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ACTUAR DEVELOPMENT IN THE ECONOMY OF AGRICULTURE

Annotation. Analysis of economic efficiency shows that the formation of market relations in the agricultural sector requires a well-considered and balanced approach, justification of diverse forms of ownership and methods of management. Of particular relevance are the problems of management restructuring, since production efficiency and the solution of the problem of sociologizing the economy and raising the living standards of the population depend on it in the first place. From the perspective of the insurance company, in order to choose the level of protection against losses in the agricultural sector, a clear understanding of the nature, specificity, nature, volume and frequency of losses faced by the parties of the insurance process in agricultural insurance is required, which is described in more detail by the authors in this article.

Keywords: crop insurance, state financial support, insurance mechanism, actuary.

INTRODUCTION

Agricultural insurance as an important element in protecting agriculture from the whims of nature originated in the 1920s and in a number of countries has reached a high level of development. There are many modifications of agricultural insurance programs in the world, but not one of them is able to function without the use of relevant and reliable data. This system cannot develop without powerful support from the state, one of the important and sometimes underestimated areas of which is assistance in collecting and selecting data. Actuarial calculations in agricultural insurance require, first of all, production and weather data. When developing an insurance product, a decision on the use of one or another sample is made depending on the goals set.

MAIN PART

Premium rates should not only be adequate to the capabilities of the manufacturers wallet, but also be comparable in terms of coverage of insurance obligations. When calculating tariff rates, it is necessary to take into account what factors influence the decision on insurance by the agricultural producer.

From the perspective of the agricultural producer, a number of important factors can be distinguished that influence the decision-making regarding the use of such a risk management tool as agricultural insurance. These factors include, first of all, the size of a possible loss in relation to the turnover of cash flows of the economy and the expected income from the results of the production cycle. The decision of the agricultural producer regarding the use of various risk management tools depends on the availability and cost of risk management tools. In agricultural insurance, it is necessary to recognize and adequately assess the position of the commodity producer in the light of the adoption (or rejection) of a particular strategy for managing the production cycle.

Do not forget also that the owner should give priority to the calculation of the necessary costs and their commensurability with the expected benefits. It may be unprofitable for a commodity producer with small and medium production volumes to install expensive irrigation systems that have to pay off for more than one year, so he is likely to prefer insurance as an alternative to risk diversification.

An important factor for agriculture is the frequency of occurrence of a risk event. The cyclic incidence of cereal grains is 4–5 years, and catastrophic losses that can lead to hunger occur once every

20–30 years. At the same time, unfortunately, no observations and studies are able to give a clear answer to the question of which of the next years this risk event will occur. Actually balanced insurance rates are an important and integral element in the creation and implementation of a high-quality insurance product. Actuaries working on this issue should proceed from all of the above factors motivating the participation of producers in the agricultural insurance program.

In the United States, the development of databases for agricultural insurance as part of the development and implementation of subsidized agricultural insurance programs is carried out by the Risk Management Agency (RMA), a structural unit of the US Department of Agriculture, and the Federal Crop Insurance Corporation Corporation - FCIC). Data from manufacturers is collected by private insurance agents when entering into insurance contracts. Farmers (producers) who participate in the US agrarian insurance program must report on the harvested and sown area in accordance with the management methods used and the data for each insured crop. Data is not georeferenced.

Loss assessors visit farms and study production records for the current year in each situation where there is a question of compensation. They also determine the reliability of crop data reported in the previous year. In addition, a selective audit is conducted in farms that did not state requirements, but provided information about the crop. The purpose of these activities is to check for records to confirm the information provided. These audit procedures guarantee the completeness of production data provided to insurers.

The data is then processed and formatted in accordance with a government-defined standard. The US Department of Agriculture (USDA) runs the National Agricultural Statistics Service (NASS), which collects all the actual data, which forms the basis of the data archive. Yields for most crops have been collected here for more than 70 years, and by variety for 40–50 years. US cereal insurance statistics have been in use since 1989.

Very often one can hear complaints about how "bureaucratized" the data collection system is in post-Soviet countries. Many complain about the huge number of forms that need to be filled out, submitting reports on doing business. Below is a table that illustrates the main reporting forms of agricultural producers for agricultural insurance in the United States.

Table 1 - Positions of production data that represent American farmers

Reporting Form Number	Name of the reporting form	Description	The number of data fields in a particular form
10	Policy accounting	Description of indicators of the insured manufacturer	38
11	Area Accounting	Description of data in accordance with insurance policy	93
12	Payment accounting	Policy premium payment descriptions	12
15	Crop accounting	Manufacturer Insurance History	93
20	Accounting for total loss	History of loss or compensation paid	35
21	Line of losses	Description and causes of losses	82
25	Payment / Arbitration	Record of appeals	17
55	Agent Data	Agent Description	40
56	Loss Adjuster Details	Description of loss assessment	25

Every year, agriculture invests more and more money in new technologies, and at the same time introduces more advanced risk management tools. The insurer's task is to "prepare a sled in the summer," since the inevitable risks of agriculture require a systematic approach to solving them.

In countries with a developed system of agricultural insurance, when calculating tariff rates for the agricultural sector, a correction factor for productivity "for the development of technologies" is applied at a rate of 1% per year. The data collection process is quite complicated and requires constant updating and refinement. The practice of countries with a developed system of agricultural insurance involves, by

default, the investment of very significant funds in the creation and maintenance of a database for actuarial calculations. In most countries, this is ensured by the coordinated actions of business and government agencies.

Actuarial practice of leading countries also provides that in cases of lack of data, actuaries can use their own valuation, experimental data, expert judgment and other information to determine premium rates. In the absence of a representative database from the perspective of actuarial calculations, one or more methods should be applied.

As Kazakhstan developed this segment of the insurance market, the main problems in agricultural insurance were identified:

- all measures do not constitute a system of measures ensuring the active participation of agricultural producers in insurance and a high level of insurance protection;
- imperfection of the mechanism of state participation in this process;
- insufficient regulatory support for the insurance process;
- inconsistency of the insurance institute's tools with modern requirements.

Experts believe that land relations in Kazakhstan are currently at an impasse. On the one hand, most of the agricultural land is in shared ownership, and the state is looking for ways to liquidate it, and on the other, there is an over-concentration of land with all the negative manifestations of this process.

More than half of the land shares transferred to the ownership of citizens during the reorganization of collective farms and state farms are currently unclaimed. High costs of cadastral work lead to the fact that agricultural organizations are excluded from the process of registration of rights to used land in accordance with the law. The uncertain legal status of such lands does not allow them to participate in economic agricultural relations. Meanwhile, agricultural land should be the basis of such a relationship. Reducing ownership relations to a legal form alone is not enough.

The lack of legitimacy of ownership of the means of production that have developed as a result of the privatization of the 90s also causes difficulties in solving land use problems.

Under these conditions, it is advisable to use the methodology for determining the insurance rate, expressed from the insurance object. According to this methodology, for crop insurance, the average general crop yield over a long period is first determined. Negative deviations from the general average yield characterize the probable shortage of products in a particular year and, therefore, the size of insurance compensation. This approach to calculating insurance rates corresponds to the real risk of cultivating crops and ensures the flow of funds to the insurance fund to fully cover potential damage.

The formation of the agricultural insurance system is inextricably linked with the reform of all agriculture. Considering agricultural insurance as an element of agricultural policy, we see that measures aimed at strengthening agriculture and ensuring food security of the country are not always consistent and interconnected.

First of all, it should be noted that the entire mechanism of agricultural insurance does not correspond to the specifics of the industry. He did not provide the most important thing - effective and reliable insurance protection of the reproduction process: the size and timing of insurance compensation do not take into account the short-term and seasonality of the production process, for example, in crop production. There is no differentiation of insurance rates within the region. The process of payment extended over time does not allow taking measures to reduce damage. However, not only the size of subsidies determines the effectiveness of insurance - the mechanism of state insurance support needs to be reformed.

The insurance payment mechanism is not brought up to the appropriate level and allows the insurance company to drag out the process or even evade its obligations and requires “manual” management, that is, intervention by the authorities.

Insurance in agriculture should be long-term, the rules should be long-term, although the possibility of their modernization is not ruled out. For example, despite the proven and well-proven agricultural insurance system in the United States, since 2011 the government has been making some changes to the rules for the participation of insurance companies in the subsidized insurance program.

Международные требования (в частности, требования Международной ассоциации страхового надзора и рекомендации Мирового банка) диктуют необходимость ускорения процесса принятия новых требований в тех областях, где регулирование страхового рынка РК пока в значительной

степени уступает не только опыту стран с развитой рыночной экономикой, но и смежным секторам финансового рынка.

Insurance in the vast majority of countries is voluntary, but the state in every way encourages manufacturers not to neglect this risk management tool.

To ensure the conditions for the functioning of the insurance market in agriculture and ultimately achieve the sustainability of agricultural production, it seems necessary to create and develop reinsurance organizations specializing in servicing the agro-industrial complex. But the creation of such organizations today is impossible without the participation of the state. For these purposes, it is necessary to provide for a separate line in the budget expenditures to create a republican reinsurance fund. Moreover, we consider it necessary to develop an independent legislative framework for the regulation of reinsurance, which regulates the main provisions of the reinsurance contract.

The conceptual framework for the development of reinsurance operations should also include mechanisms for state participation in the creation of a reinsurance company capable of accepting even abnormal agricultural risks into reinsurance. Thus, reinsurance activities are a necessary and integral part of agricultural insurance activities.

It follows from the study that measures to rehabilitate the soil cover and clean up contaminated water bodies and rivers affected by industrial disasters should be included in the preventive measures for crop insurance, which will generally have a favorable effect on the environmental situation. It would be justified to finance from this reserve research projects related to the cultivation of new drought tolerant varieties that have high adaptive potential (resistance of agricultural plants to adverse conditions of soils, climate, insect pests, diseases).

In order to protect crops from insect pests, it is necessary to build observation posts that will forecast and signal their appearance, control population density, and purchase pesticides, tools and equipment for these items.

To finance the proposed measures, it is necessary to increase deductions to 4% of insurance premiums on crop insurance for preventive measures, as was the case with compulsory insurance.

The loss fluctuation reserve is intended to compensate the insurer's expenses for making insurance payments in cases when the value of the loss amount of the insurance amount in the reporting period exceeds the expected average level of loss.

The formation and use of the above reserves is for insurance companies the most important aspect of their activity, as agricultural producers seek to have full insurance coverage for all types of fluctuations in loss ratio.

CONCLUSION

Thus, insurance tariffs are currently in force, which do not fully take into account the real characteristics of agricultural production. Recommended insurance tariffs, expressed as a percentage of the insurance object (in crop production, the object is gross harvest, in livestock production - the average annual milk yield, wool cut, average weight gain, etc.) will most fully correspond to the real risk of growing and ensure the collection of funds in insurance funds to cover potential damage. Insurance rates are differentiated by natural economic zones. In those areas of the republic where the probability of occurrence of insured events is quite high, it is advisable to apply higher, compared with the average republican tariff rates, and vice versa.

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АКТУАРНОЕ РАЗВИТИЕ В ЭКОНОМИКЕ СЕЛЬСКОГО ХОЗЯЙСТВА

Аннотация. Анализ экономической эффективности показывает, что формирование рыночных отношений в аграрной сфере требует продуманного и взвешенного подхода, обоснования многообразных

форм собственности и способов хозяйствования. Особую актуальность приобретают проблемы перестройки управления, так как от него в первую очередь зависят эффективность производства и решение задачи социологизации экономики и повышения жизненного уровня населения. С позиции страховой компании для выбора уровня защиты от потерь в сельскохозяйственном секторе необходимо четкое понимание природы, специфики, характера, объема и частоты убытков, с которыми сталкиваются стороны страхового процесса в агростраховании, о чем более подробно описано авторами в данной статье.

Ключевые слова: страхование урожая, государственная финансовая поддержка, механизм страхования, актуарий.

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АУЫЛШАРУАШЫЛЫҚ ЭКОНОМИКАСЫНДАҒЫ АКТУАРЛЫҚ ДАМУ

Аннотация. Экономикалық тиімділікті талдау аграрлық сектордағы нарықтық қатынастардың қалыптасуы ойластырылған және теңдестірілген көзқарасты, әртүрлі меншік нысандары мен басқару тәсілдерін негіздеуді қажет ететіндігін көрсетеді. Менеджментті қайта құру проблемалары айрықша өзекті болып табылады, өйткені өндірістің тиімділігі мен экономиканы әлеуметтендіру мен халықтың өмір сүру деңгейін көтеру мәселесі бірінші кезекте оған байланысты. Сақтандыру компаниясының көзқарасы бойынша, агроөнеркәсіптік кешендегі шығындардан қорғау деңгейін таңдау үшін, ауылшаруашылық сақтандыру саласындағы сақтандыру процесінің тараптары тап болатын шығындардың сипатын, ерекшелігін, сипатын, көлемін және жиілігін нақты түсіну қажет, оны авторлар осы мақалада толығырақ сипаттайды.

Түйін сөздер: өсімдіктерді сақтандыру, мемлекеттік қаржылық қолдау, сақтандыру тетігі, актуарий

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