (BGN)	Budget of the measure after transfer of funds to other measures (BGN)	Number of applicati ons for which funds have been transferr ed	Disbursed funds (BGN)	Utilization of budget funds after transfer of funds to other measures (%)	Utiliza tion of funds accordi ng to the origina lly allocat ed budget (%)
09						
2009/20 10	3 911 600	3 911 600	65	1 106 982	28	28
2010/20 11	4 009 390	4 009 390	56	1 103 435,59	27,52	27
2011/20 12	4 792 000	1 886 000	57	1 276 000	67,65	27
2012/20 13	4 635 162	1 897 000	80	1 248 927,84	65,83	27

Source: MAFF, Agricultural reports 2009 - 2014.

Farmers' interest in crop insurance support does not live up to the expectations on which the measure's initially budgeted budget was based. The utilization of the funds varies from 27% to 35% in individual years. This required funds planned for insurance support to be annually transferred to another measure, namely - "Restructuring and conversion of wine vineyards". The program had almost no impact on the decisions of farmers in the Wine sector to insure their production - the share of supported farms with vines was less than 1% (Table 8).

Table 8. Share of supported holdings under the measure "Insurance of wine varieties of vineyards" within the framework of the National program to support the viticulture sector 2008/2009 – 2013/2014.

Year	Number of applications for which funds have been transferred	Share of the supported specialized farms with vineyards in Bulgaria (%)
2010	56	0.31
2013	80	0.66

Source: MAFF, Agricultural reports 2011 - 2014.

The lack of interest shown by farmers in the sector for crop insurance support was the reason for choosing another risk management measure in the next program implementation period (2014-2018), namely - "Green harvesting". In October 2018, the implementation of another National program to support the viticulture sector began, with a period of 2019-2023, which again includes a crop insurance measure with a budget for 2019 in the amount of BGN 1,955,800. The values of the adopted indicators for assessing the impact of insurance promotion instruments on agricultural holdings in Bulgaria are summarized in Table 32. It is necessary to conclude that the

support has an insignificant effect on agricultural holdings in the country - less than 2% of the targeted holdings and less than 0.3% of the total number of farms are incentivized to insure their production in any given year. State aid to fund insurance premiums for agricultural insurance, targeting fruit, vegetable, oilseed and tobacco producers, has the strongest impact on farmers' decisions to use this risk mitigation strategy - 24% of those taking out farm insurance contract in the country in 2016 are supported under this scheme. The impact of the instruments is mainly limited by the low demand for insurance premium financing support by farmers (absorption of the initially determined maximum budget does not exceed 30% in any of the support schemes).

Table 9. Values of indicators for the impact of support for the promotion of insurance on agricultural holdings in Bulgaria

Indicators	Instrument 1	Instrument 2	Instrument 3
	Year		
	2016	2013	2013
1) Total number of agricultural holdings in the country	201 014	254142	254142
2) Total number of insured farms in the country (0.99097%.*Total number of agricultural farms in the country)	1992	2518	2518
3) Total number of farms that the instrument aims to affect	> 24820	17 185	12080
4) Number of agricultural holdings financially supported (number of holdings affected by the instrument)	471	2	80
5) Impact rate of the instrument on target holdings (%) $\frac{4)}{2).100}$	< 1.89	0.01	0.66
6) Utilization rate of the initial budget for the instrument (%)	23	0.05	27
7) Impact of support on insurance activity in agriculture (%) $\frac{4)}{2).100}$	24	0.08	3.18
8) Impact of support on agricultural holdings in the country (%) $\frac{4)}{2).100}$	0.20	0.00	0.03
Instrument 1 - "Co-financing of insurance premiums in agricultural production insurance" Instrument 2 - "Aid for financing insurance premiums for insurance of beehives and bee colonies" Instrument 3 - "Insurance of wine grape varieties"			

Conclusion

The interest of farmers in Bulgaria in participating in the insurance market (measured by the share of the insured out of the total number of farms) is significantly lower compared to the average

value of the indicator for the European Union. Insurance promotion support fails to activate the agricultural insurance market - the uptake of insurance as a climate risk management strategy is very low and the share of insured farmers in some of the supported sectors (such as Horticulture sector) is lower compared to sectors that do not receive insurance support. Insurance support has a negligible effect on the insurance activity of the targeted farms and on the agricultural producers in the country as a whole. The impact of insurance promotion instruments is limited mainly by the weak demand for support for financing insurance premiums by the farmers.

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