

## Agricultural Insurance as a Condition for Sustainable Development of Rural Areas

Iryna Honcharenko<sup>\*</sup>, Nataliia Shyshpanova

Mykolaiv National Agrarian University  
54008, 9 Georgiy Gongadze Str., Mykolaiv, Ukraine

**Abstract.** The agricultural sector is currently the leading link in the Ukraine economy, which largely determines the socio-economic development of rural areas. Agricultural insurance is an effective tool to reduce financial losses in the course of economic activity in agriculture. The aim of the article is to identify trends in the agricultural insurance market in Ukraine, highlight the factors influencing its functioning and on this basis substantiate the directions and prospects for further development of this segment of the insurance market as a condition for sustainable rural development. The following methods were used to implement the tasks: abstract-logical; system analysis; structural and functional; graphic; monograph; comprehensive analysis. In the study of the relationship between insurance premiums and 7 factors of influence, the method of regression analysis was used. According to the simulation results, it is established that by 53.6% the variation in the volume of agricultural insurance premiums depends on the volume of crop production by agricultural enterprises, by 52.5% – on the share of insured area and 92.1% on the average insurance rate. The value of the coefficient of determination according to this model indicates that the variation in the volume of insurance payments for agricultural insurance by 96.4% is determined by the variation of these factors. Factors of low level of distribution of agroinsurance in Ukraine are revealed, which are combined into blocks: factors connected with branch specificity of enterprises; factors related to the activities of insurance companies; natural and climatic factors; institutional factors. The directions of development of the agricultural insurance market in Ukraine are substantiated: first, the creation of mutual insurance companies and cooperatives, which will allow to take into account the specific needs of members of the company; secondly, the resumption of public-private partnerships, which will help the insurance company's customers to develop a variety of sources of insurance costs, restore confidence in insurance as a tool for risk localization and increase the reliability of insurance compensation in the event of an insured event

**Keywords:** insurance, insurance of agricultural enterprises, insurance companies, agricultural territory

### INTRODUCTION

The agricultural sector of Ukraine's economy is currently the key block of the national economy, which largely determines the socio-economic development of rural areas, employing the rural population, forming 14% of gross value added and over 40% of exports [1]. However, the existing Ukrainian agricultural potential is not fully used. This is primarily due to the lack of adequate financial support for agriculture, unfavorable lending conditions for agro enterprises, as well as the lack of government subsidies and investment in the agricultural sector. In addition, there are force majeure factors that do not depend on agricultural enterprises and often lead to the complete cessation of their activities.

It is possible to solve the existing problem and ensure the proper functioning of the agricultural market, in particular by reducing market risks for farmers through the diversification of market instruments. An effective tool to reduce financial losses connected with adverse weather conditions during economic activities in agriculture is agricultural insurance. Insurance protection of agricultural production is the best way to ensure continuity, balance, and stability of the agricultural market [2, p. 157].

In recent years, the agricultural insurance market of Ukraine has had positive dynamics: the number of concluded insurance contracts, the number of collected

#### Article's History:

Received: 18.11.2021

Revised: 19.01.2022

Accepted: 18.02.2022

#### Suggested Citation:

Honcharenko, I., & Shyshpanova, N. (2022). Agricultural insurance as a condition for sustainable development of rural areas. *Ukrainian Black Sea Region Agrarian Science*, 26(1), 59-68.

insurance premiums in hryvnia, the total sum insured are growing. But the share of insured areas in the total amount of crops remains within 3-5% [3, p. 176]. Under such conditions, the potential of agricultural insurance as a component of ensuring the conditions for sustainable development of the agricultural sector is not realized. Therefore, to ensure further growth of the agricultural sector of Ukraine, the study of agricultural insurance as a tool of risk management from the standpoint of identifying and solving problems is an important component that will improve insurance protection, risk management and ensure maximum profitability of the sector.

Various aspects of the functioning of such an important financial instrument as agricultural insurance have been studied by several Ukrainian and foreign scholars and practitioners. O. Slobodyanyuk specifies that agricultural insurance is the primary mechanism for agricultural risk management, which provides a balance of interests of all parties or participants: farmers – protection of profits in case of crop loss, creditors – repayment of loans taken for agricultural purposes, the state – food security [4, p. 28]. This definition is incomplete, as it does not reflect the role of insurance companies in ensuring the insurance process.

There is a view that agricultural insurance is an effective tool to compensate for financial losses from weather and climatic factors and other adverse events in the course of economic activity in agriculture [5, p. 176].

Among scientists dominated the scientific position that the design of agricultural insurance systems should be such to ensure the transparency of decisions with the involvement of government agencies, insurance companies, and agricultural producers [6, p. 215].

Given the expediency of agricultural insurance, O. Panchenko, A. Sholomiy note that the organization of insurance protection of agricultural enterprises will protect them from the possible risk of loss of crops and hence their income [7, p. 119]. The same opinion is supported by V. Shebanin and I. Kormishkin [8]. Scientists attribute agricultural insurance to the main components of infrastructural support for the development of agricultural entrepreneurship [8, p. 9]. They emphasize that insurance is one of the effective means of protecting agricultural formations from weather and climate risks, which farms are unable to avoid, but which negative consequences they can minimize by choosing the appropriate insurance program.

An assessment of the causal links between index insurance and the welfare of farmers is presented in the works of K. Tafere, C. Barrett, E. Lentz [9]. The need for index insurance is emphasized by S. Janzen, N. Magnan, C. Mullally and others [10]. Index insurance is also considered by N. Jensen, C. Barrett, A. Mude [11]. However, researchers in their research emphasize the need for caution in promoting index insurance as a tool to reduce risk, as well as the importance of assessing product quality.

P. Zhang, M.A. Palma compare compulsory, voluntary and mixed insurance in terms of unfavorable selection and moral hazard and found unfavorable selection

in purely voluntary insurance, but profitable in mixed insurance [12]. Y.L. Kevin, C. Ruth, V. Hill in their research, they study the impact of delayed premium payments on the use of insurance services and subsequent investment decisions among small farmers [13].

Proposals on ways to build an effective system of agricultural insurance with the active participation of the state are formulated in studies by O. Panchenko, A. Sholomiy [7], O. Yatsukh [14], L. Tulush and O. Prokopychuk [15], N. Bondarenko and S. Vlasjuk [5]. The issue of state participation is also considered in the framework of the project “Development of financing the agricultural sector in Europe and Central Asia” [16], revealed in an analytical study of the International Finance Corporation IFC (World Bank Group) in cooperation with the Ministry of Agrarian Policy and Food of Ukraine [17].

However, there are still many debatable and unresolved issues in the agricultural insurance sector of Ukraine, especially the need to scientifically substantiate the potential of the agricultural insurance market, taking into account the interests of all stakeholders in the insurance process to ensure effective neutralization of various risks generated in rural areas, which require in-depth study and analysis, as well as the development of a system of measures aimed at improving the insurance protection of agricultural businesses.

*The aim of the article* is to identify trends in the agricultural insurance market in Ukraine, highlight the factors influencing its functioning and on this basis substantiate the directions for further development of this segment of the insurance market as a condition for sustainable rural development.

## MATERIALS AND METHODS

The theoretical and methodological basis of the study are the fundamental provisions and basic principles of economic theory on the formation of insurance relations in agriculture. The following methods were used to implement the tasks: abstract-logical to substantiate the research methodology and determine theoretical generalizations; system analysis in the formation of conceptual provisions for the coordination of structural and infrastructural participants in the agricultural insurance market; structural and functional to explain the processes of formation of the institutional environment in the agricultural insurance market; graphic to identify and illustrate current trends in the functioning of processes related to agricultural insurance; monograph to study the experience of successful business process management in the agricultural insurance market; comprehensive analysis to identify trends in agricultural insurance.

In accordance with the stated goal, the stages of the study were: identification of problems in the development of the agricultural insurance market of Ukraine; substantiation of the reasons for the low level of prevalence of agricultural insurance in Ukraine and identification of factors influencing the formation and development of agricultural insurance; analysis of the impact of factors on the total amount of agricultural insurance

premiums; substantiation of directions and prospects of further development of the mentioned segment of the insurance market as a condition of sustainable development of rural areas.

Studied the influence of factors (crop production, the share of insured area, level of crop profitability, number of agricultural insurance suppliers, average tariff rate, number of agricultural insurance contracts and level of payments) on the total amount of agricultural insurance premiums (found that the variation in the volume of insurance payments for agricultural insurance by 96.4% is determined by the variation of these factors) and used methods of regression analysis – in the study of the relationship between random values of target Y (insurance premiums) and non-random values of 7 factors of influence X. The initial data for building an economic and mathematical model were data on the development of the insurance market in 2007-2020 [18; 19] chose the target insurance premiums for agricultural insurance (million UAH, Y), and the factors were the relevant market indicators, namely: crop production (UAH billion, X1), the share of insured area (% , X2), level of crop profitability (% , X3), number of agricultural insurance suppliers (X4), average tariff rate (X5), number of agricultural insurance contracts (% , X6) and level of payments (% , X7). At the stage of analysis of the influence of factors on the total amount of insurance premiums for agricultural insurance, the factors of influence were selected and a correlation matrix has been constructed to identify the factors that have the greatest impact on the volume of insurance premiums for agricultural insurance.

The information base of the study was the relevant legal documents, including the Law of Ukraine “On Insurance”, Resolution of the National Bank of Ukraine “On Approval of the Regulations on Insurance of agricultural products with state support” from 10/20/2021 No. 108, official materials of the State Statistics Service of Ukraine, Ministry of Agrarian Policy and Food of Ukraine, statistical information from the site “Forenschurer” for 2007-2020, data from the Project “Development of financing the agricultural sector in Europe and Central Asia”, implemented with the support of the World Bank and International Finance Corporation (IFC), data from the official website of the Agrarian Insurance Pool, data from the Global Mutual Market Share (International Cooperative and Mutual Insurance Federation) report, primary documentation of individual insurance companies, scientific publications of foreign and domestic scientists, Internet resources; monographic, periodical and reference publications, as well as the results of personal observations of the author.

## RESULTS AND DISCUSSION

The agricultural sector plays a key role in Ukraine’s economy, providing 9% of GDP, 18% of employment and 6% of tax revenues [18]. The development of the agricultural sector in Ukraine is largely a consequence of favorable natural conditions. At the same time, climate change is creating new challenges for the industry and

necessitating investment inefficiency. The agricultural sector plays a key role not only in the Ukrainian economy. Ukraine is one of the leaders in the production and export of many types of agricultural and food products in the world. Although Ukraine is a leader in the export of low-margin products, the country has cases of successful development of the processing industry (sunflower oil, chicken) [20].

However, having relatively favorable climatic conditions for agricultural development, the state of this industry is quite low. This situation in agriculture is a consequence of the lack of real support for Ukrainian agricultural enterprises by the state, lack of investment in agricultural development, failure to use new high-tech tools in the operation of enterprises, and failure to take into account the experience of developed countries in solving existing problems [7, p. 119].

Recognizing the importance of insurance for agricultural businesses, it was decided at the state level to promote its development. Ukraine has twice tried to launch a system of assistance to farmers, namely to insure crops from the effects of weather risks, first in 2005-2008 [21] and then in 2012 [22]. In the first wave, the state allocated funds and partially compensated the cost of insurance for farmers. But the insurance market was not technically ready to provide the appropriate level of service. In addition, according to the law of Ukraine “On the Basic Principles of State Agricultural Policy for the Period up to 2015” [23], first wave insurance (in 2005-2008) was mandatory for agricultural producers. Thus, the Law of Ukraine “On the Basic Principles of State Agricultural Policy for the Period up to 2015” has identified a favorable insurance policy as one of the priority areas of state agricultural policy [23].

At the end of 2012, the Agrarian Insurance Pool was established, an association of insurers that is a non-profit organization. The main activity of this pool is related to the implementation of risk insurance in the field of production, storage, and circulation of agricultural products. The main task of the latter was to coordinate the development of agricultural insurance in terms of its state support program [23]. However, due to the lack of necessary budgetary resources, the Agrarian Insurance Pool coordinated the insurance programs of state forward purchases of the Agrarian Fund of Ukraine and the State Food and Grain Corporation of Ukraine, ensuring stable implementation of agricultural insurance under these programs. However, in recent years its activity in the agricultural insurance market has been minimized [24].

The scale of the agricultural insurance market is characterized by a set of interrelated indicators that highlight the current level and provide opportunities to determine the dynamics of the insurance system in rural areas in the future. It should be noted that currently agricultural insurance in Ukraine is mostly carried out in the field of crop production: weather risks account for 58% of negative cases, plant deaths and diseases – 17%, weeds – 14%, pests – 10% [19, p. 157].

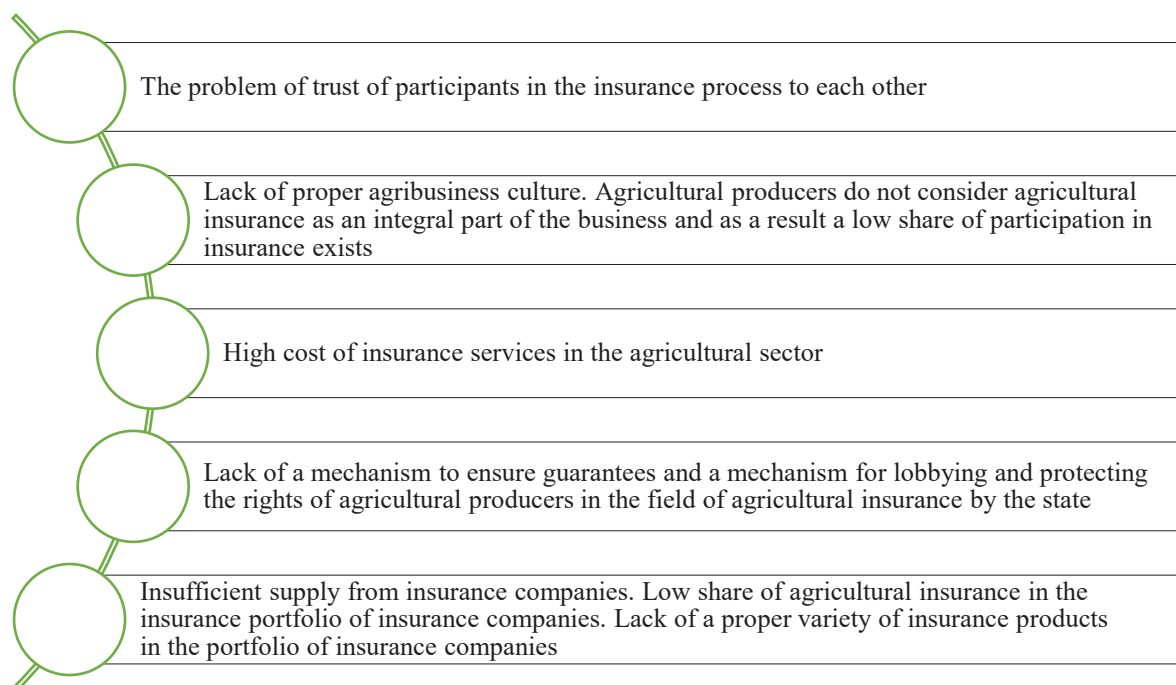
Ukrainian agricultural enterprises traditionally prefer insurance of winter cereals and winter oilseed rape for the overwintering period, which is 76.0% by the number of contracts and 84.5% in the insured area [19].

The largest share of contracts concluded for the spring-summer period are contracts for future harvest insurance against many risks (multi-risk) – 57.7%. Insurance contracts against these risks account for 34.2% of the total number of contracts [19]. The largest number of contracts for agricultural crops was concluded for insurance of winter wheat (614 contracts, or 50.9%), winter rape (307 contracts, or 25.4%), corn (114 contracts, or 9.4%), sunflower (77 contracts (or 6.4%), winter barley (40 contracts, or 3.3%), winter rye (13 contracts, or 1.1%) and spring wheat (8 contracts, or 0.7%) [19].

Against the background of volumes of insurance for crops, insurance for farm animals in Ukraine is not widespread. Thus, according to [19] licensed insurance companies of Ukraine, in the 2019 underwriting year, animal insurance was provided by 7 insurance companies: Oranta-Sich, UPSK, AXA, Ingo Ukraine, Universalna,

TAS, and Mega-Garant. 5,997 animal insurance contracts were concluded, of which: 5,994 – cattle (10,960 insured heads), 2 – pig insurance (26,609 insured heads), and 1 – poultry insurance (61,304 insured heads). The total sum insured was UAH 329 million, and the insurance premium paid was UAH 2.5 million [19]. Insurance indemnities were made only under cattle insurance contracts. The average rate of insurance premiums under concluded contracts has hardly changed compared to the previous year and amounted to 0.8%. In 2018, a sharp increase in the number of contracts compared to last year (from 23 to 5,997 contracts) was mainly due to the conclusion of insurance contracts with individuals, and not just the provision of animals as collateral for a loan [19].

Summarizing the above, currently, only a small number of Ukrainian farmers are ready and able to pay insurance premiums to insure their business against possible losses. In recent years the share of insured areas has varied between 3-4% in Ukraine [19]. The reasons for the low level of prevalence of agricultural insurance in Ukraine are shown in Figure 1.



**Figure 1.** Problems of agricultural insurance market development in Ukraine

**Source:** own research

Regardless of the chosen model of relations in the agricultural insurance market, the issues of developing insurance programs, on the basis of which insurance products are formed for sale to potential policyholders, are of paramount importance. In the world theory and practice of agricultural insurance, the whole set of insurance programs is divided into three main groups: classic, index insurance programs, as well as programs aimed at protecting the income (profits) of farmers (Fig. 2). Diversification of insurance programs in accordance with the needs of farmers in insurance protection is a necessary condition for the development of the global market of agricultural insurance.

Thus, the Ukrainian agricultural insurance market is represented by classic insurance products for mono- and multi-risk insurance with an extensive product line. Instead, index insurance products (based on indices – yield, weather, vegetation) in the Ukrainian agricultural insurance market are still considered innovative and little used. Currently in Ukraine weather index products are under development and implementation. They are a fairly new type of insurance product that allows you to relatively easily determine the losses from the effects of adverse weather events in the cultivation of crops. In their research Prokopchuk O., Kolotukha S. [26] prove that in contrast to classical insurance, parametric (index)

insurance, from a theoretical point of view, is more attractive to agricultural producers in the agricultural insurance market due to its lower cost, transparency, clarity, elimination of the factor of subjectivity in determining the occurrence of the insured event and determining the insurance indemnity, standardization of conditions.

Determinants of the choice of insurance programs are:

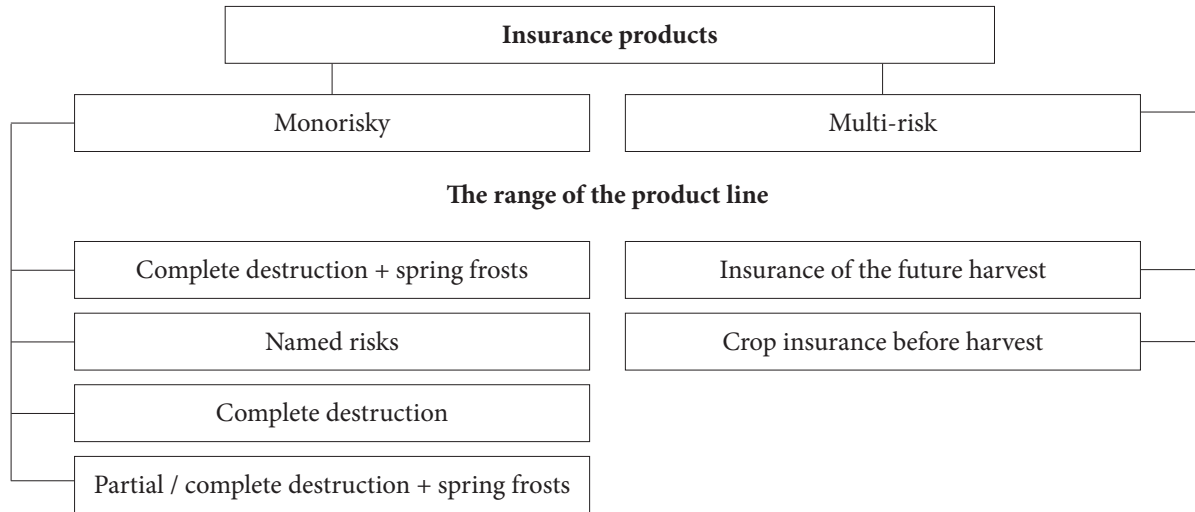
1. The level of solvency of farmers to cover insurance costs.
2. Conditions of the attractiveness of the insurance environment (insurance rates, amount of insurance coverage,

insurance risks, insurance period, term), amount of deductible, payment of insurance indemnity) for concluding (re-concluding) insurance contracts (reinsurance).

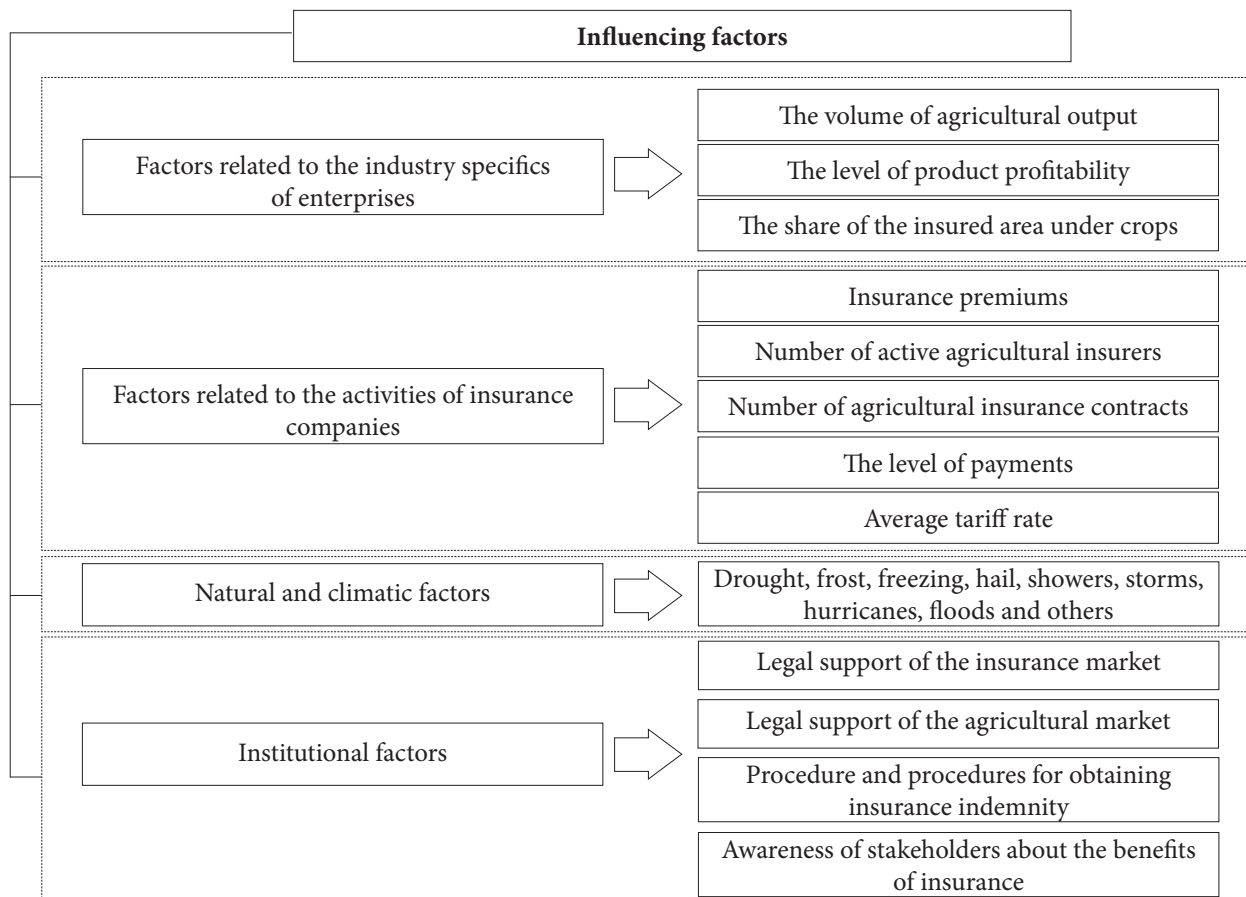
3. Insurer's policy on accepting insurance risks, as well as the possibility of sharing responsibilities among other insurers (reinsurance mechanism).

The above analysis gives grounds to form a list of the main factors influencing the formation and development of agricultural insurance in Ukraine (Fig. 3).

To identify the factors that most affect the amount of insurance premiums for agricultural insurance, a correlation matrix was built (Fig. 4).



**Figure 2.** Classification of insurance products in the agricultural insurance market of Ukraine  
 Source: grouped by authors according to data [7; 14; 25]



**Figure 3.** Factors influencing the functioning of the agricultural insurance market  
 Source: grouped by authors according to data [3; 8; 27]

	y	X1	X2	X3	X4	X5	X6	X7
y	1							
X1	0.73208	1						
X2	0.724791	0.239345	1					
X3	-0.21731	0.142662	-0.7057	1				
X4	0.621096	0.741905	0.311842	0.15966	1			
X5	0.961934	0.768155	0.604243	-0.11274	0.605192	1		
X6	-0.43423	-0.63063	0.2506	-0.65832	-0.29629	-0.4937	1	
X7	0.174136	0.254435	0.00662	0.293097	0.530155	0.300349	-0.04447	1

**Figure 4.** Matrix of paired correlation coefficients to identify factors influencing the amount of insurance premiums for agricultural insurance

**Source:** sources of information were insurance market statistics [17-19], which were processed using the method of correlation and regression analysis

According to the constructed matrix, there is a very high relationship between  $y$  and  $x_5$   $r_{y5}=0.961$ , a high correlation between the productive trait and the factor trait  $x_1$   $r_{yx1}=0.732$ , and  $x_2$   $r_{yx2}=0.724$  between  $y$  and  $x_2$  and no connection ( $-0.217$ ) and ( $-0.434$ ) respectively. Between  $y$  and  $x_7$  the connection is noticeable ( $0.621$ ), between  $y$  and  $x_7$  the connection is weak ( $0.174$ ). Therefore, it is necessary to evaluate the forms of dependence between endogenous variable and exogenous –  $x_1$ ,  $x_2$  and  $x_5$ .

According to the simulation results it is established, it was found that by 53.59% variation in the volume of insurance premiums for agricultural insurance depends on the volume of crop production by agricultural enterprises (by 46.41% of other factors (Fig. 3). The value of the coefficient of determination for this model is 96.4, which indicates the high quality of the model.

A linear multifactor model of the dependence of the volume of insurance premiums on agricultural insurance on certain indicators  $x_1$ ,  $x_2$  and  $x_5$  has the following form (1):

$$y=0.55x_1+43.62x_2+88.96x_5-376.581 \quad (1)$$

The multiple correlation coefficient is a measure of the linear relationship of the dependent variable  $y$  with the independent variables  $x_1, x_2, x_5$  and for this model it has the following level  $R=0.9816$ , which characterizes a strong enough relationship between the relevant indicators. The value of the coefficient of determination according to this model indicates that the variation in the volume of insurance payments for agricultural insurance by 96.4% is determined by the variation in the volume of crop production by agricultural enterprises, the share of insured area and the average insurance rate.

According to calculations, it can be predicted that the level of insurance premiums on agricultural insurance will have a positive trend with increasing output of crop products, the share of insured area and the tariff rate under agricultural insurance contracts.

We support the scientific position of L. Tulush, O. Prokopchuk that the key role in the agricultural insurance system belongs to the state, which must provide conditions for reconciling the interests of other participants

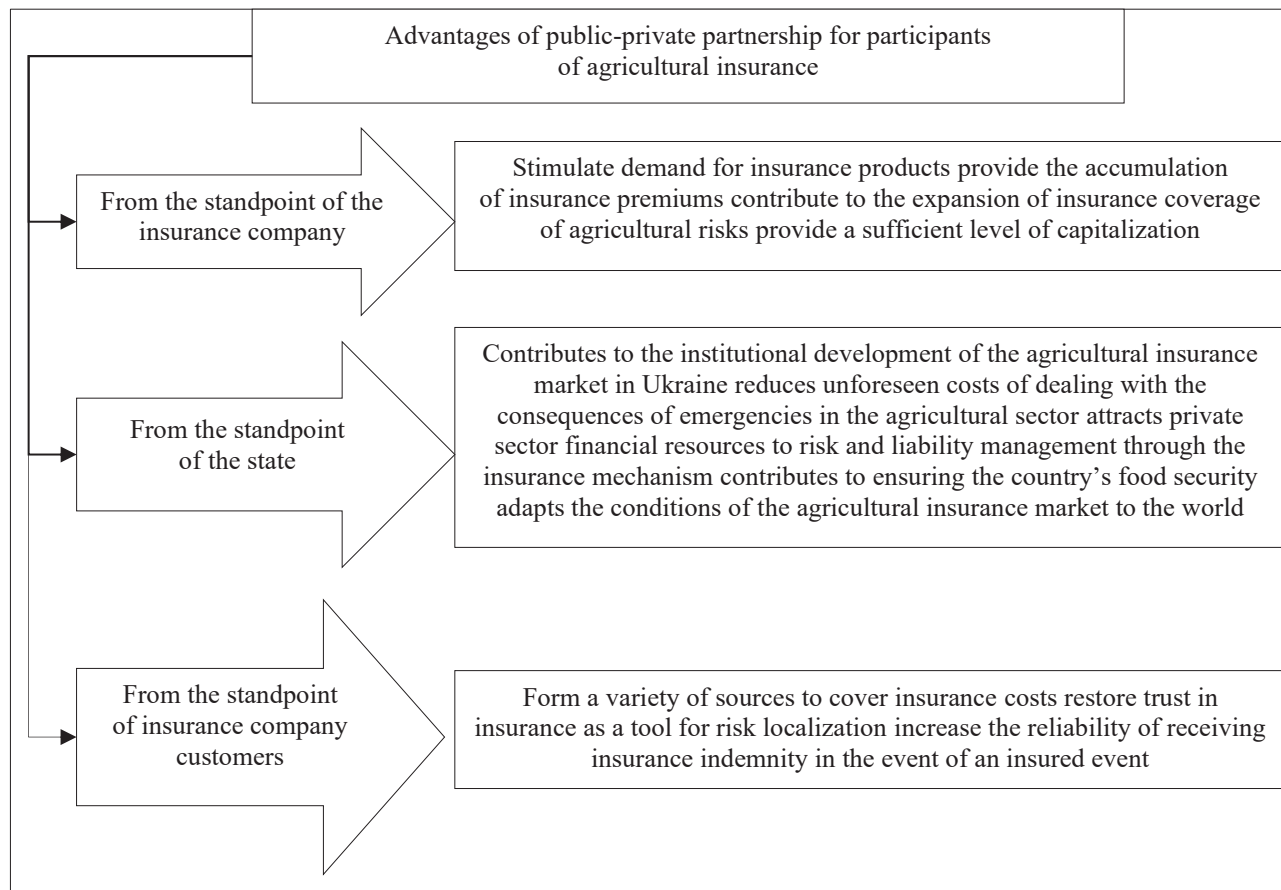
in the system, and, accordingly, the consolidation of their efforts [15, p. 62]. Thus, the IFC International Project "Development of Agricultural Financing in Europe and Central Asia" is aimed at studying and researching agricultural insurance models in countries such as the USA, Canada, Spain, and Turkey to help adapt and ensure the functioning of the best world achievements in the agricultural insurance market in Ukraine [16]. Together with the Ministry of Agrarian Policy and Food of Ukraine, IFC is working to build a reliable agricultural insurance system that would become a reliable support for the development of agriculture in the country. To this end, IFC project experts proposed to the Ministry the concept of creating a new model of agricultural insurance in Ukraine [28]. The Regulatory Authority adopted the Resolution "On Approval of the Regulations on Insurance of Agricultural Products with State Support" of October 20, 2021 No. 108 [29], according to which the organizational and legal framework for insurance activities of insurers of agricultural insurance with state support. The prototype of the new model was the structure of the US Agricultural Risk Management Agency (RMA) [30].

The state-supported agro-insurance system needs to be improved, with the key issues being the balance of interests of insurance participants, affordability of insurance services, improving the quality of services, forming an effective insurance market infrastructure, developing a system of state control and supervision of insurance market participants. There is no doubt that the mission of public-private partnerships in the insurance market is growing. Yes, small farmers could pay only a part of the value of the insurance premium, the rest to be paid by the state through a special fund (with the participation of the Agricultural Insurance Pool) [31].

The format of public-private partnership in the agricultural insurance market is used in the conditions of the initiative of the state, local authorities, and/or united territorial communities on their participation with the private sector in the segment of agricultural insurance. In world practice (experience of North America (USA, Canada) and Europe (Austria, Spain, Germany, Switzerland, etc.), various mechanisms of state support for insurance of agricultural products are used in the form

of subsidies for insurance premiums, insurance payments, and reinsurance; financing the development of insurance products, as well as educational and information activities, training, certification, and payment for the services of experts in claims settlement; compensation of administrative costs to insurance companies [32, p. 252]. Until now, only one of the listed mechanisms of state

support has been used in Ukraine – it is subsidizing insurance premiums [25]. It is clear that these measures will be effectively implemented only with a sufficient level of resources from the state budget, the full return of the agricultural sector and Ukrainian insurance companies, which must be grouped together to overcome these problems. (Fig. 5)



**Figure 5.** Advantages of public-private partnership for participants in agricultural insurance

Source: own research

Given the economic difficulties of our country today and the inability of the state to immediately provide serious financial assistance to Ukrainian farmers, it is worth proposing another effective mechanism, the effectiveness of which, like state aid – mutual insurance companies.

Cooperative and mutual insurers are among the world's oldest insurance companies and this longevity has helped to build their reputations as sustainable and reliable. The cooperative/mutual model is nonetheless highly relevant to the socio-economic needs of new and emerging insurance markets. According to the International Cooperative and Mutual Insurance Federation (ICMIF) [33], mutual insurers account for approximately 27% of the global insurance industry market share.

In the United States the main aim of all mutual insurance companies is to provide insurance coverage for its members (policyholders). Any policyholder has the right to select the management of the company. The core idea behind a mutual insurance fund is about people

coming together to protect themselves in a common financial need. In the United States, National Association of Mutual Insurance Companies (NAMIC) [34] is the organization that serves the interests of small and largest mutual insurance companies. For more than 120 years NAMIC operates across the United States as well as in Canada. They are the largest property/casualty insurance trade association that serves more than 170 million auto, home, and business policyholders.

According to Global Mutual Market Share [35], mutual insurers occupy more than a quarter of their national markets in 20 countries. The 10 largest mutual market markets were from Europe, including France – 51.8% and Germany 47.3%, Austria – 59.9%, Finland 56.2%, the Netherlands – 55.9%. Mutual insurance companies also have a significant presence in the two largest insurance markets in the world: the United States (39.9%) and Japan (42.2%).

Such associations are an alternative to state-supported insurance for agricultural enterprises. These

societies unite agricultural enterprises that want to collectively eliminate the consequences of adverse events through collective efforts.

The world infrastructure of agricultural insurance is focused on the creation and active functioning of mutual insurance companies and insurance cooperatives. Current research in the field of non-profit insurance shows that insurance services on a cooperative basis are provided in 73 countries. In 2015, the world's mutual and cooperative insurance companies raised \$ 1.21 trillion, which is 26.7% of total world insurance premiums. The gross assets of these financial institutions amount to \$ 7.9 trillion dollars [36].

Mutual insurance companies and insurance cooperatives are active participants in the insurance process in almost all market economies. The advantages of mutual insurance companies are:

- greater efficiency, as the company is not managed by investors seeking to maximize profits, and the insurers themselves;
- greater reliability, as insurers act in their own interests;
- provision of a wide range of insurance services, which is formed depending on the needs of agricultural holdings that form this group;
- joint ownership, which encourages each member of the company to take an active part in the management of the insurance company;
- lower fees for the use of insurance services due to the lack of administrative costs, advertising costs and finding new customers;
- guaranteeing the payment of insurance sums in the event of insured events in the required (full) amount, despite the fact that this amount of losses was not provided for in the contract;
- takes full account of the specific insurance needs of members, as insurance conditions are developed and approved by them [37].

## CONCLUSIONS

Factors of low level of distribution of agroinsurance in Ukraine are revealed. They are combined into blocks: factors related to sectoral specifics of enterprises (volume of agricultural output, level of profitability, share of insured area under crops); factors related to the activities of insurance companies (insurance premiums, number of active agricultural insurers, number of agricultural insurance contracts, level of payments, average tariff rate); natural and climatic factors (drought, frost, freezing, hail, showers, storms, flood hurricanes and

others); institutional factors (legal support of the insurance and agricultural market, the procedure and procedures for obtaining insurance indemnity, awareness of stakeholders about the benefits of insurance).

The analysis of the impact of factors on the total amount of agricultural insurance premiums showed that 53.6% variation in the volume of agricultural insurance premiums depends on the volume of crop production by agricultural enterprises, 52.5% variation in the volume of agricultural insurance premiums depends on the share of insured area and 92.1% of the average level of the insurance rate. The value of the coefficient of determination according to this model indicates that the variation in the volume of insurance payments for agricultural insurance by 96.4% is determined by the variation of these factors.

It is clarified that the key role in the agricultural insurance system belongs to the state, which can provide conditions for reconciling the interests of other participants in the system and, consequently, consolidate their efforts, which is a necessary condition for sustainable rural development.

Thus, the practical significance of the results is to justify the development of the agricultural insurance market in Ukraine: first, the creation of mutual insurance companies and cooperatives, which will allow to take into account the specific needs of members of the company; secondly, the resumption of public-private partnerships, which will help the insurance company's customers to develop a variety of sources of insurance costs, restore confidence in insurance as a tool for risk localization and increase the reliability of insurance compensation in the event of an insured event.

The formulated author's conclusions and recommendations are characterized by a positive impact on the development of the Ukrainian agricultural insurance market, as they provide an opportunity to expand the range of products for agricultural producers, promote development and build trust between agricultural insurance market participants, motivate strategic planning. Further study of trends in the development of agricultural insurance in Ukraine is the need for scientific substantiation of potential opportunities for the development of the agricultural insurance market, taking into account the socio-economic interests of all stakeholders in the insurance process. It will be important to study the possibility of introducing insurance of crops, machinery, farm animals against military risks and its impact on sustainable development of rural areas.

## REFERENCES

- [1] Ukrainian agriculture can "pull" the whole economy out of the crisis – experts. (n.d.). Retrieved from <https://www.radiosvoboda.org/a/ukrainian-apk-can-support-all-economy/31070474.html>.
- [2] Shirinian, L.V., & Klymash, N.I. (2018). The latest challenges and trends in the development of the agricultural insurance market in Ukraine. *Scientific Notes of Ostroh Academy National University*, 11(39), 155-162.
- [3] Shibaeva, N. & Baban, T. (2020). Institutionalization of agricultural insurance in Ukraine: Impact factors and vectors of development. *Agricultural and Resource Economics*, 6(2), 174-190. Retrieved from <http://are-journal.com>.
- [4] Slobodyanyuk, O.V. (2017). *Institutional model of the insurance market of Ukraine and financial mechanisms of its development*. Kherson: Helvetica Publishing House.

- [5] Bondarenko, N.V., & Vlasyuk, S.A. (2018). Realities and prospects of agricultural insurance development in Ukraine. *University Scientific Notes*, 66, 272-280.
- [6] Development of agrarian business in Ukraine. (2016). Sumy: Sumy National University.
- [7] Panchenko, O., & Sholomiy, A. (2017). Development of agricultural insurance in Ukraine: Problems and prospects. *Problems and Prospects of Economy and Management*, 1(9), 118-126.
- [8] Shebanin, V., & Kormishkin, I. (2018). Insurance – as a component of infrastructure providing. *Ukrainian Black Sea Region Agrarian Science*, 2, 3-10.
- [9] Tafere, K., Barrett, C.B., & Lentz E., (2019). Insuring well-being? Buyer's remorse and peace of mind effects from insurance. *American Journal of Agricultural Economics*, 101(3), 627-650. doi: 10.1093/ajae/aay087.
- [10] Janzen, S., Magnan, N., Mullally, C., Garbero, A., Hughes, K., Oduol, J., Palmer, B., & Shin, S. (2020). *Experiential games to teach farmers about weather index insurance in Kenya*. Retrieved from <https://www.3ieimpact.org/sites/default/files/2020-06/FE-TW13.1040-Weather-index-Kenya.pdf>.
- [11] Jensen, N.D., Barrett, C.B., & Mude, A.G. (2016). Index insurance quality and basis risk: Evidence from Northern Kenya. *American Journal of Agricultural Economics*, 98(5), 1450-1469. doi: 10.1093/ajae/aaw046.
- [12] Zhang, P., & Palma, M.A. (2018). *Compulsory versus voluntary insurance: An online experiment*. Retrieved from <https://ideas.repec.org/p/ags/saea18/266654.html>.
- [13] Liu, Ya., Chen, K., & Hill, R.V. (2020). Delayed premium payment, insurance adoption, and household investment in rural China. *American Journal of Agricultural Economics*, 102(4), 1177-1197. doi: 10.1002/ajae.12038.
- [14] Yatsukh, O. (2016). The market of agricultural insurance in Ukraine: The state and prospects of development. *Economy and Society*, 7, 866-872.
- [15] Tulush, L.D., & Prokopchuk, O.T. (2018). Agricultural insurance market in Ukraine: Trends and prospects. *Ekonomika APK*, 8, 55-67.
- [16] IFC project "Development of agricultural sector financing in Europe and Central Asia". (2016). Retrieved from [https://www.slideshare.net/ssc\\_social/ifc-66057807](https://www.slideshare.net/ssc_social/ifc-66057807).
- [17] Official website of the Ministry of Agrarian Policy and Food of Ukraine. (n.d.). Retrieved from <https://minagro.gov.ua>.
- [18] Official website of the State Statistics Service of Ukraine. (n.d.). Retrieved from [www.ukrstat.gov.ua](http://www.ukrstat.gov.ua).
- [19] Analytical research. Ukraine's agricultural insurance market in 2018 underwriting year. (2019). Ministry of Agrarian Policy and Food of Ukraine. Kyiv.
- [20] Digitalization and the agricultural sector: global trends, innovation and development in Ukraine. (n.d.). Retrieved from <http://www.businessz.com.ua/news/events/8194>.
- [21] In Ukraine, wheat fields were insured for 40 million. (n.d.). Retrieved from <https://ukrreporter.com.ua/politic/v-ukrayini-pshenichni-polya-zastrahuvaly-na-40-miljoniv.html>.
- [22] Law of Ukraine No. 4391-VI. "On Features of Insurance of Agricultural Products with State Support". (2012, February). Retrieved from <https://zakon.rada.gov.ua/laws/show/4391-17#Text>.
- [23] Law of Ukraine No. 2982-IV "On the Basic Principles of State Agricultural Policy for the Period up to 2015". (October, 2005). Retrieved from <https://zakon.rada.gov.ua/laws/show/2982-15#Text>.
- [24] Agrarians will receive state support in insuring industry risks – a joint bill of the National Bank and the Ministry of Economy. (n.d.). Retrieved from <https://bank.gov.ua/ua/news/all/agrariyi-otrimayut-derjavnu-pidtrimku-pri-strahuvanni-galuzevih-rizikiv--spilniy-zakonoprojekt-natsionalnogo-banku-ta-minekonomiki>.
- [25] Hasanov, S. (2014). Foreign experience of public-private partnership in agricultural insurance. *Economist*, 8, 17-22.
- [26] Prokopchuk, O., & Kolotukha, S. (n.d.). *Species set of insurance products in the agricultural insurance market of Ukraine*. Retrieved from <https://cutt.ly/GJ6oYwU>.
- [27] Yarmolenko, V.V. (2019). The factors influence on the functioning of the agricultural insurance market. *BiznesInform*, 9, 144-151.
- [28] The concept of insurance of agricultural products with state support. Retrieved from <https://cutt.ly/kJ6oFQn>.
- [29] Resolution of the National Bank of Ukraine No. 108 "On Approval of the Regulations on the Conduct of Activities for Insurance of Agricultural Products with State Support". (October, 2021). Retrieved from [https://bank.gov.ua/ua/legislation/Resolution\\_20102021\\_108](https://bank.gov.ua/ua/legislation/Resolution_20102021_108).
- [30] The American model of RMA as a possible way to develop agricultural insurance in Ukraine. (2019). Retrieved from <https://forinsurer.com/public/17/11/10/4799>.
- [31] Onegina, V.M. (2016). Public-social-private partnership and risk management in agriculture. *Bulletin of the Kiev National University of Technology and Design. Series. Economic Sciences*, 5, 37-42.
- [32] Vilenchuk, O.M. (2019). Agrarian insurance in Ukraine: The paradigm of formation and development strategy.
- [33] Official website of the International Cooperative and Mutual Insurance Federation. (n.d.). Retrieved from <https://www.icmif.org/>.
- [34] Official website of the National Association of Mutual Insurance Companies. (n.d.). Retrieved from <https://www.namic.org>.

- [35] Global Mutual Market Share. (n.d.). Retrieved from <https://www.icmif.org/global-mutual-market-share-10/#:~:text=As%20a%20result%2C%20the%20global,a%2013%25%20growth%20since%202012>.
- [36] James, C., & Musser, E. (2018). Federal crop insurance: A crucial public / private partnership. *The Thomas Jefferson Institute for Public Policy*. Retrieved from <https://www.thomasjeffersoninst.org/files/3/Crop%20Insurance%202018.pdf>.
- [37] Kovalchuk, T. (2019). Prospects for agricultural insurance in Ukraine. *Ahrobiznes Sohodni*. Retrieved from <http://agro-business.com.ua/agro/ahrostrakhuvannia/item/12688-perspektyvy-ahrostrakhuvannia-v-ukraini.html>.

## Агростраховання як умова сталого розвитку сільських територій

Ірина Василівна Гончаренко, Наталія Олександрівна Шишпанова

Миколаївський національний аграрний університет  
54008, вул. Георгія Гонґадзе, 9, м. Миколаїв, Україна

**Анотація.** Аграрний сектор економіки України нині є провідною ланкою національної економіки, що значною мірою визначає соціально-економічний розвиток сільських територій. Дієвим інструментом, який дозволяє зменшити фінансові втрати під час здійснення економічної діяльності в сільському господарстві, є агростраховання. Метою статті є виявлення тенденцій ринку агростраховання в Україні, виділення факторів, що впливають на його функціонування та на цій базі обґрунтування напрямів і перспектив подальшого розвитку згаданого сегменту страхового ринку як умови сталого розвитку сільських територій. При дослідженні зв'язку між страховими внесками та 6 факторами впливу використано метод регресійного аналізу. За результатами моделювання встановлено, що коливання обсягу страхових премій агростраховання на 53,6 % залежить від обсягу виробництва продукції рослинництва сільськогосподарськими підприємствами, на 52,5 % — від частки застрахованої площі та на 92,1 % від середнього ріння страхового тарифу. Значення коефіцієнта детермінації за даною моделлю свідчить про те, що варіація обсягу страхових платежів з агростраховання на 96,4 % визначається варіацією цих факторів. Виявлено фактори низького рівня поширення агростраховання в Україні, які поєднано у блоки: фактори, що пов'язані з галузевою специфікою підприємств; фактори, що пов'язані з діяльністю страхових компаній; природно-кліматичні чинники; інституційні фактори. Обґрунтовано напрями розвитку ринку аграрного страхування в Україні: по-перше, створення товариств взаємного страхування та кооперативів, що дозволить врахувати специфічні потреби учасників товариства; по-друге, відновлення державно-приватного партнерства, що сприятиме для клієнтів страхової компанії формуванню різноманітних джерел покриття витрат на страхування, відновленні довіри до страхування як інструменту локалізації ризиків та підвищенні надійності отримання страхового відшкодування у разі настання страхової події

**Ключові слова:** страхування, агростраховання, страхові компанії, сільські території