*Agronomy Research* **20**(2), 357–370, 2022
https://doi.org/10.15159/AR.22.019

# Indemnities to Russian farmers for losses due to extreme weather event losses: the challenges and opportunities

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Received: February 15th, 022; Accepted: April 19th, 2022; Published: April 25th, 2022

**Abstract.** The paper aims to examine indemnity payments to Russian farmers for weather-related loss. Indemnity payments can be made as crop insurance payments or direct payments from budget. The manuscript presents the official data on damage caused by extreme weather and the amount of insurance payments and direct payments to farmers for the years 2005–2021. To process the results of our research, we performed correlation and regression analysis using STATISTICA package. We presented the results of the research in tabular and graphical forms. The research revealed that the average proportion of insurance payments for crop losses in indemnity payments to farmers is 22.1%, and direct payments from budgets of various levels amount to 25.7%. Indicatively, 52.2% of damage remains uncompensated. According to findings, RUB 1 billion in premium subsidies raises insured area by 0.14% under a steady trend, while other factors result in reduction by 1.1%. The paper reviews the barriers that hinder the development of subsidized crop insurance. We propose a series of measures that can promptly improve the current situation, such as the stabilization of the legal framework, a tighter control over insurance rates and the need for authorities to stem corruption. We also note that in setting insurance rates, it is important to consider the farming techniques, selective breeding potential, and adoption of index insurance.

**Key words:** budget, crop cultivation, crop insurance, indemnity, loss, risk.

## INTRODUCTION

Despite all the achievements of modern science and technology, agricultural production in Russia still implies a high risk caused by climatic and biological factors that have a negative impact on yields, which reflects in the low economic performance of farms and the whole agri-food system.

According to the Hydrometeorology and Environmental Monitoring Agency, over the last century, the temperature has increased by about 0.8 °C (Hydrometeorology, 2021). The temperature increase in Russia was 1.5 times higher than the global temperature over the same period and led to a 20% decrease in precipitation. By the end of the 21st century, the global temperature may rise by an additional 1.4 to 5.8 °C (Intergovernmental Panel on Climate Change (IPCC), 2001).

Climate change has contributed to droughts, which have negative effects on agricultural production. Drought is not the only natural hazard linked to global climate change. The increase in average annual temperatures may also lead to a spread of pests and pathogens, as they would not be killed by cold temperatures. However, climate change has led to a decline in insect populations; this process is taking place all over the world (Kingsolver et al., 2011; Boggs, 2016; Kellermann & van Heerwaarden, 2019; Wagner, 2020). Many insects are pollinators of crops and perennial plants and, therefore, are critical for crop production.

A decrease in precipitation along with a 1 °C increase in the annual average temperature creates conditions that dramatically elevate the risk and severity of fires.

On the other hand, some territories of the Russian Federation experience more rainfall, which causes freshets and floods, changes in atmospheric circulation and therefore hurricanes and storms.

Flooding affects agricultural lands, causing waterlogging that results in low yields. A lack of hydraulic structures compounds the problem - their number is just two-thirds of the required number, and the wear rate of three-quarters of these structures is over 80%.

According to Muenchener Rueckversicherungs-Gesellschaft AG, in 2021, global economic losses from natural disasters reached $280 billion, which is $210 billion and 33% more than that of the previous year and 67% more than in 2019 (Sims & Hübner, 2022).

In July 2021, Germany, the UK, the Netherlands, Belgium and Luxemburg saw much above average precipitation, with devastating floods affecting agricultural lands and pastures, gardens and vineyards. The flood destroyed grain storage, caused a loss of livestock and damaged the agricultural infrastructure. In Germany alone, the damage amounted to more than EUR 9.3 billion. The natural anomaly aggravated the crisis caused by the pandemic.

Climate change has already affected crop yields in some countries, and these effects are expected to continue (Mourtzinis et al., 2019).

The agricultural production practice has developed a whole range of measures that can mitigate or prevent environmental negative output impact: crop diversification, selection, technology, irrigation, etc. (Nosov, 2019). However, these instruments cannot always be used effectively to protect farmers against loss of revenue successfully.

Crop insurance has a long history (Hardaker et al., 2004) and is a crucially important source of farmers' financial protection: farmers use crop insurance payments to recover from adverse events covered by the insurance policy (Goodwin, 2001).

In 1922, the U.S. Senate laid the foundation of the crop insurance system. In 1938, the Federal Crop Insurance Corporation (FCIC) was established within the U.S. Department of Agriculture, and the next year, the first crop insurance program was introduced (Kramer, 1983).

Many researches by Barnett (2000), Glauber (2004), Miranda & Glauber (1997) provide the information that in U.S. crop insurance with premium subsidies has been practiced since the adoption of the Federal Crop Insurance Act in 1980 (P.L. 96–365), with further amendments and completions, which resulted in the drafting of the Federal Crop Insurance Reform Act of 1994 (P.L. 103–354), and the Agricultural Risk Protection Act (ARPA) of 2000 (P.L. 106–224).

Glauber et al. (2002) state that the principal form of crop loss assistance in the United States has been provided through the Federal Crop Insurance Program.

The Agricultural Act of 2014 (P.L. 113–79) solidified insurance as the cornerstone of U.S. agricultural policy. According to Ker et al. (2016), the Congressional Budget Office (2014) estimates that this act will increase spending on agricultural insurance programs by $5.7 billion to $89.8 billion over the next decade. On December 20, 2018, the 2018 Farm Bill (P.L. 115–334) was signed into law, that affected the development of agricultural insurance to 2023, the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs and the Noninsured Crop Disaster Assistance Program (NAP). The average cost of the program is projected to be nearly $8 billion per year for FY2021-FY2025 and to remain at around that level in FY2026-FY2030 (Rosch, 2021).

The Common Agricultural Policy (CAP) of the European Union describes insurance as an important risk management tool in agriculture.

The main feature of the modern agricultural insurance system is the availability of a wide range of insurance plans (Fig. 1).

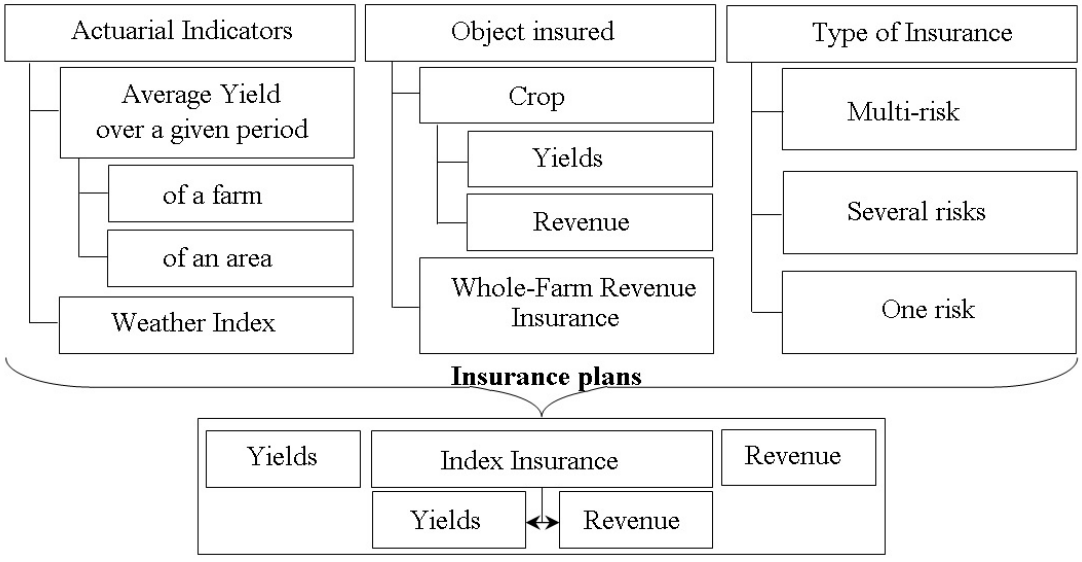


**Figure 1.** Insurance plans[1].

[1]Created by authors.

Actuarial practices that are used to calculate insurance rates and insurance payments are based on average crop yields, weather index and average zonal yield.

A further distinction of insurance programs is the subject matter of insurance, therefore, there are yield protection, crop revenue protection, and household revenue protection policies.

There are three major types of crop insurance:

- Multi-peril crop insurance that covers crop losses caused by various natural events (drought, hail, fire, flooding);
- Several-peril crop insurance;
- Single-peril crop insurance.

It is important to note that the crop insurance system differs across countries in several ways: available policies, the role of the government (subsidies), and the voluntary or compulsory basis of insurance. For instance, in some European Union countries, insurance only covers one risk of low yields (hail, frost). The most common agriculture insurance policy in Spain, Italy and France is the multi-risk damage. Unlike most European countries, in Germany, there is no developed agricultural insurance program. In Greece and Cyprus, insurance is public and mandatory. We would like to point out that without adequate government subsidies, crop insurance would not be an effective instrument of farmers' protection (Miranda & Glauber, 1997).

Premium subsidies enable agricultural producers to participate in agricultural insurance programs, reduce the financial burden of insurance policy and support farmers' income. The state-supported system of agricultural insurance enables social interconnection and stability of rural areas (Hardaker, 1999; Vávrová, 2005; Chen & Liang, 2021).

Thus, insurance is essential for the sustainable development of agriculture in the context of climate change, as it makes the agricultural sector more attractive to investors and prevents the outflow of resources in the long term. Agricultural insurance is a reaction of business to serious production risk.

According to the Agreement on Agriculture, another instrument of farmers' protection is direct payments made to agricultural producers for relief from natural disasters (Agreement on Agriculture, 1995).

In Russia, insurance payments and direct payments are made to agricultural producers in the event of extreme weather events and natural disasters. However, state supported agricultural insurance that should serve as the main farmers' protection instrument is not effective as it has many flaws. It was therefore necessary to conduct this study. This research aims to examine the practice of indemnification of Russian farmers for losses due to extreme weather events in the form of direct payments from budget or insurance payments, and to identify the key issues and propose possible solutions.

## MATERIALS AND METHODS

The official data on damage caused by extreme weather and the amount of insurance payments and direct payments to farmers for 2005–2021 is available on the websites of the Ministry of Agriculture of the Russian Federation and the Federal Agency for State Support of the Agro-Industrial Complex.

Since this is time series data, there is a possibility that a trend can create spurious correlation between indicators that can result in wrong statistical inference (Davidson & MacKinnon, 1993). When there is a trend, there is an autocorrelation of time series levels that can be measured using the linear correlation coefficient (1).

$$r_1 = \frac{\sum_{t=2}^{n}(y_t - \bar{y}_1)\cdot(y_{t-1} - \bar{y}_2)}{\sqrt{\sum_{t=2}^{n}(y_t - \bar{y}_1)^2 \cdot \sum_{t=2}^{n}(y_{t-1} - \bar{y}_2)^2}} \quad (1)$$

In building the regression equation, to remove linear trend from two time series, we propose to include time as an independent variable (2).

$$y_t = a + bx + ct + \varepsilon_t \quad (2)$$

Autocorrelation coefficients and regression parameters were calculated using the STATISTICA package.

The results of the research are presented in tabular and graphical forms.

## RESULTS AND DISCUSSION

During the research period, Russian agriculture suffered a loss of about RUB 193.97 billion or $5.71 billion caused by extreme weather. Fig. 2 presents the annual loss in agriculture from extreme weather events that amounts to RUB 11.4 billion or $0.3 billion on average.

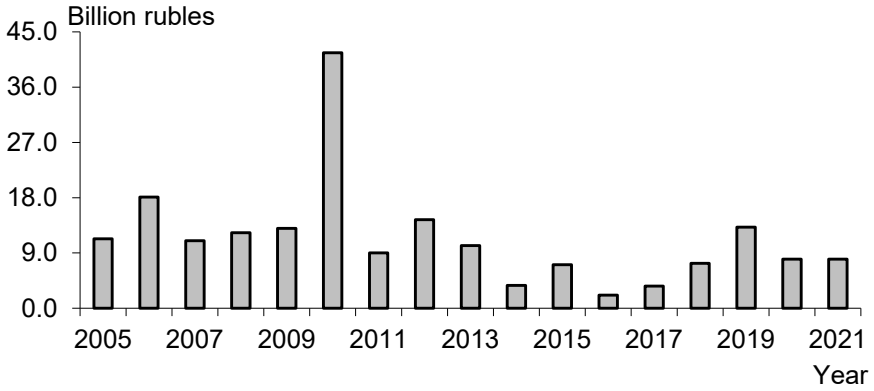


**Figure 2.** Agricultural losses from natural disasters[1].

[1]Created by authors.

As mentioned above, in Russia, farmers can either enter into an insurance contract and get loss payments or get direct payments from budgets of all levels. Fig. 3 presents the structure of indemnities paid to farmers.

In the reporting period, the proportion of loss compensation to farmers is 22.1%, and the proportion of direct payments is 25.7%. Thus, 52.2% of farmers' losses (which is about RUB 97.03 billion or $3.0 billion in absolute terms) were never compensated. Annually, agricultural producers were losing about RUB 6.1 billion or $0.2 billion.

In 2018, the Russian government made a change to the legislation which affected entitlement to direct payments from budgets of various levels. According to this change, only those farmers who have not bought an insurance policy against crop failure could get compensation for only 50% of documented actual damage. In 2020, only agricultural producers who purchased state-supported crop insurance for crop failure could get compensation for financial losses from shortfall. In 2021, direct payments were not provided at all.

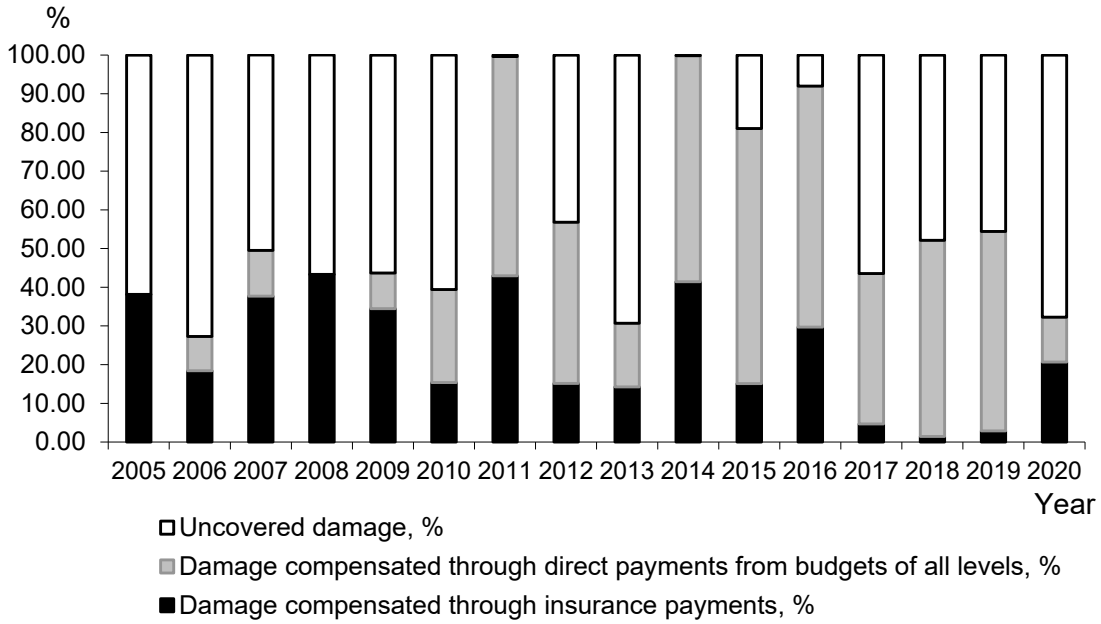


**Figure 3.** Structure of indemnities paid to farmers[1].
[1]Created by authors.

The Government expected that refusal to compensate farmers with direct payments from the federal budget with the requirement of an insurance policy to qualify for a subsidy in farming would stimulate farmers to insure plantings. Concurrently, the state would partially bear the costs of premiums. Despite adopted decrees, concepts and programs, insurance is unpopular among farmers. Therefore, the proportion of insured crop area is quite small - only 6.3% in 2021 (Fig. 4).

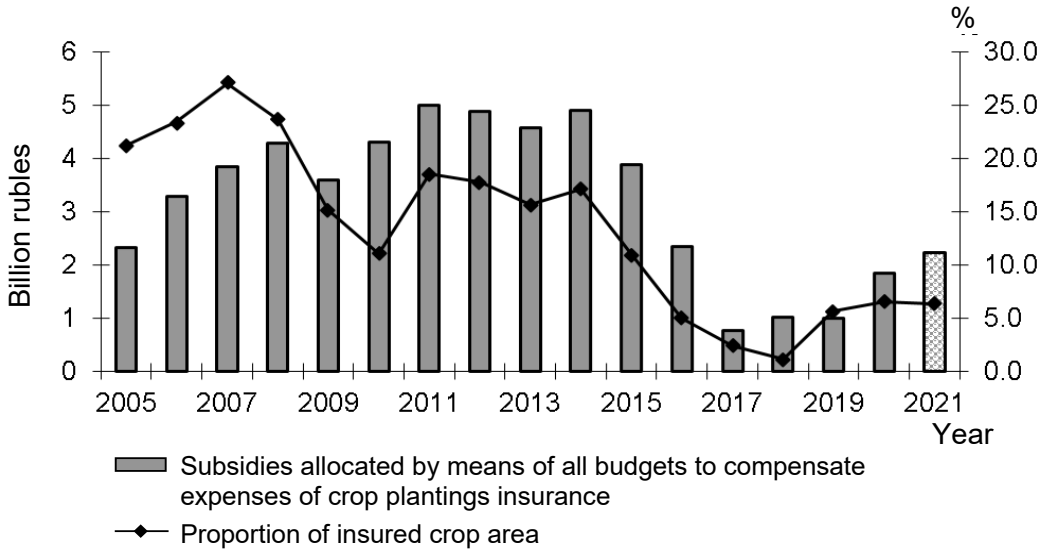


**Figure 4.** Proportion of insured crop area and subsidized crop insurance[1].
[1]Created by authors.

In absolute terms, this proportion is estimated to be 4.9 million hectares, which is less than in the previous year.

According to the Ministry of Agriculture, National Crop Insurers Alliance and several agricultural scientists (Inshakova et al., 2018; Namirova et al., 2021), a downward trend in the proportion of insured crop area is determined by the low insurance culture of agricultural producers, the global financial crises of 2008 and 2014, the EU and US sanctions against Russia and the recession of the national economy that had a negative effect on the subsidized crop insurance.

The above statement is superficial and does not describe the issues properly. Therefore, we shall assess the effect of subsidies from budget on the amount of insured crops. According to Formula 1, coefficients of autocorrelation, between subsequent levels of time series of allocated subsidies $x_t$ and $x_{t-1}$, and amount of insured crop $y_t$ and $y_{t-1}$, for the period from 2005 to 2021 are $r_x^1 = 0.831$ and $r_y^1 = 0.809$, respectively, which shows a close relationship between every next and previous level and, therefore, a linear trend in series. To remove the trend and spurious correlation caused by it from each time series, we introduce time as an independent variable to the regression model (Formula 2; Table 1).

**Table 1.** Parameters of regression equation*

| Regression equation coefficient | Coefficient value | Standard deviation of regression coefficient | *t*-test | *p*-value |
|---|---|---|---|---|
| a | 17.66 | 3.613 | 4.888 | 0.0002 |
| b | 0.14 | 0.052 | 2.607 | 0.0207 |
| c | -1.1 | 0.204 | -5.394 | 0.0001 |

Note: $R^2 = 0.835$; F(2.14) = 35.512; $p = 0.0000$; dw = 1.73; *Calculated by authors using the STATISTICA package.

The *b* parameter shows that allocation of subsidies of RUB 1 billion from budgets of various levels for partial compensations of premiums to agricultural producers leads to a quite insignificant 0.14% increase in the proportion of insured crop area in the existence of a steady trend. To reach the target of 11.3% set for the agriculture development program by 2025, RUB 11.65 billion or $0.15 billion in subsidies should be provided by budgets of various levels. In view of existing conditions, the Government cannot afford the amount of funding needed.

The *c* parameter shows that the impact of all factors on the indicator except for the amount of subsidies results in a 1.1% decrease in the proportion of insured crop area.

One of the main reasons behind the current situation in agriculture is the low level of indemnity payments. The reasons for such a low level of indemnity payments were described by Nosov et al., 2014; Nosov, 2019. This includes shady schemes when insurance companies and farmers, with help from executive bodies, agree on indemnities in specific proportions of the premium if farmers insure their future harvest. Moreover, many entities of the Russian Federation do not monitor the reliability of information in insurance contracts. At the same time, negligence appears on the part of the authorized executive bodies of the constituent entities of the Russian Federation, which is manifested in the absence of acts of verification of the concluded insurance contracts between the insurer and the insured.

As a result, we can see budget overrun, insured farming area reduction, and insurers keeping budget money.

Overstating the insurance value in insurance contracts is evidence of a corruption component of these contracts. The higher the insurance value, the greater will be the amount of insurance premiums paid by the insured, and the greater will be the budget expenditures. Naturally, insurers, insurants and local bodies will not strive for an adequate and objective assessment of the insurance value of the crop.

According to paragraph 1 of Article 951 of the Civil Code of the Russian Federation: 'if the insured amount specified in the property insurance contract or entrepreneurial risk exceeds the insured value, the contract is insignificant in that portion of the insured amount that exceeds the insured value. The excess insurance premium paid in this case is not returnable'.

That is, if the insurance value is inflated, and insurance premiums are determined, according to this value, they will also be overstated, and the budget will incur unnecessary expenses. In this case, the insurance company will not pay the amount claimed in the contract, and insurance compensation, in any case, will be paid, starting from the market value of the property, moreover, overpaid insurance premiums will not be returned.

Embezzlement of funds allocated to subsidize the insurance on an especially large scale took place in Moscow, Saratov, Bryansk, Nizhny Novgorod regions, in the Republic of Bashkortostan. This list can be continued further. It is important to note that these subjects of the Russian Federation make up a part of the second cluster. The participants of criminal groups accused of crimes under part 4 of Article 174.1, part 4 of Article 159, part 4 of Article 158, parts 1, 2, 3 of Article 210 of the Criminal Code of the Russian Federation, issued documents on behalf of agricultural producers and provided them to the executive authorities in order to create fictitious grounds for the subsequent transfer of subsidies, and also concluded fictitious crop insurance contracts.

At the same time, those farmers who do not participate in shade schemes face rejection from insurance companies to pay indemnities. In such case, insurance companies are taking advantage of economic, financial and legal incompetency of farmers in performance of contract. Another reason for rejection of indemnities appeared on January 1st, 2012, after the enactment of Law No. 260: excess and deductibles provided as clauses in an insurance policy. This reason accounted for 33% of rejections. The higher the deductible franchise is, the lower the insurance rate is. Those agricultural producers who choose low insurance rates when concluding the insurance policy, can sometimes not obtain insurance compensation as it will be equal to zero, even in case of reduction in yields by 50% given certain conditions of insurance.

According to data presented in Table 2, the state directed a large amount of subsidies to insurance premiums instead of direct payments. However, direct payments proved to be much more efficient than insurance payments.

In the 2012–2017 period, the sum of insurance premiums amounted to RUB 48.5 billion, including RUB 21.3 billion paid from public funds. The sum of indemnities was RUB 7.1 billion.

RUB 17.7 billion were allocated from the federal budget for direct disaster relief payments, 20% less than that for insurance subsidies, while farmers got 2.5 times the sum of indemnities. Over the 2018–2020 period, the sum of insurance premiums amounted to RUB 7.6 billion, including RUB 3.8 billion paid from public funds. The sum of indemnities was RUB 2.1 billion. This time, the allocation for direct disaster

relief payments was 3 times the amount of insurance subsidies, and farmers got 5.4 times the sum of indemnities.

**Table 2.** Parameters of regression equation*

| Indicator | 2012–2017 | 2018–2020 |
|---|---|---|
| Sum of insurance premiums, RUB billion (USD billion) | 48.5 (1.2) | 7.6 (0.11) |
| incl. from public funds (USD billion) | 21.3 (0.52) | 3.8 (0.055) |
| Sum of indemnities, RUB billion (USD billion) | 7.1 (0.18) | 2.1 (0.03) |
| Direct reimbursement, RUB billion (USD billion) | 17.7 (0.44) | 11.4 (0.17) |
| Indemnity to premium ratio, % | 14.5 | 27.6 |
| Direct reimbursement to insurance premium compensation paid from public funds ratio, times | 0.8 | 3.0 |
| Direct reimbursement to the sum of indemnities ratio, times | 2.5 | 5.4 |

*Calculated by authors.

The Ministry of Agriculture has proven to be incompetent in introducing regulations on agriculture. In 2007, a State Program for Development of Agriculture and Regulation of the Agricultural Commodity Markets in 2008–2013 was established, which determined that federal funding would be available only if not less than 10% of premium expenses will be allocated from provincial budget. Later on, a Decree No. 1091 of December 31st, 2008 was issued on limitations on taking out insurance policies, that were further invalidated by the decision of the Russian Supreme Court No. GKPI 09-819 of September 1st, 2009. At the same time, the Ministry of Agriculture was distributing subsidies among the subjects of the Russian Federation in accordance with the above-mentioned Decree: proportionally to the sum of paid premiums and within the limits of budgetary commitments and funding for these needs. Thus, the state suggests that farmers shall pay a 100% premium and reserves the right to reduce its involvement in compensation, which is exactly what had happened.

In 2010, the government raised insurance premiums by 30% to 10%, which was not actuarially sound.

In 2012, the above-mentioned Law No. 260 was enacted, which, according to the Government and agricultural scientists, was supposed to modernize the system of agricultural insurance with state support. Nowadays, we can observe the changes this modernization has led to.

Secondary legislation regarding crop insurance changes every year. Most changes are lobbied by the National Crop Insurers Alliance but never registered. Meanwhile, every year the Ministry of Agriculture develops a crop insurance plan for the year with a three-month delay, which results in subjects and farmers not being able to plan their expenses for insurance and not contributing to an increase in insured area.

In 2017, budget expenditures on crop insurance were included in the unified subsidy and were supposed to be RUB 2 billion or $0.03 billion. In fact, only RUB 0.7 billion or $1 million were allocated.

This situation can be explained by regional government bodies in agriculture having the right to decide on the allocation of subsidies between the farmers and to redistribute them to areas of support inside the subsidy using the priority coefficients. The priority of crop insurance in most subjects equaled to zero because of the failure of the protection mechanism. Before, regional government bodies did not have such rights.

The Ministry of Agriculture admitted the problem with integrating subsidies for insurance premiums into the unified subsidy. From 2020, support to agricultural producers was reformed; the unified subsidy was replaced with individual subsidies targeted at insurance premiums.

Besides, 1st March 2019, Federal Act No 563 On the amendments to Federal Act No 260 came into force and eliminated loss of crops and perennial crops thresholds, i.e. non-deductible franchise alongside with obligatory deductible franchise, which could not be less than 10% and more that 50% of the insurance coverage.

In 2021, the National Crop Insurers Alliance lobbied for more changes to Federal Act No. 260. According to the Ministry of Agriculture, these changes should stimulate farmers, especially smallholders, to purchase crop insurance. Since July 1, 2021, a subsidy of 80% of insurance premium is available to farmers. It will be available to smallholders for 2 years, and as of July 1, 2023, it will be reduced to 70%, from July 1, 2024 - to 60%, from July 1, 2025 - to 50%. For other farmers, the subsidy will be reduced every year: from July 1, 2022 - to 70%, from July 1, 2023 - to 60%, from July 1, 2024, 50%.

Moreover, farmers can choose one or several risks when taking out an insurance policy and get a lower insurance rate. Insured events include natural disasters that have led to the declaration of a state of emergency by federal or regional government.

Nevertheless, according to the Ministry of Agriculture and National Crop Insurers Alliance, the occurred changes have not resulted in a sharp increase of insured acreage. According to the preliminary data, in 2021, the insured area was 4.9 million hectares, which is even less than in the previous year (Fig. 4). The above changes came into effect on July 1st, 2021. However, farmers insured winter crops planted on 29 million hectares, or 38% of the area of Russia.

According to Goodwin & Smith (1995), Just, Calvin & Quiggin (1999), Makki & Somwaru (2001), Russo et al. (2022), taking out an insurance policy is related to natural risks on farmer's territory and measures of risk aversion (Puelz & Snow, 1994). We agree with Miranda (1991), that farmers will buy insurance only if expected indemnities exceed premiums paid. This is exactly what we do not see in Russia now.

These statements correspond with two problems of crop insurance: use of innovative technologies in crop production and use of new varieties cultivated for a specific territory. Innovative technologies and new varieties of crops significantly reduce the risk of major crop loss compared to traditional farming methods (Arshadi et al., 2018, Horváth et al., 2021). According to current regulations, insurance rates are the same for conventional and innovative technologies. This issue was extensively described by Woodard et al. (2021), the authors claimed existing rules disincentivize the adoption of skip-row patterns of crop planting in the Central Great Plains. We agree that poorly thought out crop insurance system can cause elimination of any progressive crop growing technique and a need for new insurance solutions.

According to Zhichkin et al. (2021), volume 1 of the State Register of Selection Achievements Authorized for Use for Production Purposes contains constraints to adoption of new improved varieties. In the paper, the authors describe the development of a new information system of crop varieties adaptive to a specific territory. Such an approach allows a reduction of insurance coefficients for a single variety and a reduction in insurance policy costs for farmers growing these varieties.

As stated by the Ministry of Agriculture and the National Crop Insurers Alliance, one of the solutions to the problems with crop insurance, with state support, is index insurance. However, it does not go any further than words because of the transparency of approach, which makes money embezzlement difficult for bureaucrats.

The essence of index insurance is that payouts are based on a predetermined index and not on actual losses incurred. This approach was extensively described by Carter et al. (2016), Clarke (2016), Jensen & Barrett (2017), Goodwin et al. (2000). Note that different types of index-based insurance are a good alternative to traditional multi-risk insurance and have considerable advantages:

- no moral hazard and adverse selection;
- standardized and transparent structure;
- low administrative expenses, availability, etc.

Just as with every insurance product, index insurance has its weaknesses. One of the most commonly cited impediments to this uptake is basis risk that arises when the index measurements that reflect changes in the yield curve do not match farmer's actual loss. This can result in a loss of the indemnity payment because the yield exceeds the index. Sometimes index-based insurance provides with indemnities, farmers that did not experience any loss. Therefore, index insurance in agricultural insurance with state support should be supervised and developed to meet the needs of farmers and encourage the adoption of crop insurance in Russia.

## CONCLUSIONS

Up to 2021, compensation for damage caused by extreme weather was paid to farmers as insurance payments and direct payments. The proportion of insurance payments to farmers is 22.1%, the proportion of direct payments is 25.7%. Thus, 52.2% of farmers' losses were never compensated. Annually, agricultural producers were losing about RUB 6.1 billion or $0.2 billion. Since 2021, direct payments were cancelled, which, from our point of view, strained the financial situation of farmers and made crop insurance the only source of farmers' financial protection from extreme weather events. The proportion of insured crop area remains quite small – only 6.3% in 2021. Allocation of RUB 1 billion in premium subsidies from budgets of various levels raises insured area by 0.14% under a steady trend. Other factors result in reduction by 1.1%. The main reasons behind the current situation in agriculture are:

- low level of indemnity payments;
- corruption and incompetency of those responsible for crop insurance;
- equal insurance coverage for conventionally grown crops and crops grown using innovative technologies;
- limitations associated with the ability to insure only specific crop varieties recommended for cultivation on the territory under volume 1 of the State Register of Selection Achievements Authorized for Use for Production Purposes;
- availability of only multi-risk insurance plans;
- actuarially unfair insurance rates offered by plans.

To reach the target of 11.3% set for the agriculture development program by 2025, RUB 11.65 billion or $0.15 billion in subsidies should be provided by budgets of various levels. In view of existing conditions, the Government cannot afford that. To improve the current situation with crop insurance with state support as the only source of farmers' financial protection from extreme weather events and reach the target of insured area, we propose the following set of measures:

- to stop annual changes to secondary legislation and methodology of crop insurance;
- to monitor decisions taken by the Ministry of Agriculture;
- to tighten control over actions of officials responsible for verification of information in state insurance policies in the subjects of the Russian 464 Federation;
- if any overestimation of insured value of yield has been identified, it is important to solve an issue of insurance companies refunding budget funds in case of their excessive transferring to the notified bodies of the constituent entities of the Russian Federation;
- agricultural insurance with state support (given expenses for management of insurance) should be used by insurers only for paying insurance benefits to agricultural producers in subsequent years, if there are not enough payments in the current year;
- to set actuarially sound rates and make their calculation available on the website of the Federal Agency for State Support of the Agro-Industrial Complex for social control;
- to consider cultivation techniques and selective breeding potential of crops when taking out an insurance policy;
- adoption of index insurance.

Only this way, agricultural producers may show some interest in concluding agricultural insurance policies.

FUNDING. This paper has been supported by the RUDN University Strategic Academic Leadership Program.

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