Factors influencing and dynamics of the agricultural insurance market

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Abstract
The article is aimed at identifying modern features of insurance in the agricultural sector of the Ukrainian economy and defining the factors of influence on the agricultural insurance market. The article discloses interpretation of the terms of «insurance» and «agricultural insurance» and also presents the types of possible risks arising in the activities of agricultural enterprises. The performance indicators of leading insurance companies in the field of agricultural insurance are analyzed. The current state and dynamics of insurance of agricultural risks, which arise both in the field of crop production and in livestock, are researched. This will allow predicting the future prospects of the market for insurance services and products, as well as finding possible optimal ways to solve the problems of product insurance, faced by the agricultural producers. The main factors influencing the efficiency of the insurance market in the agricultural insurance sector are allocated. The basic principles of insurance of agricultural products with the State support are analyzed. It is defined that the further development of agricultural insurance should be directed towards creating a profitable and safe environment for all participants in the agricultural market, which provides for the distribution of risks between agricultural producers, processing enterprises, banks, insurance companies and the State. The agricultural insurance of risks creates possibilities for advantageous harmonizing the interests of participants in the agricultural insurance market and the State as a party whose first priority is to ensure stable economic growth.

Keywords: agriculture, insurance, agricultural insurance, types of risks, influence factors.

Introduction
One of the main sectors of the economy in Ukraine is agriculture. The agricultural sector is a source of significant revenues to the country's budget and is an industry that provides jobs to the population. However, this area of production is characterized by a high degree of risk, which is primarily due to the unpredictability of natural conditions and changes in harvest volumes. Agricultural risk insurance makes it possible to profitably combine the interests of participants in the agricultural insurance market and the state as a party whose priority is to ensure stable economic growth, welfare of citizens and their social protection. The purpose of the scientific article is to identify the features of insurance in the agricultural sector and determine the factors influencing the agricultural insurance market.

Material and methods
In the course of the research general scientific methods and techniques were used:

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the method of logical analysis, the method of systemic, theoretical and practical material, methods of comparison, grouping and analogies. The methodological basis of the study is the analysis of existing theoretical views on the definition of agricultural insurance, the method of grouping factors influencing agricultural insurance on various grounds. Studies of certain aspects of the agricultural insurance market were conducted by representatives of various branches of science: V.D. Bazylevych, S.F. Dombrovsky, S.S. Osadets, N.B. Patsuri, O.T. Prokopchuk, A.M. Stativka, N. S. Tanklevskaya, V. Yu. Urkevich, A.S. Sholoyko and others. Analysis of scientific work on the topic of the article allows us to talk about the fundamentals and significance of existing theoretical and practical developments. At the same time, the speed of changes in the agricultural insurance market and its rapid development directly affect the understanding of the importance of insurance in agriculture, require a study of the main factors influencing agricultural insurance.

The concept of "insurance" is ambiguous, because the content of insurance is interpreted from the standpoint of economics, finance, law and so on. At the same time, the current legislation of Ukraine, which regulates insurance relations in the field of agriculture, which is represented by both general and special regulations, does not enshrine the definition of "agricultural insurance". The concept of "agricultural insurance" has not found normative enshrinement in either general or special legislation of Ukraine.

The essence of insurance is to transfer most (value) of the risk to another party for an agreed fee for a certain time and under certain conditions. As noted by Yu.V. Aleskerova, the main purpose of agricultural risk insurance is to compensate for property damage to crops caused by the influence of natural and climatic phenomena (Aleskerova Yu.V., 2014), although, in our opinion, the problem of agricultural risks and their insurance is broader. At the same time, O.M. Lobova believes that agricultural insurance is a system of economic relations between specific economic entities, where, on the one hand, there are insurers - financial institutions, and on the other - insurers - agricultural enterprises, tenants, peasant (farmer) farms, which for a fee transfer their risks of property, financial losses in agricultural activities in order to obtain compensation for the insured event (Lobova O.M., 2011). In turn, M.K. Bondarchuk and I. Yu. Kondrat interpret agricultural insurance as a set of voluntary economic relations for insurance protection of property interests of agricultural producers, related to the possession, use and disposal of their property, as well as compensation for losses caused by third parties. a person or his property, as well as damage caused to a legal entity at the expense of funds formed by the insurer through the payment of insurance payments by the insured independently or with government subsidies (Bondarchuk M.K., Kondrat I.Y., 2014).

Thus, summarizing the definitions of the term, we can determine that agricultural insurance is a special type of economic activity, in the process of which an insurance fund is created, from which, in case of an insured event provided by law or contract, payments are made to policyholders (Tanklevskaya, N., Yarmolenko, V., 2017).

The study used general scientific methods and techniques: the method of logical analysis, the method of systemic, theoretical and practical material, methods of comparison, grouping and analogies.

**Results and discussion**

Relations in the field of insurance of agricultural products with state support are regulated by the Constitution of Ukraine, the Civil Code of Ukraine, the Law of Ukraine "On Insurance", the Law on the State Budget of Ukraine for the year, this and other laws of Ukraine and regulations adopted in accordance with them.

The main principles of insurance of agricultural products with state support are:
- maintaining the stability of the financial situation and creditworthiness of agricultural producers in the event of death (destruction, loss), damage to insured property due to adverse climatic conditions or other adverse events specified in standard insurance contracts;
- the obligation to conclude an agreement on insurance of agricultural products with state support as a condition for providing agricultural producers with certain types of state support and subsidies specified by the Cabinet of Ministers of Ukraine;
- equal access to state support for agricultural producers, regardless of their organizational and legal form;
- ensuring compensation for damage caused to policyholders as a result of insured events, in the amount, manner and under the conditions established by this Law;
- fulfillment of Ukraine’s obligations in the field of international trade.

The whole set of risks that arise in agriculture can be divided into five groups, which are presented in Table 1.

Table 1. Main types of risks in the activities of agroindustrial enterprises *

| Types of risk       | Forms of influence                                                                 | Negative impact                                                                 |
|---------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Natural            | Natural-erosive processes                                                          | Lack of agricultural products due to adverse weather conditions                 |
| Technogenic        | Physical and chemical pollution of soils, the use of mineral fertilizers and pesticides is not in accordance with norms, soil contamination with pesticides, fuel and lubricants, waterlogging and wind saltiness of land and increase production of energy inputs | Deterioration of soil quality and reduced yields of environmentally friendly products |
| Anthropogenic      | Water and wind erosion, deterioration of soil structure, mechanical damage and soil compaction, constant impoverishment of humus and nutrients | Soil degradation, loss of soil cover, reduction of nutrients in the soil and disturbance of natural balance. |
| Radiation          | Ionizing radiation of radiation materials in the environment                       | the distribution of radioactive materials to agricultural products, which leads to a decrease in its quality or makes it unsuitable for use |
| Ecological and economic | Use of ecologically dangerous technologies in the process of production of agricultural products | Reducing the quality and competitiveness of agricultural products |

* According to (Tanklevskaya, N., Yarmolenko, V., 2017)

Agricultural insurance has been developed worldwide as a key risk management tool to reduce the negative effects of weather and natural risks. The advantages of agricultural insurance are that it:
- directs aid to agricultural producers more effectively than alternative types of state support such as direct payments in the event of catastrophic events;
- with proper execution of the contractual basis does not contradict the criteria of international trade agreements in terms of state support;
- promotes the confidence of creditors, which allows farms to attract more credit resources and on more favorable terms [Information and analytical portal of the Ukrainian Financial Development Agency "Financial Ukraine"].
According to the National Commission for State Regulation of Financial Services Markets, as of 2019, 65 insurance companies were licensed to introduce insurance activities in the form of voluntary insurance of agricultural products, among which 18 insurers have been most active in recent years. For the agro-industrial complex of Ukraine, this is a small number of service providers. Indicators of insurance for this period are given in Table 2.

Table 2. Consolidated insurance data by insurance companies, 2017 *

| Company      | Number of contracts | Insured area, ha | Sum insured, UAH | Amount of premiums, UAH | Average premium rate, % | Payments, UAH |
|--------------|---------------------|------------------|------------------|------------------------|-------------------------|---------------|
| AKHA         | 82                  | 49705            | 269939806        | 6518798               | 2.4                     | 278056        |
| AskA         | 108                 | 127559           | 551139192        | 17497926              | 3.2                     | 1512775       |
| Asko DS      | 1                   | 72               | 289224           | 13015                 | 4.5                     | 37760         |
| Brokbiznes   | 30                  | 19281            | 383315791        | 5705248               | 1.5                     | 3071547       |
| Hardian      | 25                  | 10199            | 88587217         | 4093767               | 4.6                     | 171500        |
| Zdorovo      | 5                   | 3707             | 25725027         | 824562                | 3.2                     | 584111        |
| Inho Ukrayina| 137                 | 147893           | 602567349        | 17554086              | 2.9                     | 1857209       |
| Krayina      | 84                  | 39613            | 337395892        | 14353506              | 4.3                     | 171500        |
| Oranta-sich  | 1                   | 203              | 2740850          | 19186                 | 0.7                     | 0             |
| PZU          | 306                 | 118745           | 879962338        | 1597408               | 1.8                     | 115585        |
| TAS          | 5                   | 2107             | 8976765          | 369556                | 4.1                     | 0             |
| UASK         | 21                  | 6502             | 200279764        | 12006526              | 6.0                     | 0             |
| Universal’na | 152                 | 131557           | 2562446940       | 109516655             | 4.3                     | 0             |
| Total        | 957                 | 657144           | 5913366125       | 204446870             | 3.5                     | 7628542       |

* According to (Proekt «Rozvytok finansuvannia ahrarnoho sektoru v Yevropi ta Tsentralni Azii», Mizhnarodna finansova korporatsiia (IFC, Hrupa Svitovoho banku), u spivpratsi z Ministerstvom ahrarnoi polityky ta prodovolstva Ukrainy)

Data from 2019 show that the level of payments differs significantly from domestic insurers, although the average gives a value of almost 46% (Table 3). This is an important indicator because there is a lack of confidence in agricultural insurance due to the low value of insurance payments. Note that in developed countries, the level of payments under insurance contracts is usually more than 50-60%. Among the Ukrainian leaders in terms of payments, only four insurance companies can be identified: ASKA (623.65%), Brokbiznes (186.18%), PZU Ukraine (48.21%), Providna (37.86%). These insurers have the best chance for the rapid development of agricultural insurance, because it is based on trust. Other insurers do not fall into the category of reliable companies from the point of view of potential payments. As you can see, 4 out of 58 companies (licensed for agricultural insurance) are a fairly small share for the effective development of agricultural insurance.

The agricultural insurance market in Ukraine began to develop actively in the early 2000s. In the following years, Ukraine twice tried to introduce a system of state support, which directly affected the increase in the performance of the agricultural insurance market. Analyzing the development trends of the agricultural risk insurance market in the period from 2010 to 2018, we can conclude that 2016 was the first year of recovery after a long stagnation. In 2017, the dynamics of growth spread to a larger number of indicators. In 2018, the trend of increasing numbers continues concluded insurance contracts: growth, compared to last year, amounted to 26% (Tanklevska, N., Yarmolenko, V., 2018).
Table 3. Dynamics of insurance of agricultural crops in 2010-2018 *

| Indexes                        | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | Growth rate, % |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Number of concluded contracts | 1217  | 2710  | 1936  | 1722  | 1392  | 1062  | 793   | 957   | 1207  | -0.82%         |
| Insured area, thousand hectares | 553   | 786   | 727   | 869   | 732   | 689   | 700   | 657   | 974   | 76.13%         |
| Number of bonuses, mln UAH    | 72,1  | 136,3 | 130,4 | 135,4 | 73    | 78    | 157   | 204   | 208,8 | 189.6%         |
| Average rate of bonuses, %    | 3.84  | 3.74  | 3.77  | 3.1   | 2.4   | 2.0   | 2.5   | 3.5   | 3.1   | -19.27%        |
| Payout level, %               | 50.94 | 28    | 41    | 9.7   | 7.6   | 12.9  | 44.2  | 4.9   | 4.2   | -91.75%        |

* According to (Projekt «Rozvytok finansuvannia ahrarnoho sektoru v Yevropi ta Tsentralnii Azii», Mizhnarodna finansova korporatsiia (IFC, Hrupa Svitovoho banku), u spivpratsi z Ministerstvom ahrarnoi polityky ta prodovolstva Ukrainy)

Thus, compared to 2016, the number of concluded contracts increased by 414 contracts, which is 52%. In 2018, 1,207 contracts were concluded, including 661 for the winter and 546 for the spring and summer. The volume of collected insurance premiums in hryvnia is growing for the third year in a row, in particular, in 2017 it increased by 30% and amounted to UAH 204.4 million, in 2018 - 2.3% and amounted to UAH 208.8 million. Also in 2017, the volume of insurance premiums in dollar terms increased, but in 2018 this figure decreased slightly (USD 7.4 million, which is 3.9% less than in 2017) due to the devaluation of the hryvnia.

Fig. 1. Dynamics of change in the number of concluded agreements

The average insurance premium rate for 2018 was 3.1%, in particular, 3.6% for the winter period and 3.0% for the spring-summer period. The total sum insured in 2016 exceeded the figure in 2017 by UAH 327 billion. The total sum insured under insurance contracts for crops and perennials in 2018 amounted to UAH 6.675 billion, which is 12.5% more than last year. (Projekt «Rozvytok finansuvannia ahrarnoho sektoru v Yevropi ta Tsentralnii Azii», Mizhnarodna finansova korporatsiia (IFC, Hrupa Svitovoho banku), u spivpratsi z Ministerstvom ahrarnoi polityky ta prodovolstva Ukrainy).

A significant part of agricultural insurance is animal insurance. In 2018, 5,997 contracts were concluded for animal insurance (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. Insurance indemnities were made only under cattle insurance contracts. The average insurance premium rate under the concluded agreements almost did not change compared to last year and amounted to 0.8%. Insurance payments were made in the amount of UAH 419,780 under cattle insurance contracts (Table 4).
The average rate of insurance premiums under concluded contracts was 0.8%. The low rate of insurance premiums under animal insurance contracts indicates that these contracts do not cover the main risks of livestock production. Probably, under the concluded agreements, the animals were used as collateral for a loan (Martsenyuk-Rozarono, O. V., Chornopischuk, O. M., Yakubovska, Ya. R., 2018).

In the 2018 underwriting year, there was a sharp increase in the number of prisoners animal insurance contracts, from 23 in 2017 to 5997 contracts in the reporting year. The reason for this growth was the conclusion of contracts with individuals’ persons (99.8% of all contracts). The overall level of payments in 2018 was 4.2% (UAH 419.8 thousand).

Experts predict the growth of the agricultural insurance market in 2019 and 2020. This is due to the increased risks associated with weather conditions. Previously insured mainly in the winter from frost damage, and today there is a threat of spring frosts. Meteorologists predict tighter management conditions for farmers, so the need for protection in insurance is growing. However, there are problems that hamper agricultural insurance. One of the main reasons is the mutual distrust of agricultural producers and financial companies engaged in agricultural risk insurance.

The above analysis gives grounds to form a list of the main factors influencing the formation and development of agricultural insurance. The key factors include:

1) factors directly related to the activities of agricultural enterprises (volume of output, level of profitability of products, the share of insured area under crops, livestock, poultry);

2) factors related to insurance companies (insurance premiums, number of active agricultural insurers, number of agricultural insurance contracts, level of payments, average tariff rate, deductible size).

3) natural and climatic factors of influence (floods, droughts, frosts, hail, dust storms, earthquakes, landslides, fires, etc.) (Fig. 2).

In order to effectively develop agricultural insurance in Ukraine in June 2014 under the leadership of the ASA was developed and discussed the Concept of development of the insurance system of agricultural products in Ukraine. In the process of implementing this Concept, consolidating efforts and balancing the interests of farmers and insurers, the state must ensure the formation of the necessary institutional structure and establish the optimal distribution of functions between state regulation and self-regulation, which will contribute to the optimal transformation of existing realities. taking into account the best positive international experience [About approval of the Concept of development of system of insurance of agricultural products in Ukraine (Proekt rozporyadzhennya / Kabinet ministriv Ukrainy).]

Table 4. Consolidated Animal Insurance Data, 2018 *

| Kind of animals | Number of contracts | Insurance amount, UAH | Amount of bonuses, UAH | Average bonus rate, % |
|-----------------|---------------------|-----------------------|------------------------|----------------------|
| Pigs            | 2                   | 197 515 137           | 578 937                | 2,0                  |
| Cattle          | 5994                | 85 550 913           | 1 715 507              | 0,3                  |
| Poultry         | 1                   | 45 988 800           | 239 142                | 0,5                  |
| **Total**       | **5997**            | **329 054 850**      | **2 533 586**          | **0,8**              |

* Source: Analytical Study "Ukrainian Agribusiness Market in 2018 Underwriting Year"

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Fig. 2. Factors influencing the functioning of the agricultural insurance market *

* Grouped by author according to (Lobova O.M., 2011, Dema D.I., Vilenchuk O.M., Demyanyuk I.V., 2017)
Insurance protection of agricultural production is the best way to ensure continuity, balance and stability of the agricultural market. Given the rapid growth of the economic role of market relations, the issues of ensuring the financial stability of the business entity are very important. Interest in insurance is caused primarily by the fact that in conditions of limited working capital of enterprises and entrepreneurs are looking for ways to expand opportunities to solve financial problems (Aleskerova Yu.V., 2013).

Conclusions

Thus, given that agriculture is high risk, the issue of using agricultural insurance as a method of reducing future loss of benefits is relevant and timely. For agricultural enterprises, insurance should become an effective financial and economic tool to protect the property interests of peasants during the production and processing of agricultural products. Further development of agricultural insurance should be aimed at creating favorable and safe conditions for doing business by all participants in the agricultural market, which involves the distribution of risks between farmers, processors, banks, insurance companies and the state.

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