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AGRICULTURAL INSURANCE SYSTEM: REVIEW OF THE EXPERIENCE OF DEVELOPED COUNTRIES

АУЫЛШАРУАШЫЛЫҚ САҚТАНДЫРУ ЖҮЙЕСІ: ДАМЫҒАН ЕЛДЕРДІҢ ТӘЖІРИБЕСІНЕ ШОЛУ

СИСТЕМА СЕЛЬСКОХОЗЯЙСТВЕННОГО СТРАХОВАНИЯ: ОБЗОР ОПЫТА РАЗВИТЫХ СТРАН

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Abstract. This review article is aimed at getting acquainted with the experience of developed countries in insuring the risks of agricultural producers. The creation of a reliable mechanism for their insurance protection is currently one of the aspects of ensuring food security of the republic and a special sphere of state interests. *The purpose* is to show common insurance practices and countries' policies in dealing with this issue. *Methods* – in the process of analyzing and evaluating the international level of state support for agricultural insurance, the author used the following research methods: content analysis, which allows to identify the main areas related to state financing of agricultural sector; on the basis of a systematic approach, the degree of state participation in insurance operations was determined; graphical interpretation made it possible to visualize this process on the basis of information received. *Results* – the article presents aspects of state investment of insurance premiums in agricultural sector. The author identifies and graphically displays three main categories of state assistance in agricultural insurance. The results of the review can be used to conduct research in all regions of the republic. *Conclusions* – world experience shows that subsidizing insurance payments is the most effective way to support small and medium-sized businesses and ensure economic sustainability of the industry, reduce negative consequences, including loss of income in production of products associated with the onset of adverse natural events. A coordinated and strategic approach to managing the insurance market, government support and effective mitigation methods are important, while direct government reimbursements are ineffective in the long run and do not contribute to the prevention of risk situations.

Аңдатпа. Бұл шолу мақаласы дамыған мемлекеттердің ауылшаруашылық тауар өндірушілерінің тәуекелдерін сақтандыру тәжірибесімен танысуға бағытталған. Оларды сақтандыруды қорғаудың сенімді тетігін құру қазіргі уақытта республиканың азық-түлік қауіпсіздігін қамтамасыз ету аспектілерінің бірі және мемлекеттік мүдделердің ерекше саласы болып табылады. *Мақсаты* – аталған мәселені шешуде елдердің кең таралған сақтандыру тәжірибесі мен саясатын көрсету. *Әдістері* – агро сақтандыруды мемлекеттік қолдаудың

халықаралық деңгейін талдау және бағалау процесінде автор келесі зерттеу әдістерін қолданды: аграрлық секторды мемлекеттік қаржыландырумен байланысты негізгі бағыттарды анықтауға мүмкіндік беретін контент-талдау; жүйелік тәсіл негізінде мемлекеттің сақтандыру операцияларына қатысу дәрежесі анықталды; графикалық интерпретация алынған ақпарат негізінде осы процесті визуализациялауға мүмкіндік берді. *Нәтижелері* – мақалада аграрлық саладағы сақтандыру сыйлықақыларын мемлекеттік инвестициялау аспектілері келтірілген. Автор ауылшаруашылық сақтандыруындағы мемлекеттік көмектің үш негізгі санатын бөліп көрсетеді және графикалық түрде көрсетеді. Шолу нәтижелері республиканың барлық өңірлерінде зерттеулер жүргізу үшін пайдаланылуы мүмкін. *Қортындылар* – әлемдік тәжірибе көрсеткендей, сақтандыру төлемдерін субсидиялау шағын және орта бизнесті қолдаудың және саланың экономикалық орнықтылығын қамтамасыз етудің, жағымсыз салдарларды, оның ішінде табиғи сипаттағы қолайсыз оқиғалардың басталуымен байланысты өнім өндіру кезінде кірістердің жоғалуын қысқартудың ең тиімді тәсілі болып табылады. Сақтандыру нарығын басқарудың үйлестірілген және стратегиялық тәсілі, мемлекеттік қолдау және жағымсыз салдарды азайтудың тиімді әдістері өте маңызды, ал тікелей мемлекеттік өтемақылар ұзақ мерзімді перспективада тиімсіз және қауіпті жағдайлардың алдын алуға ықпал етпейді.

Аннотация. Данная обзорная статья направлена на ознакомление с опытом развитых государств по страхованию рисков сельскохозяйственных товаропроизводителей. Создание надежного механизма их страховой защиты в настоящее время – один из аспектов обеспечения продовольственной безопасности республики и особая сфера государственных интересов. *Цель* – показать распространенную практику страхования и политику стран в решении данного вопроса. *Методы* – в процессе анализа и оценки международного уровня государственной поддержки агрострахования автор использовал следующие методы исследования: контент-анализ, позволяющий выявить основные направления, связанные с государственным финансированием аграрного сектора; на основе системного подхода определена степень участия государства в страховых операциях; графическая интерпретация позволила визуализировать этот процесс на базе полученной информации. *Результаты* – в статье представлены аспекты государственного инвестирования страховых взносов в аграрной сфере. Автор выделяет и графически отображает три основные категории государственной помощи в сельскохозяйственном страховании. Результаты обзора могут быть использованы для проведения исследований во всех регионах республики. *Выводы* – мировой опыт показывает, что субсидирование страховых выплат является наиболее эффективным способом поддержки малого и среднего бизнеса и обеспечения экономической устойчивости отрасли, сокращения негативных последствий, в том числе потерь доходов при производстве продукции, связанных с наступлением неблагоприятных событий природного характера. Скоординированный и стратегический подход к управлению страховым рынком, государственная поддержка и эффективные методы снижения негативных последствий имеют решающее значение, тогда как прямые государственные возмещения в долгосрочной перспективе неэффективны и не способствуют предотвращению рисковых ситуаций.

Key words: agro-industrial complex, agricultural insurance, agricultural producers, risks, state support, insurance compensation payments, income from agricultural insurance premiums.

Түйінді сөздер: агроөнеркәсіптік кешен, агроқұрылым, ауыл шаруашылығы тауарын өндірушілер, тәуекелдер, мемлекеттік қолдау, сақтандыру өтемақы төлемдері, ауыл шаруашылығы сақтандыру сыйлықақыларынан түсетін кірістер.

Ключевые слова: агропромышленный комплекс, агрострахование, сельхозтоваропроизводители, риски, государственная поддержка, страховые компенсационные выплаты, доходы от сельскохозяйственных страховых премий.

Introduction. In developed countries, the effective development of the agricultural sector is carried out thanks to significant government support, including direct funding from the budgets of different levels. Based on the latest research data were collected on the state of the agricultural insurance market in developed countries.

In 2020, North America showed the largest share of income in the agricultural insurance market, the reason for this was the increased demand for agricultural insurance and increased financial support from the federal government to protect farmers from income instability, etc. [1].

The Asia-Pacific and North America agricultural insurance market is projected to grow markedly in 2021-2028. The reason for this is the growth of the agricultural sector in this region, in particular in India, Japan and China [2]. In China, with the support of the central government, the agricultural insurance market has grown significantly over the past twenty years, and in 2021, income from agricultural insurance premiums in China reached 97.6 billion yuan ($15.15 billion), an increase year on year of almost 19.8 % [3, 4].

India has developed large-scale weather-based crop insurance to protect farmers from the vagaries of the weather [5]. In North America introduced agricultural insurance based on the income of farmers [2]. Many other countries have explored the feasibility of agricultural insurance and some have introduced pilot programs [6].

Insurance for the economy of Kazakhstan, undergoing radical modernization, is at a new stage of development, and in comparison with foreign experience, it is at the stage of forming effective tools: there are not enough types of insurance products, advanced technologies, undeveloped infrastructure, the peculiarities of the agricultural sector and the possibilities of implementing digital solutions are not fully taken into account.

Insufficient knowledge of theoretical and methodological aspects, as well as the imperfection of the development of government support measures for agricultural risk insurance, new insurance products, is the basis for this study.

The purpose of this article is to study the general practices of state support for agricultural insurance in developed countries.

Material and methods of research. In order to achieve the objectives of the research the following general scientific methods were used:

* the method of content analysis allowed: to identify the main scientific areas related to the study of state support for the agro-industrial complex; understand the depth of studying such concepts as «agricultural insurance», «state support for agricultural insurance», and «categories of agricultural insurance». The analysis was carried out on the basis of published sources, articles presented in the international databases Scopus, Web of Science;

* the systematic approach method helped to identify and construct the main categories of state participation in agro insurance;

* the method of graphical interpretation allowed to visualize the categories of state participation in agro insurance based on the acquired information.

The choice of the above databases is due to the fact that they contain a wide range of research papers that provide an opportunity to get acquainted with the latest scientific achievements from around the world and international experience in the field of state support for the agro-industrial complex. As well as limiting the search to the selection of the period 2018-2022, it made it possible to obtain the most recent and new information.

This choice of databases provided a wide coverage of scientific studies and articles, which allowed the author to gain a comprehensive understanding of the state support for the agro-industrial complex. In addition, the use of content analysis methods, a systematic approach and graphical interpretation provided a systematic and comprehensive approach to the analysis of the collected information.

Results and their discussion. The sample was accomplished according to the keywords: «Agricultural Insurance», «Agricultural Development», «Insurance System». The search result showed the most relevant 41 sources. A summary of the search results in the Scopus database is presented in table 1.

Table 1 – Search results in the Scopus database for 2018-2022

	Years	2018	2019	2020	2021	2022
Number of publications		8	10	8	8	7
Document types	Article	8	8	6	7	5
	Book chapter	0	0	0	1	0
	Conference paper	0	2	2	0	2
Total number of publications		41				
TOP-5 scientific categories in the search results	Categories	Environmental Science	Business, Management and Accounting	Agricultural and Biological Sciences	Earth and Planetary Sciences	Social Sciences
	Number of articles in these categories*	13	10	9	9	7

Note: compiled by the author

* Journals in which articles are published may belong to several categories, so the total number of articles and the number of articles by category may differ

And to search for the necessary sources in the Web of Science database, the author used the same keywords: «Agricultural Insurance», «Agricultural Development», «Insurance System». The search was limited: a) by the period – 2018-2022; b) by accessibility – only open sources; c) by the field of knowledge – Environmental Sciences, Agriculture Multidisciplinary, Economics, Agro-industrial policy. The search result showed 47 sources, which were rated as the most relevant. Of these, 2 articles are also included in the Scopus database. Table 2 and figure 1 provides a summary of search results according to the Web of Science database.

Table 2 – Search results in the Web of Science database for 2018-2022

Years		2018	2019	2020	2021	2022
Number of publications		9	8	7	14	9
Document types	Article	6	4	5	12	7
	Review Article	3	3	1	1	1
	Proceeding Paper	0	1	1	0	0
	Early Access	0	0	0	0	1
	Editorial Material	0	0	0	1	0
Total number of publications		47				
Note: compiled by the author						

Note: from Web of Science

Figure 1 – Search results in the Web of Science database for 2018-2022 by categories

The existing systems of agricultural insurance in different countries differ in different approaches to its organization and, first of all, in the degree of state participation.

After analyzing the international experience in agricultural insurance, three main categories of state participation can be distinguished:

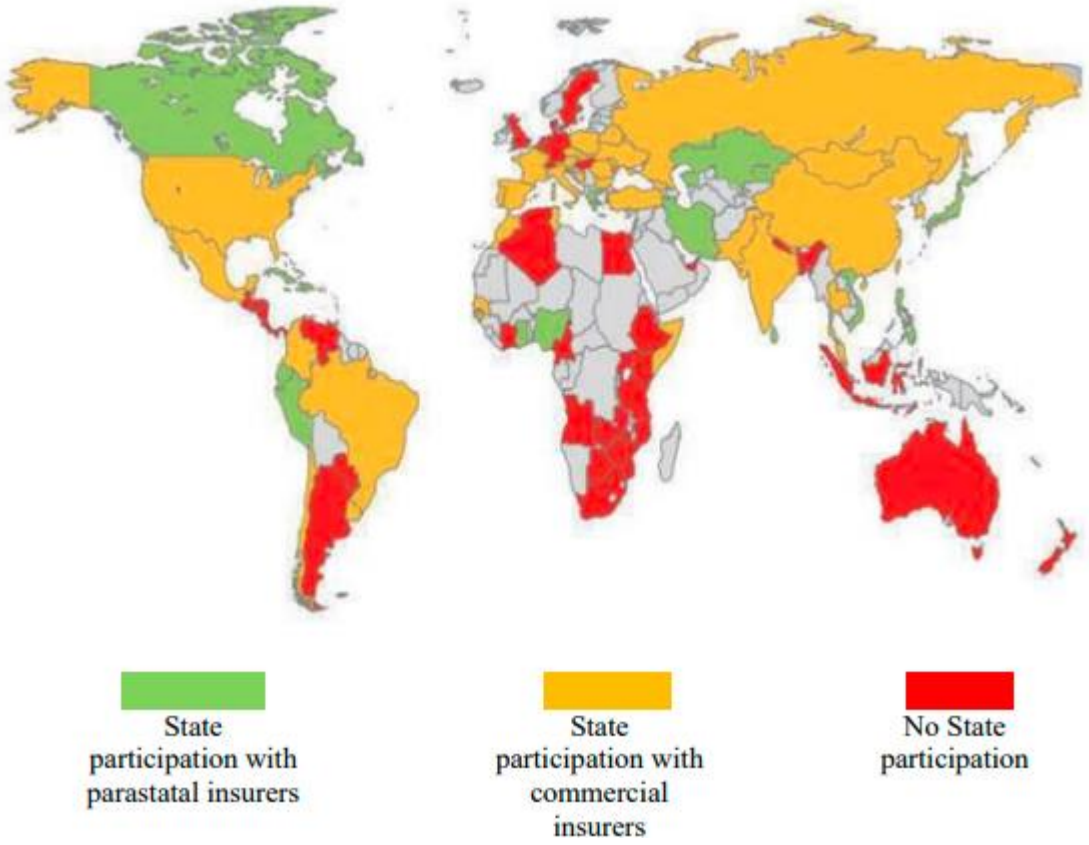
In the first category, the state acts as the main regulator of the insurance market, including countries such as Canada, Cyprus, Greece, India, Iran and the Philippines [7, 8].

In the second category, private insurance companies predominate in the insurance market, and the state carries out only legal regulation, including countries such as Argentina, South Africa, Australia, Germany, Hungary, Malaysia, the Netherlands, Sweden and New Zealand [lk.1, 9].

In the third category, the insurance system is developed through public-private part-

nership, where market competition of insurance companies is combined with government regulation based on various principles. This includes countries such as the USA, Portugal, Spain, Turkey, South Korea, China, Mexico, Poland, Ukraine and the Russian Federation [10-13].

Boranukov [14], based on data from the website of the world's largest reinsurance company Swiss Re [15], divides state participation in agricultural insurance into the following groups (figure 2).



Note: source [lk.14, 15]

Figure 2 – State participation in agricultural insurance

In most European countries, state support in the form of state subsidies for part of farmers' costs of insuring their crops and plantations plays an important role in the development of agricultural insurance. Spain was the first European country to introduce subsidizing multi-risk crop insurance in 1978 [16] and today, along with France and Italy, is the largest agricultural insurance system in Europe in terms of insurance premiums. State support for insurance allows farmers to choose programs with a high degree of protection, and in the event of an insured event, farmers receive on average more benefits than their insurance costs.

The United States agricultural insurance system originated in the 1930s and is the largest and oldest in the world. The American agricultural insurance system is an excellent example of an effective public-private partnership in supporting the agro-industrial complex. A feature of the US agricultural insurance system is the farmer's income insurance programs. That is, farmers can insure not only their crops, but their incomes and receive compensation in case of a significant reduction in product prices.

Agricultural insurance systems in Australia, New Zealand, Sweden show that agricultural insurance can work even without government subsidies [17].

Kazakhstan's experience in agricultural risk insurance. Kazakhstan is one of the countries where the insurance market is dominated by private insurance companies, and the state only legally regulates the insurance market (second category). In Kazakhstan, the state sets requirements for insurance companies and insurance products, and controls their activities.

State support for agriculture in Kazakhstan includes subsidizing insurance premiums

for agricultural producers to help them cope with natural disasters and ensure economic stability in agriculture. In addition to agricultural insurance, Kazakhstan provides for other measures to support agriculture, such as subsidies for the purchase of necessary equipment and materials. The country adheres to the policy of sustainable development of agriculture and encourages measures aimed at the development of agricultural insurance.

Despite this, as in any other country, such programs have their limitations, such as limited budgets, difficulties in determining the amount of losses, and lengthy disbursement procedures. In addition, in Kazakhstan, there is a problem of low awareness of agricultural producers about the possibilities of agricultural insurance and how to choose the most appropriate insurance program. This may lead to insufficient coverage of risks and reduce the effectiveness of the state support program.

Another limitation may be the underdevelopment of the insurance market in the regions where agriculture is carried out, which makes it difficult for small and medium-sized producers to access agricultural insurance. In general, although agricultural insurance in Kazakhstan is at the development stage, the state continues to work to improve the agricultural insurance system and create conditions for the sustainable development of agriculture.

The voluntary agricultural insurance system in Kazakhstan began its work relatively recently, in 2020, but is already showing positive results. Every year, the number of contracts concluded and insured assets is growing, which indicates an increase in interest in this type of insurance among Kazakhstani agricultural producers. Thus, according to JSC «Agrarian Credit Corporation», if in 2020 only 92 contracts were concluded, and in 2021 – 163, then in 2022 – 262 contracts were already concluded.

In addition, as part of the state development of the agricultural sector, it is planned to increase state support for the development of the agricultural insurance system in Kazakhstan, which is likely to lead to an even greater spread of this type of insurance among agricultural producers. Already in 2022, the standard for subsidizing insurance premiums was increased to 80% instead of the previous 50%, which will lead to a reduction in risks, expansion of areas where crops will be insured, as well as an increase in the number of insurance policies for livestock and poultry [18].

In a systematic review of the use of insurance in developed countries as a mechanism for the sustainable development of agricultural production, it was found that the approaches used are diverse. Despite this, common themes were identified. It is important to understand that the government plays a critical role in supporting the development of agricultural insurance markets and can help ensure the viability of insurance products. Public-private partnerships play a key role in developing the agricultural insurance market, which can lead to more efficient and sustainable insurance products.

But to support sustainable agricultural production, an integrated approach is important, where insurance should be considered one of its important tools. This review highlights the role of insurance in supporting sustainable agricultural production in developed countries, taking into account the roles of government and public-private partnerships.

The level of agricultural insurance and the degree of its state support in the country must correspond to the potential for the development of the agroindustrial complex. Farming in developed countries is less risky compared to the conditions of farming in Kazakhstan. Despite this, government support for agricultural risk insurance in these countries is much higher.

Using this as an example, it can be judged that developed countries understand the importance of the agro-industrial sector in the country's economy and therefore provide the necessary support to reduce the risks of agricultural producers. In order to help improve the quality of life of farmers and increase agricultural productivity, which, in turn, can become a key factor in the development of the country's economy, Kazakhstan needs to develop an agricultural insurance system and provide the necessary state support to help farmers cope with the risks associated with farming.

Limitations. Firstly, the study focuses only on the experience of developed countries and in the future there is a need to study the experience, policies, programs, problems and limitations of developing countries in agricultural insurance. In this way, we can determine the differences and uniqueness of the experience of developed and developing countries in agricultural insurance. Second, because the review is based on secondary data sources, the accuracy and reliability of the results may be limited by the quality of the original study.

Finally, it should be taken into account that there are limitations in conducting a systematic literature review, such as time con-

straints and the possibility of changes in practices and policies in the area of state support for agricultural insurance in the countries under review. However, this review can serve as a starting point for a deeper examination of the role of insurance as an effective mechanism for sustainable agricul-tural production and highlights the need for a more comprehensive and detailed analysis of this topic.

Conclusion

1. The analysis of the literature allowed the author to divide the agricultural insurance systems in different countries into three categories, depending on the approaches to the organization and the participation of the state.

2. International experience in agricultural risk insurance has confirmed that the most effective way to support agricultural producers and ensure economic stability in the agricultural sector is subsidizing insurance premiums.

3. At the same time, direct payments from the government in case of catastrophic events are ineffective in the long term, since they do not solve the main risks and do not encourage farmers to reduce risks by applying appropriate methods. They can create dependence on government assistance for agricultural producers and reduce their motivation to apply best risk management practices. Therefore, emphasis should be placed on encouraging risk reduction and the application of effective methods of agricultural insurance.

4. The study highlights the importance of a coordinated approach to agricultural risk management, including not only insurance but also other supportive measures such as agricultural policies and programs, risk reduction and improved agricultural practices. Only an integrated approach based on interdisciplinary cooperation and interaction between the state, agricultural producers and insurance companies will make it possible to achieve sustainable development of agriculture and ensure its protection from risks.

In conclusion, the study confirms that insurance is an effective mechanism for the sustainable development of agricultural production. Government support for subsidized insurance premiums improves the availability of insurance, and a coordinated approach to risk management helps ensure the sustainability and prosperity of the agricultural sector.

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