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CURRENT ISSUES AND WAYS OF INVESTING INSURANCE SYSTEM OF AGRICULTURAL RISKS IN THE REPUBLIC OF ARTSAKH

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Abstract

Insurance in the agricultural sector is a precondition for the sustainable development of this sector in Artsakh Republic, the improvement of the investment field and the rise of the level of food security in post-war period.

The introduction of a viable insurance system in agriculture in new reality of Artsakh is subjected to additional agricultural risks and the investigation and the solution of issues of application and development of scientifically justified modern methods and approaches aimed at effective management of these risks becomes significant.

Keywords: natural disasters, insurance, agricultural risks, insurance systems, agri-insurance, state subsidiary, food security.

Introduction

The efficiency of agricultural production depends on climatic, anthropogenic and economic factors. Agriculture, in addition to economic risks, suffers losses due to natural disasters. Therefore, agriculture is a sector of high risk which makes it less attractive for insurance companies. Moreover, the production in this field is organized on large areas in various directions, which requires additional costs and efforts for the management of the

insurance. Agriculture is severely damaged by hazardous hydrometeorological events in our country (drought, hail, frostbite as well as fires) the duration and frequency of which have been recently increasing due to global climate change.

The introduction of a viable insurance system in the field of agriculture in Artsakh Republic is one of the main preconditions for the sustainable and balanced development of the agrarian sector of economy.

International experience shows that the use of the latest technologies in agriculture, the expansion of risk prevention opportunities, the increase of income per unit area and the introduction of a state insurance system make overcoming the difficulties of risk management possible. There are countries, such as Israel, where agricultural insurance is compulsory. This is due to the peculiarity of the country and the nature of the agrarian policy of the state. There is no private land ownership in Israel. At the same time, the state spends a lot of money on the introduction of innovative technologies in the field of agriculture, so the preservation of the final result is considered a major priority. However, most countries in the world prefer voluntary agricultural insurance which should be considered acceptable for our country.

The article discusses the existing problems and ways of introducing the insurance system of agricultural risk in Artsakh.

Conflict Setting

The aim of this research is to reveal investment issues and effective ways of insurance system of agricultural risks in Artsakh Republic and to suggest appropriate offers for their solution.

Research Results

The economy of Artsakh has suffered significant loss due to war between Artsakh and Azerbaijan. The GDP per capita comprised 249,4 million AMD which decreased by 12,7 % compared to the previous year [1].

Agriculture has suffered significant damage, meanwhile 81.4 percent of arable lands came under the enemy's control or are currently located in the dangerous zone for cultivation. Specifically, 133.5 thousand hectares of arable land were available until hostilities, 34,000 hectares are currently left or 75.5 percent is under the control of the enemy, 7.4 thousand hectares of perennial plantations were available, 2.65 thousand hectares are currently available or 64.2 percent is under the control of the enemy, 396.7 thousand hectares of natural pastures were available, 59.8 thousand hectares are currently there or 84.9 percent has passed under the control of the enemy, 39.2 thousand hectares other lands were available now there are 10.8 thousand hectares or 72.3 percent of them came under the control of the enemy [1].

Agriculture plays an important role in the development and stabilization of Artsakh economy. Agriculture ensured more than 11% of the country's gross domestic product (2018) and about 5.5% in 2021 post-war period [1].

The GDP per capita comprised 249,354 million AMD in 2021 compared to 270907,2 million AMD in 2020 (Fig. 1).

2021 gross agricultural product decreased by 26,161.7 million AMD compared to the same indicator of 2020 (56,472.5 million AMD) making about 46% (Fig. 2). Gross crop production in 2021 made 7431.2 million AMD and 22879.6 million AMD for livestock breeding. Comparing with similar indicators of 2020 which was 22234.6 million AMD in

horticulture and 34237.9 million dram in animal breeding crop production decreased by 66%, and animal breeding by 34% in 2021 [1].

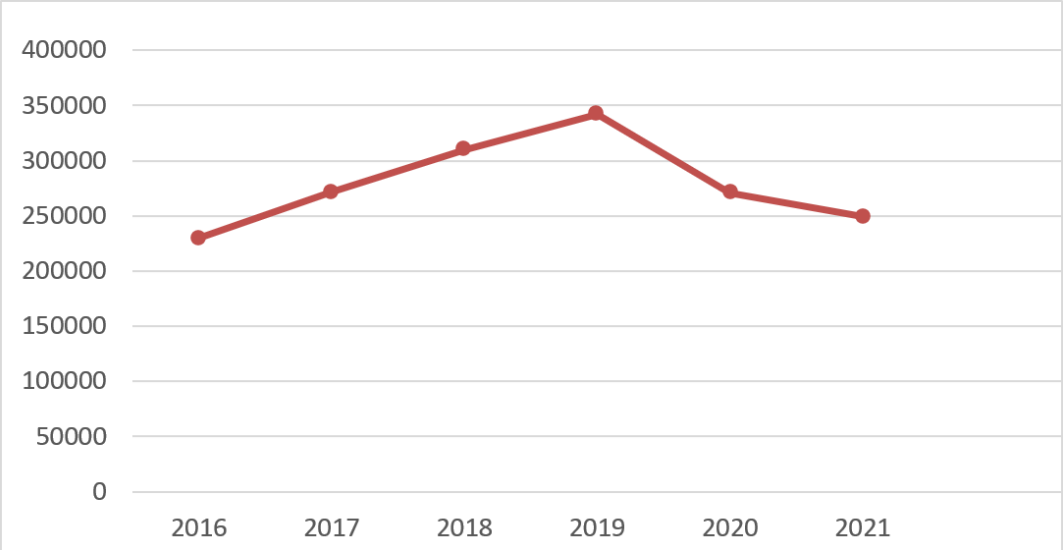

Fig. 1 Gross domestic product in Artsakh Republic (mln AMD) (2016-2021)

Only 30,248.7 ha of field crops were sown in Artsakh, of which winter crops are 25,206 ha, spring crops are 3012.31 ha, technical crops - 809.6 ha, vegetable crops - 303.09 ha and fodder crops - 165.7 ha [1].

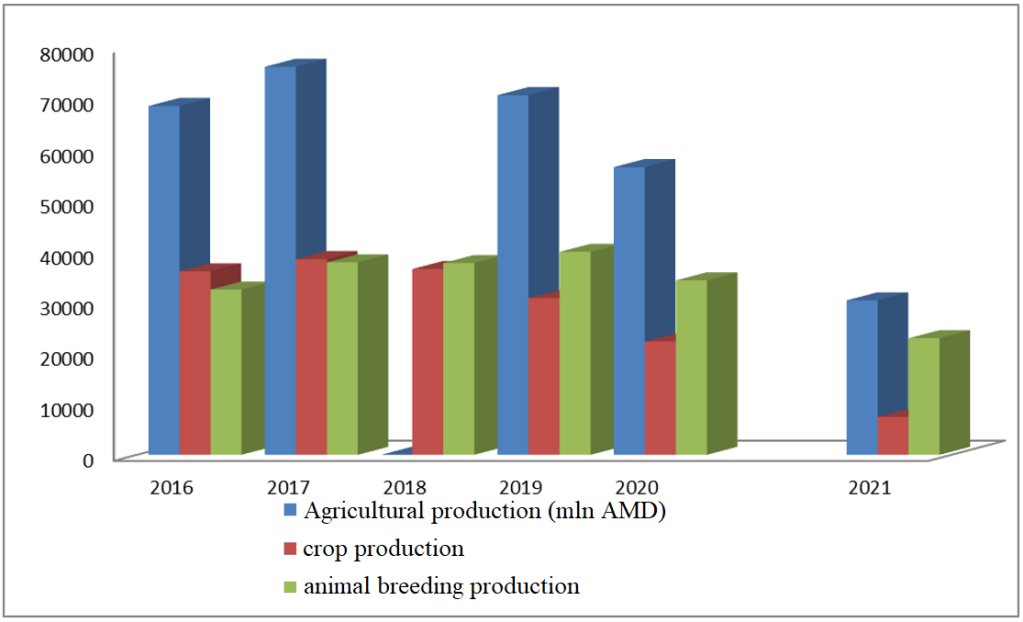

Fig. 2 Gross agricultural production according to its branches (factual prices, 2016-2021 mln. AMD)

Artsakh currently lacks full compensation mechanisms. Thus, in 2019 4413.9 hectares of arable lands were affected by hail in the republic, including up to 50% - 1015.9 hectares, 50-80% - 639.7 hectares, 80-100% 2758.3 hectares, 20188.23 hectares were damaged by drought and fires damaged 1026.5 hectares [1, 2].

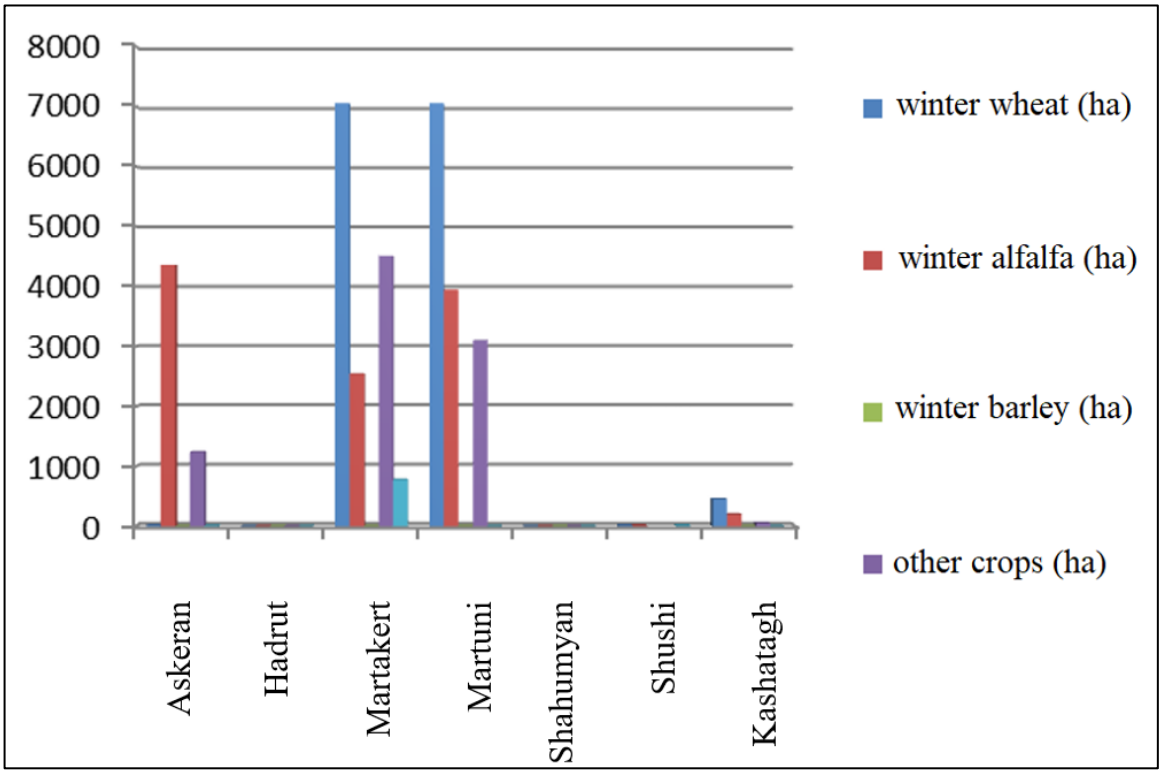

Fig. 3 Crop totals of winter crops in the Republic of Artsakh in 2021

In addition, land users suffered by the hail and drought were exempted from the amount of land tax and rent payments calculated for 2019 in the amount of 136.5 million AMD [2,3].

805, 7 ha winter crops were damaged due to unfavorable climatic and other reasons in 2021 (Fig. 4).

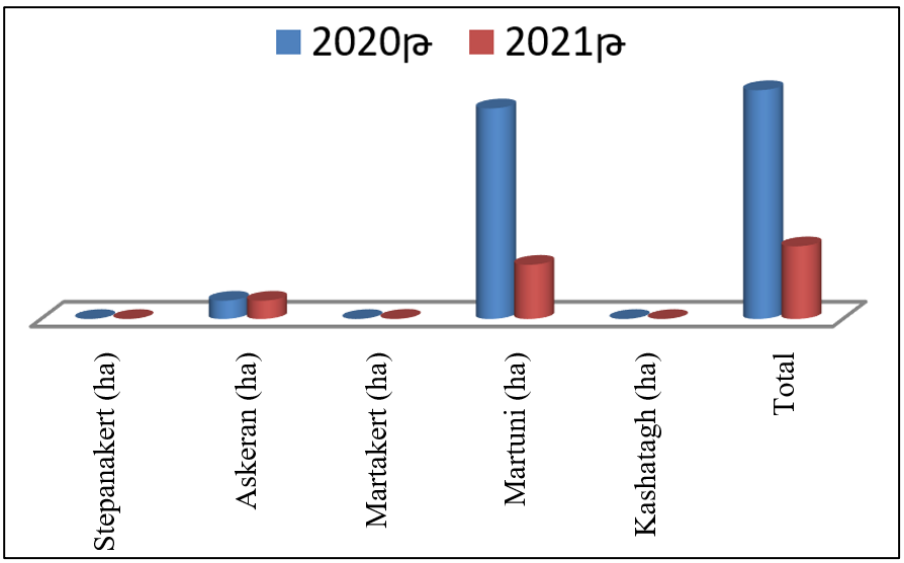

Fig. 4 Completely destroyed winter crops areas by regions in 2021 (ha)

0.71 and 9.41 ha gardens were also affected by unfavorable climatic conditions in 2020 and 2021 [1].

All these state that as a result of natural disasters and hostilities in Artsakh significant damage was done to the agriculture of the republic which the state can not completely regulate. Therefore, there is an objective need to look for other mechanisms effectively used in developed economies to mitigate the losses by farms, to mitigate the risks in the field of agriculture and to assess the possibilities of localizing them (some of them) in Artsakh Republic by presenting appropriate mechanisms. The introduction of insurance system will also have social significance.

There are various classifications of risks typical to rural entities which can be generalized in the following groups:

- Natural climatic risks conditioned by negative impact of nature;
- Sanitary risks;
- Market risks;
- Legislative risks;
- Quantitative and qualitative changes of production factors;
- Human risks.

The study of world experience shows that there are the following risk management methods in agriculture:

- Creating sources of other incomes from trade of non agricultural products by farmers;
- Diversification of agricultural products;
- Formation of additional financial sources;
- Development and implementation of marketing policy;
- Forward pricing or signing option contracts;
- Signing leasing contracts;
- Signing other contracts.

The world practice distinguishes 5 countries with agricultural insurance model in the sphere of insurance system.

Table 1

The estimation of agricultural insurance payments in the insurance market

Country	Insurance money sum, mln USD	Specific weight in total portfolio, percent
The USA	4600,0	63,5
Canada	900,0	12,4
Spain	550,0	7,6
Italy	350,0	4,8
France	300,0	4,1
Germany	200,0	2,8
South Africa	100,0	1,4
Australia	100,0	1,4
China	80,0	1,1
South Korea	60,0	0,8
Total	7240,0	100,0

Tab. 1 shows that the most specific weight falls on the USA: 63.5% or 4600 million in absolute terms among 7240,0 USD in insurance money sum followed by Canada at 12.4% and the lowest by South Korea at 0.8% .

In order to manage production risks, especially recently, many countries of the world allocate an important place to state subsidies for the introduction of agricultural insurance. This system is expanding and developing year by year, there are various application features in different countries at the same time the study of which allows to find the most acceptable options for Artsakh [5, 7, 8].

In the US subsidized agricultural insurance system the main control of the activities of insurers in fact is performed only by the Federal Corporation located under the management agency of risks (RMA). Insurers work at such rates that are developed and clarified by the corporation periodically, not often than once in three years. Average level of subsidiary is 50% of the amount of the insurance payment in the terms of 70% compensation. Depending on the importance and characteristics of agricultural crops of the country's economy some of the subsidy level for crops can fluctuate within 30-60% (depending on the level of compensation (percentage) and from the significance of the agricultural crop). Insurance state subsidy to companies is provided to farmers after paying their insurance payment. The farmer is obliged to pay only his share. As a whole, insurance protection covers over 85 different agricultural crops. Agrarian farmers are offered more than 150 various insurance products of multi-risk and multi-index insurance [5].

The insurance system exists more than 60 years in Canada. The Canadian government takes a large share of insurance costs over agriculture. This is evidenced by that the average level of the subsidy is 60% of the insurance payment. Currently there are 28 national programs of risk management and income protection for agricultural producers in Canada [9].

The Chinese experience of agri-insurance is also interesting. State subsidized agri-insurance is implemented by National Association of Agricultural Insurers (NAAI) in China. Although this program was started in 2003, but the pace of development was quite high and in 2013 the volume of agricultural insurance market reached 5 mln. USD and the payments have become 3.4 million USD which is the second after the US rate [5].

Insurance in agriculture is already available for farmers in Armenia since September 30, 2019. Farmers can insure their lands against weather risks. National Agency of Agricultural Insurers (NAAI) coordinates and supports the agricultural insurance system. NAAI was founded by the Central Bank of RA [10].

The study of international experience in the field of risk management shows that more attention is paid to the prevention or forecasting the risks in developed countries with possible bad consequences and more to the elimination (mitigation) of their consequences in less developed countries [11].

However, not all risks can be covered. Small farmers are struggling with risks that cannot be limited by weather and pests. They face a number of challenges on their way among them: price fluctuations; high production costs; financing costs; lack of market access.

In a number of countries, such as Western Europe, North America, Cyprus and Israel, farmers are offered expensive subsidiary programs. Even under such conditions with providing high subsidies, insurance does not provide comprehensive coverage to most programs [10].

To make insurance coverage available to a large number of farmers and finding different ways to achieve this will make the insurance program more inclusive and more sustainable in parallel with its large-scale expansion [12].

Thus, the average balanced yield of the agricultural crop in the considered period is evaluated and observed deviations from the average balanced yield of individual years are

calculated. The sum of yield indicators with negative deviations is averaged over the observed elements and its absolute magnitude is correlated to the average balanced yield the indicator of which expressed in percentages is the basis is for setting the net insurance rate [4, 12].

It is represented by the following formula:

$$\mathcal{A}p \cdot \mathit{sa}k \cdot = \frac{\sum_{i=1}^{n}\{(y_i - y)\} \le 0}{n \times y} \times 100\%\,,$$

where: $\mathcal{A}p \cdot \mathit{sa}k \cdot$ - is the net insurance premium (%); n - is the number of years; y_i - is the yield index for the i-th year (t/ha); y - is the average yield in the given period (t/ha).

One of the conditions for using this formula is that $y_i - y$ - must be less than 0. The rate calculated by the given formula is the insurance rate which is part of the insurance rate structure and can not express the full risk, therefore fully insurable rate or gross rate is calculated using the approach that net rate will be 90% of the tariff structure. In this case, we calculate the rates in the case of insurance when the total yield is below the average level, but 75% of the expected harvest and 50% of insurance options is considered more acceptable where the insurance payment rate is correspondingly reduced. Insurance rate is applied to the value of the gross product corresponding to average balanced yield [4, 12].

Thus, the studies of international experience of agricultural risk insurance prove that and it needs more necessary attention from the state and state support than other forms and types of insurance under the conditions of which effective development of it takes place. Moreover, in countries where the government does not pay enough attention to agricultural insurance, the development happens slowly and does not have a systemic character.

After the introduction of the insurance system in the agricultural sector the implementation of accounting by insurance companies and the establishment of justified cost prices by economic entities based on existing information is considered important.

In order to successfully implement the process of agricultural insurance in Artsakh, we offer to solve the existing problems guided by the following conditions.

1. To take into account that agricultural insurance is a rather costly measure and it is economically justified in terms of high value-added crop insurance.
2. To take into account that in post-war Artsakh great attention is paid to the development of greenhouse so it is necessary to introduce a mechanism of greenhouse insurance.
3. The establishment of an up-to-date system for forecasting and warning of atmospheric risks will provide farmers with information in a reasonable period of time and will enable them to implement possible control measures.
4. To provide reliable statistical information on the object of insurance for many years. The problem of reliable statistical information of several year term on the object of insurance should be solved through expertise as the reliability of the available statistical data is low.
5. Assess key risks.
6. Choose acceptable structures for determining the initial damage compensation by insurance company.
7. The state is ready to participate in agricultural insurance on a partnership basis (insurer-farmer-state).
8. Legally define the conditions and objects of compulsory agricultural insurance in

special cases. However, most countries in the world prefer voluntary agricultural insurance which should be considered acceptable for our country.

9. The description of effective technologies of cultivating agricultural crops should become part of the insurance contract. That is an important guarantee of obtaining the intended harvest, so the deviation from it for various reasons can create problems in the insurer-producer relationship.
10. It is necessary to carry out pilot projects for introducing insurance system in the field of agriculture which will create an opportunity to specify the mechanisms of the insurance system implementation and will create prerequisites for the full implementation of the insurance system.

Conclusion

From the point of view of economic and social significance, the introduction of the insurance system will contribute to the increase of the efficiency of the activity of the farms and at the same time it will have a positive impact on the improvement of the social condition of the population.

Suggestions:

- To promote the formation of insurance companies in Artsakh in order to operate in rural communities and to expand cooperation, especially in the field of agriculture.
- To establish an up-to-date atmospheric risk forecasting and alarm system.
- To provide reliable statistical information on the object of insurance for many years.
- To perform key risk assessments.
- To choose acceptable structures for setting insurance premiums and compensation for damage.
- To create appropriate commercials, developping information leaflets and to provide them to farmers and to organize seminars in order to promote insurance culture in rural communities.

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Առաքելյան Ա.Ա., Ավետիսյան Ս.Ա., Առաքելյան Շ.Ա.
Շուշիի տեխնոլոգիական համալսարան

Հետպատերազմյան շրջանում Արցախի Հանրապետությունում գյուղատնտեսության ոլորտի ապահովագրությունը կարևոր նախապայման է տվյալ ճյուղի վերականգնման, կայուն զարգացման, ներդրումային դաշտի բարելավման և երկրի պարենային անվտանգության մակարդակի բարձրացման համար:

Նոր իրողությունների պայմաններում Արցախում գյուղատնտեսության ոլորտում ապահովագրական կենսունակ համակարգի ներդրումն ենթակա է լրացուցիչ ռիսկերի ազդեցությունների, որոնց հայտնաբերման ու արդյունավետ կառավարման նպատակով կարևորվում է գիտականորեն հիմնավորված արդիական մեթոդների ու մոտեցումների մշակման ու կիրառման հիմնահարցերի հայտնաբերումը և լուծումը:

Բանալի բառեր. բնական աղետներ, ապահովագրություն, գյուղատնտեսական ռիսկեր, ապահովագրական համակարգեր, ագրոապահովագրություն, պետական սուբսիդավորում, պարենային անվտանգություն:

СУЩЕСТВУЮЩИЕ ПРОБЛЕМЫ И ПУТИ ВНЕДРЕНИЯ СИСТЕМЫ СТРАХОВАНИЯ СЕЛЬСКОХОЗЯЙСТВЕННЫХ РИСКОВ В РЕСПУБЛИКЕ АРЦАХ

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В послевоенный период страхование аграрного сектора Республики Арцах является важной предпосылкой восстановления этой отрасли, устойчивого развития, улучшения инвестиционного поля и повышения уровня продовольственной безопасности страны.

В условиях нынешних новых реалий внедрение жизнеспособной системы страхования в сфере сельского хозяйства в Арцахе подвержено влиянию дополнительных рисков, для выявления и эффективного управления которыми важно выявить и решить проблемы разработки и применения научно обоснованных современных методов и подходов.

Ключевые слова: стихийные бедствия, страхование, сельскохозяйственные риски, системы страхования, агрострахование, государственное субсидирование, продовольственная безопасность.

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