

Identification and analysis of the risk of reducing the stability of the Russian agricultural insurance system

Identificación y análisis del riesgo de reducir la estabilidad del sistema de seguro agrícola ruso

Alkhozur Kharonovich TSAKAEV ¹; Zaurbek Aslanbekovich SAIDOV ²

Received: 12/02/2018 • Approved: 10/03/2018

Content

- [1. Introduction](#)
- [2. Literature review](#)
- [3. Materials and methods](#)
- [4. Results](#)
- [5. Discussion](#)
- [6. Conclusion](#)
- [References](#)

ABSTRACT:

The article considers a relevant issue of increasing the effectiveness of agricultural insurance through identification and analysis of the conflict of interests which results in systemic risk – the risk of reducing the stability of the national agricultural insurance system. The article proposes an algorithm for identifying and analyzing systemic risk which uses the Ishikawa diagram, STEEPLE analysis, Pareto principle, and the analytic hierarchy process (AHP). The authors discuss the origins, reasons and causes (factors) of the risk of instability in the Russian agricultural insurance system. The theoretical and practical significance of the proposed algorithm stems from its potential in ensuring the stability of the national agricultural insurance system.

Keywords: identification, analysis, systemic risk, conflict of interest, agricultural insurance, Russia.

RESUMEN:

El artículo considera un tema relevante para aumentar la efectividad del seguro agrícola a través de la identificación y análisis del conflicto de intereses que resulta en riesgo sistémico: el riesgo de reducir la estabilidad del sistema nacional de seguro agrícola. El artículo propone un algoritmo para identificar y analizar el riesgo sistémico que utiliza el diagrama de Ishikawa, el análisis STEEPLE, el principio de Pareto y el proceso de jerarquía analítica (AHP). Los autores discuten los orígenes, razones y causas (factores) del riesgo de inestabilidad en el sistema de seguro agrícola ruso. La importancia teórica y práctica del algoritmo propuesto proviene de su potencial para garantizar la estabilidad del sistema nacional de seguro agrícola.

Palabras clave: identificación, análisis, riesgo sistémico, conflicto de intereses, seguro agrícola, Rusia.

1. Introduction

Agricultural insurance is definitely an important financial infrastructure component which facilitates the development of modern agriculture. The USSR had compulsory agricultural insurance; this can be found today in Switzerland (for livestock), Israel (crops), Kazakhstan (crops); Belarus (agricultural crops and livestock) and other countries. However, the overwhelming majority of countries, including modern Russia, uses voluntary insurance.

Many countries, both with developing and developed economies, currently use voluntary subsidized agricultural insurance. Nevertheless, the observed financial losses of farmers in these countries reveal inefficiency of national agricultural insurance systems. This also refers to the Russian agricultural insurance system as it turned out to be ineffective. The relevance of this problem is both due to systemic risks in insurance [Systemic Risk in Insurance, 2010] and the lack of a unified approach to the development of the national agricultural insurance system, including combined agricultural insurance [Bielza Díaz-Caneja, Garrido, 2009].

This study aims to increase the effectiveness of the national agricultural insurance system through identification, analysis and regulation of systemic risk – the risk of reducing the stability of the national agricultural insurance system. The paper presents the results of identification and analysis of the risk of instability of the Russian agricultural insurance system caused by the conflict of interests of parties in subsidized agricultural insurance.

2. Literature review

According to the theory and practice of agricultural insurance [Cole, Xiong, 2017; Finger, Lehmann, 2012; Meuwissen et al., 2013; Mahul, Stutley, 2008; Mahul, Stutley, 2010; Bielza et al., 2008; Di Falco et al., 2014], there are three basic models of the development of the national agricultural insurance system regarding the position of the insurance object: the insurance of crops and/or livestock losses; the insurance of incomes of agricultural enterprises that guarantees compensation for losses from shortage of crops and/or loss of livestock, as well as for falling prices for agricultural products; combined insurance of the farmer's activities – insurance of crop yields or livestock loss and the incomes of the agricultural enterprise, with the involvement of private insurers. Russia, as in many developing countries, currently uses the first model only, i.e. insurance of crops and/or livestock.

The specifics of Russian agricultural insurance include, firstly, insufficient information and comparatively limited data on insurance risks (insurance cases). Second, there is a strong correlation between risk factors (insured event) for insured objects in the same natural and climatic zone. Third, there is a growing impact of the human factor on the work of the agricultural insurers and their operating activities. Fourth, there are not two (as in customary insurance), but three parties in the agricultural insurance operation, including the state. For instance, "in the current system of agricultural insurance in Mexico, the interested parties include the state, the private sector and rural producers operating through so-called mutual insurance funds" [Agricultural Insurance in Latin America, 2013]. In different countries, the conflict of interests of these parties of agricultural insurance is manifested in different degrees. In countries with dominating subsidized agricultural insurance, one can observe the strongest conflict of interest.

Originality and novelty of the study is determined by the fact that it considers the conflict of interests in subsidized agricultural insurance as the main insurance systemic risk – the risk of reducing the stability of the national agricultural insurance system. This risk depends on the level of economic development of the country and may vary, being less destructive in developed economies, whereas in developing countries it has greater consequences for the national economy. In the USA, for example, the possibility of the conflict of interest between parties in subsidized insurance has been minimized by the Federal Crops Insurance Corporation (FCIC), which takes rapid action to improve the actuarial sustainability of multi-profile crop insurance and provides the agricultural insurance system to all farmers on an equitable and consistent basis. [Federal Crops Insurance Corporation]. In the USA, the Federal Crop Insurance Program provides for subsidies in the amount of 114 billion dollars and covers 262 million acres [Goodwin, Smith, 2013]. We would also like to note the positive impact the Federal program of crop insurance on land use, farming and environmental quality in the United States [Claassen et al., 2017]. In Canada, the stability of the national agricultural insurance system is guaranteed by the national insurance company and the level of subsidies estimates 60% of the amount of insurance premiums. However, one may see negative correlation between production efficiency and the level of program payments, including subsidizing insurance premiums [Hailu, Poon, 2017]. In developing countries, for example, Serbia, as researchers note, "the state should provide general conditions for more effective use of subsidized insurance" [Zarkovic, 2014].

Having studied the scientific papers of SCOPUS and Web of Science available to us, we have not found a special study on the risk of reducing stability of the national agricultural insurance system. Meanwhile, the development of all products, groups, models and systems of agricultural insurance regarding their theoretical and practical issues are aimed at neutralizing this systemic risk.

The main finding of our study is, first, the conclusion that Russia's agriculture currently applies the imputed form of insurance (although the law claims

property insurance in Russia (to be voluntary), which rises a conflict of interest among parties in the "agricultural insurance operation" that can be seen as systemic risk in subsidized agricultural insurance; second, in order to deal with the systemic risk in Russian agricultural insurance, it is necessary to use the benefits of the combined model of the national system of agricultural insurance, at the same time preserving its voluntary form.

The theoretical significance of the study deals with expanding the range of tools for managing systemic risks in insurance, including agricultural insurance. The practical significance of the study stems from the fact the effectiveness of subsidized agricultural insurance implies not only the state financing of some insurance premiums, but also building an efficient public-private partnership to localize conflicts of interest in national agricultural insurance.

The need for public-private partnerships (PPPs), an effective mechanism for managing the risk of reducing the stability of the national agricultural insurance system, is stated in the paper of Brandon Willis, Administrator of the Risk Management Agency (RMA) in Food and Nutrition [Public-Private Partnerships..., 2016] and Olivier Mahul, Disaster Risk Financing and World Bank Insurance Programs [The Role of the Public Sector..., 2015]. The significance of PPPs for developing countries is noted in some other publications [Xing, Lu, 2010]. As we see, the countries that adopt subsidized agricultural insurance need PPPs right due to the conflict of interests arising in the "agricultural insurance operation". The level of PPPs development indicates that countries understand and account for the possible conflict of interests which may reduce the stability of the national agricultural insurance system.

3. Materials and methods

In this paper, we used a systematic methodological approach to investigate the obstacles to the development of agricultural insurance in Russia [O'Connor, McDermott, 1997]; this allowed us to consider agricultural insurance in Russia as a national system of agricultural insurance. The development of the national agricultural insurance system requires one to be able to manage its inherent systemic risk. The specifics of agricultural insurance functioning in a particular country should be seen as its systemic risk. Thus, the risk of reducing the stability of the national system of agricultural insurance is influenced by the conflict of interest among the following three parties in subsidized agricultural insurance: the state (represented by state bodies), the farmer (agricultural enterprises and households) and agricultural insurers (insurance and reinsurance companies).

To identify the origins, reasons and root causes (risk factors) of reducing stability in the system of Russian agricultural insurance, we applied the Ishikawa diagram [Ishikawa, 1985], known as the root cause analysis diagram and the most effective technique for identifying cause-effect phenomena, thus establishing their relative importance in a qualitative format. Prioritization of origins, reasons and root causes of the risk of reducing the stability of the national agricultural insurance system with the Ishikawa diagram involves using STEEPLE analysis [Walden, 2011] to determine the root causes (factors) of systemic risk. The analytic hierarchy process (AHP) [Saaty, Shang, 2011] is applied to prioritize the preventive measures of localization (neutralization) of the risk of reducing the stability of the national agricultural insurance system and implies using the Pareto principle (Pareto rule of 20/80) [Koch, 2002] to the root causes (factors) of the systemic risk studied.

4. Results

According to the World Bank [Agricultural Insurance..., 2013], in the structure of the global volume of agricultural insurance premiums, the share of the USA and Canada estimates 56.0%, Latin America – 3.0%, European countries – 16.0%, Asian countries – 23.0%, African countries – 0.7%, Australia and New Zealand – 0.7%. Agricultural insurance in developing countries is much weaker. This also refers to Russia which has huge land resources: it occupies the third place in the world after the USA and India regarding to the area of arable land, and the fourth place for arable lands per population after Kazakhstan, Australia and Canada. Over 1991-2015, the area under grain and leguminous crops decreased by 21.0%, sugar beet by 27.0%, potatoes by 33.2% and the cattle population decreased by 2.9 times (cows – 2.6 times), pigs – 1.7 times, sheep and goats – 2.2 times. Over the period of 2012-2015 alone agricultural insurance in Russia decreased regarding the volume of insurance premiums by 3.1%, and by the volume of insurance payments by 40.1% [Russian Statistical Yearbook, 2016]. The share of agricultural insurance in Russian insurance sector is less than 1.0% (insurance premiums – 0.94%, insurance payments – 0.78%) [Taymaskhanov, Tsakaev, 2017]. Unacceptably low level of farmers insurance in Russia and its negative dynamics testifies, first of all, the existing system risk in the Russian agricultural insurance. This allowed us to formulate a hypothesis about the existence of a systemic risk that influences the effectiveness of national agricultural insurance systems.

As we can see, one of the risks affecting the stability of agriculture development and the real potential of agriculture insurance, along with the risks posed by climatic and weather conditions, is the systemic risk arising due to the national specifics of subsidized agricultural insurance. In many countries, agricultural enterprises face natural disasters every year, but due to the development and stability of national agricultural insurance systems, material and financial losses of these farms are significantly minimized. However, many Russian agricultural enterprises did not receive insurance compensation for their losses not only in the extremely difficult year of 2010, but also in less complicated periods due to the risk of reducing the stability of the Russian agricultural insurance system.

As part of property insurance, agricultural insurance in Russia is currently implemented both according to the market model of agricultural insurance (fully commercial insurance, without state support) and the model of subsidized agricultural insurance (involving state support). Subsidized agricultural insurance in Russia is done in the form of voluntary insurance and some of its principles imply a 50% subsidy of the insurance premium from the state budget (with up to 10% from the regional budget) [Federal Law No. 260-FZ...]. It should be noted that in the US and Canada, state support for agriculture is carried out by subsidizing the insurance premium of 73.0%, in Asia – 50.0%, in Latin America – 36.0%, in the countries of the European Union – 37.0%, in Africa – 3.0%, in Australia and New Zealand – 0.0%, that is, there is no subsidized agricultural insurance (like in Germany, the United Kingdom, Belgium, the Netherlands, Finland, etc.) [Sandmark et al., 2013].

Calculations performed according to Rosstat data for the period of 2014-2016 [Finmarket. Insurance, 2017] demonstrate that agricultural insurance has a lower payout ratio (40.5% in 2016) compared with the whole Russian insurance market (43.2% in 2016). In the structure of agricultural insurance, the amount of insurance premiums under contracts with individuals decreased by 4.6 times, and those with sole entrepreneurs – by 6.6 times. The coefficient of payments under agricultural insurance agreements with sole entrepreneurs decreased from 60.9% to 3.8%, that is, by 16 times. Over 2014-2016 there was a sharp decline in insurance premiums and payments in Russian agricultural insurance. In addition, the program of Russian subsidized agricultural insurance in 2017 was performed only by 20% as of September 1, 2017 (with only 815,000 hectares insured compared to the planned 4.1 million hectares). Besides, insurance premiums and the number of insurance contracts in 2017 fell by 73% and 52%, respectively, compared to the same period a year before [Müller et al., 2014]. All this testifies to the drawbacks, and consequently, *the instability of the Russian agricultural insurance system* within which a model of subsidized agricultural insurance is implemented.

Subsidized agricultural insurance implies that three parties take part in the implementation of an insurance operation (insurant, insurer and the state) which have a conflict of interest due to objective reasons. For instance, the insurant aims to obtain the maximum insurance coverage of the costs (invested money) incurred per hectare, while the Russian agricultural insurance models provide for insurance of business risks only (based on average prices, crop yields and agricultural productivity) and do not stimulate to insure the whole harvest and all livestock. The insurer pursues to gain maximum profit, and the unified rules of insurance allow this party to lower the insurance payments, while the absence of general methods for underwriting and settlement of losses makes it possible to significantly influence the quality of the insurance protection provided. Russia aims to optimize insurance subsidies for insurance rates as the country pays other subsidies (green box subsidies, subsidies for reimbursement of interest rates on loans and subsidies for compensation of farmers' losses in the event of an emergency, etc.). And this, in the context of increasing imbalances in the Russian budget system, was the reason for transforming the subsidies to agriculture from January 1, 2017 to the "unified" subsidy regime. Therefore, the conflict of interests the parties of agricultural insurance have is certainly the "Achilles' heel" which generates such a systemic risk as the risk of reducing the stability of the Russian agricultural insurance system.

An agricultural insurant (agricultural enterprise, sole entrepreneur, or an individual) is considered by us as the most significant cause of reducing the stability of the Russian agricultural insurance system (hereinafter, the risk of reducing the SRAIS).

The causes for the risk of reducing the SRAIS the agricultural insurant is responsible for are: a decrease in the farmer's demand for insurance due to a conflict of interest and financial and economic situation of the farmer. The following factors influence the farmer's lower demand for insurance due to the conflict of interests: limited coverage of agricultural insurance with state support; high cost of agricultural insurance; complex procedure for obtaining subsidies and the conclusion of an agricultural insurance contract; ignoring the level of technical and technological development of agricultural enterprises when determining the cost of insurance and calculating insurance compensation; rigid requirements for agricultural producers regarding seeds use, compliance with agricultural technology, harvesting at the optimum time; receiving subsidies in case of emergency and without concluding agricultural insurance contracts; distrust to agricultural insurers; low efficiency of state financial support for agricultural insurance; insufficient knowledge of various insurance issues farmers have. The following factors aggravate the financial situation of farmers: weak financial stability; low liquidity of farmers' assets; permanent insolvency of most farmers.

The reasons for reducing SRAIS that occur due to agricultural insurers (insurance and reinsurance companies) include: a decrease in supply by

agricultural insurers due to a conflict of interest; the underdevelopment of the reinsurance market in Russia; weak competition in the agricultural insurance market. The following factors influence the decrease in supply by agricultural insurers: a limited range of insurance products; mistrust of the borrowing capacity of agricultural insureds; incomplete and untimely provision of state subsidies under agricultural insurance contracts; the lack of reliable long-term statistics on the yield of the main agricultural crops and the loss of livestock for particular regions. The following factors explain the underdevelopment of the reinsurance market in Russian agriculture: the absence of specialized reinsurance companies that would provide their services to farmers; absence of unified methodological procedures for insurance and reinsurance in agriculture. Weak competition in the agricultural insurance market is mainly caused by such factors as unfair competition in agricultural insurance and dumping policy adopted by some insurers.

The reasons for the risk of a reduction in the SRAIS arising due to the state (Ministry of Agriculture of Russia, the Bank of Russia and other state bodies and authorities of the Russian Federation federal subjects) include: insufficient attention of the state to agricultural insurance; criminalization of agricultural insurance; the conflict of interests of parties of agricultural insurance caused by the state. The following factors determine the insufficient attention of the state to agricultural insurance: the lack of effective mechanisms for protecting the interests and rights of agricultural insurers and insureds; the absence of a national system for rating the reliability of agricultural insurers; the absence of a clear regulatory framework and unified rules for settling the damage in agricultural insurance; a complicated procedure for processing and obtaining state support for the agricultural insured; the absence of a comprehensive list of required documents; poor quality of consulting services in agricultural insurance; technically, a voluntary form, but de facto "imputable" agricultural insurance. The following factors influence the criminalization of agricultural insurance: the lack of systematized information on court practice regarding the prevention of fraud and abuse of the right in agricultural insurance; the lack of methods and tools to prevent illegal actions in agricultural insurance; the absence of a system of measures to prevent insurance fraud; the absence of a unified autonomous organizational structure to prevent fraud practices in insurance; distorted reporting in agricultural insurance; imitation of insurance cases by destroying crops or selling unaccounted-for products under the counter; the absence of serious sanctions against farmers in case of deliberate distortion of financial and other reporting. The following factors contribute to the arising conflict of interests of parties in agricultural insurance caused by the state: the lack of transparency of information on the interaction of the state, agricultural insurers and insureds; insufficient stability of particular institutions of the agricultural insurance market; the lack of cooperation between parties in the agricultural insurance market; poor correlation between the distribution of subsidies across regions with the demand for agricultural insurance; insufficient flexibility of agricultural insurance conditions; the lack of equal access of farmers to state support of insurance in different subjects of the Russian Federation; inconsistency between the rates of subsidies calculation to insurance risks and actuarially justified insurance rates; instability of the basic conditions of state insurance for long periods.

5. Discussion

Stability and growth of agricultural insurance markets require appropriate conditions that are grounded on effective legal and regulatory procedures. The state is definitely obliged to find balance between the protection of insurers and the stability of the financial sector aiming at the development of the agricultural sector of the national economy. Regulation of agriculture based on microinsurance or "measures to increase market levels" can reduce entry barriers and to improve the situation with insurers competition. However, excessive or erroneous intervention of the state in the market of agricultural products can prevent growth and stability of agricultural insurance. Government intervention can distort price signals, drive out private sector insurers and create "unsustainable costs for the state" [Mahul, Stutley, 2010]. Undoubtedly, agricultural insurance protects the farmer from loss of crop yield or loss of livestock and the risk of reduction in income. Modern agricultural insurance uses indices [Sandmark et al., 2013; Müller et al., 2014] which provide farmers with payments based on the index (for example, rainfall). The drawback of index insurance of crop yields is using a basic risk which in some cases can be quite large. But it can be reduced both by developing appropriate products with limited or inaccurate hazard data and designing sustainable products (from the perspective of the insurer) that account for the risks of fraud, adverse selection and moral hazard, as well as minimization of distribution costs.

At present moment experts have different opinions on the advantage of subsidized or private agricultural insurance. Countries with highly risky farming tend to use subsidized agricultural insurance, whereas countries with developed agriculture and insurance business opt for private agricultural insurance.

6. Conclusion

It can be stated that Russian agricultural insurance system has transformed into the *imputed* insurance one, and in the long term, due to the exceptional importance of the task of ensuring food security in the country, one can expect a transfer to *compulsory* insurance.

To ensure the effectiveness of the national agricultural insurance system, including the Russian one, a country should adopt a systematic approach to agricultural insurance, which makes it possible to identify systemic risks. The main systemic risk in Russia's agriculture is the risk of reducing the stability of the national agricultural insurance system, the causes for this being the conflict of interests of parties in subsidized agricultural insurance (insurers, insureds and the state).

The combined application of Ishikawa diagrams, the Pareto principle and the analytic hierarchy process (AHP) allows, first, to identify the origins, reasons and root causes (factors) of the risk of reducing the stability of the national agricultural insurance system, and second, to rank them by their impact on further development and the choice of adequate solutions (preventive measures) to deal with the conflict of interests of parties in subsidized agricultural insurance.

We believe countries with a large haul distance and risk farming, including Russia, should create and develop the potential for combined agricultural insurance as one of the most promising preventive measures for stabilizing the national agricultural insurance system.

References

- Agricultural Insurance for Developing Countries. The Role of Governments.* (2013). Agricultural Outlook Forum. Washington D.C. Available at https://www.usda.gov/oce/forum/past_speeches/2013_Speeches/Villalobos.pdf
- Agricultural Insurance in Latin America.* (2013). Available at http://www.swissre.com/latin_america/ag_insurance_latam.html
- Bielza Díaz-Caneja, M., Garrido, A. (2009). Evaluating the potential of whole-farm insurance over crop-specific insurance policies, *Spanish Journal of Agricultural Research*, 7(1), 3-11. <http://revistas.inia.es/index.php/sjar/article/view/393/390>
- Bielza, M., Conte, C., Dittmann, Ch., Gallego, J., Stroblmair, J. (2008). Agricultural Insurance Schemes Final Report. Post: IPSC- AGRIFISH, TP 266, Joint Research Centre, I-21020 Ispra (VA), Italy. Available at https://ec.europa.eu/agriculture/sites/agriculture/files/external-studies/2006/insurance/full-report-rev_en.pdf
- Claassen, R., Langpap, Ch., Wu, J-J. (2017). Impacts of Federal Crop Insurance on land use and environmental quality, *American Journal of Agricultural Economics*, 99(3), 592-613. Available at <https://doi.org/10.1093/ajae/aaw075>
- Cole, Sh.A., Xiong, W. (2017). Agricultural insurance and economic development. *Annual Review of Economics*, 9, 235-262. Available at <https://ssrn.com/abstract=3017741> or <http://dx.doi.org/10.1146/annurev-economics-080315-015225>
- Di Falco, S., Adinolfi, F., Bozzola, M., Capitanio, F. (2014). Crop insurance as a strategy for adapting to climate change, *Journal of Agricultural Economics*, 65(2), 485-504. Available at <http://onlinelibrary.wiley.com/doi/10.1111/1477-9552.12053/full>
- Federal Crop Insurance Corporation* (FCIC). Available at <https://www.rma.usda.gov/fcic/>
- Federal Law No. 260-FZ of July 25, 2011 "On State Support in the Sphere of Agricultural Insurance and on Amendments to the Federal Law "On the Development of Agriculture" (as amended on June 23, 2016).
- Finger, R., Lehmann, N. (2012). The influence of direct payments on farmers' hail insurance decisions, *Agricultural Economics*, 43(3), 343 - 354. Available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1574-0862.2012.00587.x/full>
- Finmarket. Insurance.* (2017). The fall in the volume of agricultural insurance with state support contradicted the record harvests of the last 5 years - the Central Bank of Russia. Available at <http://www.finmarket.ru/insurance/?nt=1&id=4634479>
- Goodwin, B.K., Smith, V.H. (2013). What harm is done by subsidizing crop insurance? *American Journal of Agricultural Economics*, 95(2), 489-497. Available at <https://doi.org/10.1093/ajae/aas092>
- Hailu, G., Poon, K. (2017). Do farm support programs reward production inefficiency? *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, 65(4), 567-589. Available at <https://econpapers.repec.org/scripts/redis.pf?u=http%3A%2F%2Fhdl.handle.net%2F10.1111%2Fcajag.2017.65.issue-4;h=repec:bla:canjag:v:65:y:2017:i:4:p:567-589>
- Ishikawa, K. (1985). *What is Total Quality Control? The Japanese Way.* London: Prentice Hall.

- Koch, R. (2002). *The 80/20 Revolution: Why The Creative Individual Is King And How YOU Can Create Wealth And Wealth*. Nicholas Brealey Publishing.
- Mahul, O., Stutley, C. (2008). Government Support to Agricultural Insurance. Challenges and Options for Developing Countries. Annex E International Experiences with Agricultural Insurance: Findings from a World Bank Survey of 65 Countries. World Bank, Washington D.C. <http://documents.worldbank.org/curated/pt/698091468163160913/pdf/538810PUB0Gove101Official0Use0Only1.pdf>
- Mahul, O., Stutley, C. (2010). *Government Support to Agricultural Insurance: Challenges and Options for Developing Countries*, World Bank, Washington D.C. https://www.ifc.org/wps/wcm/connect/ac42ef80426a2aefbb9dbf0dc33b630b/Government+Support+to+Agricultural+Insurance_Mahul+and+Stutley_2010_MOD=AJPERES
- Meuwissen, M.P.M, Assefa, T.T., Asseldonk, M.A.P.M. van (2013). Supporting insurance in European agriculture: Experience of mutuals in the Netherlands, *EuroChoices*, 12(3), 10–16.
- Müller, S., Ramm, G., Steinmann, R. (2014). *Agriculture, Microinsurance, and Rural Development*. Luxemburg: Microinsurance Network. Available at http://www.microinsurancenetowork.org/sites/default/files/MICRO_Network-Brochure_agriculture%20rural-2-WEB.pdf
- O'Connor, J., McDermott, I. (1997). *The Art of Systems Thinking: Essential Skills for Creativity and Problem Solving*. San Francisco, California: Thorsons. www.bookre.org/reader?file=2261922&pg=3
- Public-Private Partnerships a Crucial Element in Crop Insurance Safety Net*. (2016). Posted by Brandon Willis, Risk Management Agency Administrator in Food and Nutrition. Available at <https://www.usda.gov/media/blog/2016/03/11/public-private-partnerships-crucial-element-crop-insurance-safety-net>
- Russian Statistical Yearbook* (2016). Available at http://www.gks.ru/bgd/regl/b16_13/Main.htm
- Saaty, T.L., Shang, J. (2011). An innovative orders of magnitude approach to AHP-based multicriteria decision making: Prioritizing divergent intangible humane acts, *European Journal of Operational Research*, 214(3), 703–715.
- Sandmark, Th., Debar, J-Ch., Tatin-Jaleran, C. (2013). The Emergence and Development of Agriculture Microinsurance. A Discussion Paper. Available at http://www.microinsurancenetowork.org/sites/default/files/MICRO_NetworkBrochure_agriculturedeflow_page1on1.pdf
- Systemic Risk in Insurance. An Analysis of Insurance and Financial Stability*. Special Report of The Geneva Association Systemic Risk Working Group. (2010). Route de Malagnou, Geneva, Switzerland. Available at: https://www.allianz.com/media/responsibility/documents/geneva_association_report_on_systemic_risk_in_insurance.pdf
- Taymaskhanov, Kh.E., Tsakaev A.Kh. (2017). Agricultural insurance in Russia: a regional aspect, *Insurance Business*, 5, 29-41.
- The Role of the Public Sector in Agricultural Insurance PPPs*. (2015). Available at https://blogs.worldbank.org/psd/files/agricultural-insurance-public-sector-policy-note_15sept_2015.pdf
- Walden, J. (2011). Comparison of the STEEPLE Strategy Methodology and the Department of Defense's PMESII-PT Methodology. Available at http://www.supplychainresearch.com/images/Walden_Strategy_Paper.pdf
- Xing, L., Lu, K. (2010). The importance of public-private partnerships in agricultural insurance in China: based on analysis for Beijing, *Agriculture and Agricultural Science Procedia*, 1, 241-250. Available at <https://www.sciencedirect.com/science/article/pii/S2210784310000318>
- Zarkovic, N., Toscano, B., Mrksic, D., Lisov, M. (2014). Key features of crop insurance in Serbia, *Bulgarian Journal of Agricultural Science*, 20(1), 23-33. Available at <http://www.agrojournals.org/20/01-06.pdf>

-
1. Professor, Doctor of Economic Sciences, Chechen State University, Russia, Chechen Republic, 364024, Grozny, ul. A.Sheripova, 32, tsakaev@inbox.ru
 2. Associate Professor, Candidate of Economic Sciences, Chechen State University, Russia, Chechen Republic, 364024, Grozny, ul. A.Sheripova, 32, z.saidov@chesu.ru
-

Revista ESPACIOS. ISSN 0798 1015
Vol. 39 (Number 26) Year 2018

[Index]

[In case you find any errors on this site, please send e-mail to webmaster]

©2018. revistaESPACIOS.com • @Rights Reserved