ANNALS OF THE POLISH ASSOCIATION
OF AGRICULTURAL AND AGRIBUSINESS ECONOMISTS

received: 26.06.2019
acceptance: 10.07.2019
published: 20.09.2019

Annals PAAAE • 2019 • Vol. XXI • No. (3)

JEL codes: GO, G2, Q1

DOI: 10.5604/01.3001.0013.2822

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EVALUATION OF SUBSIDIZED CROP INSURANCE IN POLAND

Key words: subsidized crop insurance, risk, crop insurance

ABSTRACT. The aim of the paper was the evaluation of subsidized crop insurance during the years 2010-2019. Crop production is highly exposed to the effects of unfavourable weather conditions leading to significant fluctuations in yield. Farmers are not able to fully cope with these phenomena. They may use the available risk reduction techniques, e.g. diversifying production, but these actions might not be sufficient. In addition, there is a need to transfer risk outside the farm for a reasonable price. Such an effect can be achieved by offering crop insurance in Poland with state subsidies. In the description, data from the Central Statistical Office were used. For change evaluation, structure indicators of insured crop surface and dynamics indicators were used to determine the relative change in the importance of particular types of crop covered by the insurance. Also, the sum insured per 1 ha of insured crops and its trend were calculated. The authors still emphasize that there is an unsatisfactory level of universality of crop insurance among farmers. Despite the modification of legal regulations concerning them, it is estimated that only approximately 20% of cultivated area is protected. In the analysed years, the insured area of cereal crops constituted over 50% of the share in total insured area. The highest percentage of insurance area was observed for oilseed rape with the highest production risk.

INTRODUCTION

Agricultural production and, in particular, the cultivation of plants, is strongly dependent on weather conditions. In recent years, the weather phenomena experienced in Poland have had a higher than usual intensity and have therefore become a source of threats to crop production. The result of the weather's impact is a large variability in the volume and value of production as well as the need for farmers to have funds to mitigate the effects of negative events.

Industry reports indicate that there has been a significant increase in risk exposure in Poland and around the world and thus there is a need for skilful management [Durska 2018]. Risks related to the occurrence of adverse atmospheric phenomena are becoming more and more frequent and their types and intensity are difficult to predict. For example, in 2018 drought was a threat that had the greatest impact on the effects of crop production, while in 2017, it was hurricanes and rain. At other times, the most severe crop losses were caused by the occurrence of spring frosts (2016). In the years 2008-2018, farmers received compensation of PLN 3.21 billion due to weather insurance. In 2017, only due to spring

frost, insurers paid out PLN 45 million in claims, but it should be noted that only a small part of the area was insured against this risk [Durska 2018] Agriculture is not able to cope with the effects of such phenomena on its own, therefore different countries, including Poland, have introduced protection support systems in this respect.

The rules of subsidized crop insurance since 2006 have been modified many a time. Finally, when in 2008 they became compulsory (with respect to 50% of direct payments), in one year the insurance obligation was met when a farmer bought out a policy covering one risk, and in another year a farmer was required to buy out a package coverage of risks. Later, it turned out that insuring one selected risk, such as volatile rain, was ineffective, because in each year different weather phenomena significantly affected plant production.

The main goal of subsidized crop insurance is to compensate financial losses for farmers whose crops have been destroyed by negative random events. Apart from this, they have a task of protecting the farmer's financial situation in case of disaster-related accidents. According to the European Commission Regulation, only when a farmer uses protection insurance of his production can he/she receive full aid. In any other case, the payment is reduced by 50%. It should also be noted that insurance cover for crop production should be part of risk management, Eugeniusz Stroiński [2006], and not its substitute. Due to climate changes, it is also important to adapt the varieties of cultivated plants to changing conditions and use properly selected, agrotechnical treatments in optimal time, etc.

RESEARCH MATERIAL AND METHODS

The aim of the research was to evaluate the functioning of subsidized crop insurance under applicable regulations. An attempt was made to answer the question: whether the introduction, mainly in the form of an amendment, of changes in legal provisions aimed at increasing the accessibility of crop insurance for farmers is reflected in the indicators demonstrating the scale of their use.

The data presented in the paper come from secondary sources. These are statistical data published by the Central Statistical Office (CSO), information form scientific and industry literature as well as available legal acts. The scope of numerical analysis covers the years 2010-2017. The latest statistical data on the agricultural insurance market are available for 2017, hence the analysis was finalized in this year. The functioning principles of subsidized insurance were presented for the period up to 2019.

To analyse available data, the indicators of insurance use intensity, the structure of insured crops and dynamics indicators were used. Also the sum insured per 1 ha of insured crops was calculated and its trend was determined.

CHANGES IN LEGAL REGULATIONS ON SUBSIDIZED CROP INSURANCE

Subsidized crop insurance has been operating in Poland since 2006. Over 12 years, the scope of insurance protection, types of risks to which the insurance was entitled to surcharge, as well as definitions of risks and other important regulations, such as the level of the farmer's share, integral franchise, length of grace period or level of premium

contributions were changed several times. Selected information on significant changes to the Act on payments for insurance of crops and animals before crop insurance became mandatory are presented in Table 1.

Also, in recent years, the Act on agricultural crops and livestock insurance was amended, the aim of which was to make the farmers' use of insurance products as widely available as possible. These modifications took place in: 2015 [Journal of Laws, 2015.577], 2016 [Journal of Laws, 2016.792], 2017 [Journal of Laws, 2017.2047] and 2018 [Journal of Laws, 2018.2124, and 2018.650].

One of the most important amendments listed above was the one from 2016. Its records include the long-awaited new definition of drought. Accordingly, damages caused by drought are those that have occurred in any six-digit period from March 21 to September 30, substituting what was described previously as damages lasting over a period of at least 2 months.

The Act also introduced provisions on the possibility of increasing the insurer's tariffs by up to 9% of the sum insured for all types of risk and crops, or 12% for crops on agricultural land in class V and 15% for crops on agricultural land in class VI.

The main objective of these activities was to promote crop insurance among farmers. The supposed effect expected by the Ministry of Agriculture was to achieve, in 2018, – 5 million hectares of insured crops, in 2019 – 6 million, and in 2020 – 7 million, which would account for over 50% of arable land.

Table 1. Selected changes implemented in the Act on payments for the insurance of crops and animals in the years 2005-2008

Subject of regulation	The act of 7 July 2005 on payments for the insurance of crops and animals	First novelization of the Act from 27 April 2006	Second novelization of the Act from 7th March 2007 Change of the title of the Act on the insurance of agricultural crops and livestock	The Act of 25th July 2008
Scope of the insurance subject	Wheat, corn, rape, colza, sugar beet	Added: hops, vegetables, fruit trees and shrubs	Added tobacco, strawberries, legumes; Changes in names: instead of vegetables – ground vegetables	No change in this regard
Range of risks	From sowing or planting to harvest: fires, hurricanes, floods, torrential rain, hail, lightning, explosions, landslides, avalanches, drought, negative effects of wintering, spring frost	Excluded: fires, explosions	Changes in the definitions of: hurricanes, lightning, drought, negative effects of wintering, spring frost	Changes in the definitions of: spring frosts; liability for partial damage caused by frosts from 15 April

Source: [A. Parlińska, M. Parlińska 2018]

The amendment also specified the maximum limits on state budget expenditure for subsidies to premiums. In 2017-2020, the max. expenditure is as follows: 2017 – PLN 725.886 million, 2018 – PLN 957.425 million, 2019 – PLN 1,188.965 million and 2020 – PLN 1,420.504 million.

According to preliminary data, it is already clear that the new solutions have not achieved the desired effect. In the first half of 2017, 1,858.5 thousand ha of agricultural crops were insured and 106,824 insurance contracts were concluded (subsidized crop and animal insurance). However, in the first half of 2018, there were 98,364 insurance contracts (subsidized crop and animal insurance) and about 1.5 million hectares of agricultural crops were protected [Pokora-Kalinowska 2018a,b]. Therefore, both the insured area and number of policies have decreased. However, it will only be possible to conduct a final assessment of this situation when the CSO publishes full data for 2018.

In 2019, subsidies are obligatory for the following crop insurance: cereals, maize, rape and turnip rape, hops, tobacco, ground vegetables, fruit trees and shrubs, strawberries, potatoes, sugar beets and legumes. The scope of insurance covers the following risks: hurricanes, floods, torrential rain, hail, lightning, landslides, avalanches, drought, negative effects of wintering or spring frosts [MRiRW 2019]. According to the Act of 7 July 2005 on crop and livestock insurance, subsidies from the state budget for insurance premiums are granted to agricultural producers in the amount of up to 65% of the premium. The farmer can buy insurance in the form of a package or cover one selected risk. The tariff rate set by the insurer may not exceed 9% of the insured sum. The maximum amount of the sum insured is established annually by the Minister of Agriculture and Rural Development by regulation [Journal of Laws, 2018.2303.1]. In the case of crops cultivated on class V and VI agricultural land, the above tariff may be set at a higher rate, i.e. 12% and 15% respectively of the sum insured for these crops.

However, should an insurance contract containing a package of risk types establish a tariff rate exceeding 9%, 12% and 15% of the insured sum, subsidies will be granted to the agricultural producers' premiums in the sum of the amount according to these rates . The remaining amount will be paid solely by the agricultural producer. Should the insurance contract for one type of risk or a combination of several selected risks be concluded and the above tariffs (9%, 12% and 15%) exceeded, no subsidies will be granted.

SUBSIDIZED CROP INSURANCE DURING 2010-2017

The literature, Monika Kaczała [2015] and Maria Płonka [2017], still emphasises an unsatisfactory level of use of subsidized crop insurance by farmers. Although regulations have been modified in a way that encompasses the interests of farmers, insurance companies, and the State and the farmers' awareness concerning this issue is high, it is estimated that only about 20% of area under cultivation is protected.

The number of insurance policies purchased in 2010-2017 amounted to an average of 140 thousand. The number of insurance policies purchased in 2010-2017 amounted to an average of 140 thousand. After a noticeable increase in the number of contracts concluded (years 2010-2013], their number decreased (in the years 2014-2016] by

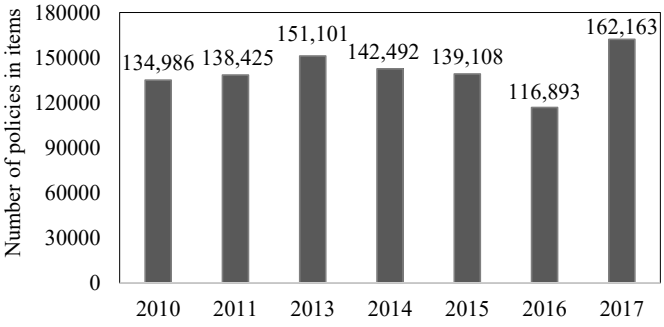

Figure 1. Number of concluded contracts of subsidized crop insurance from 2010-2017

Source: own calculation on the basis of data of the Central Statistical Office [GUS 2011-2018]

18 thousand fewer contracts in 2016 than in 2010. Figure 1 shows the number of insurance policies regarding mandatory crop protection in 2010-2017.

In 2017, the number of insurance contracts for subsidized crops concluded by farmers amounted to over 162 thousand. Its growth, compared to 2010, is evidenced by the dynamics rate at a level of 120%. The observed growing interest in subsidized crop insurance, reflected by the number of purchased policies, is the occurrence of adverse natural phenomena in previous years, such as spring frosts, the effects of which are reported in the media.

Another measure allowing to assess the use of crop insurance by farmers is the area of the crops insured. Similarly to the number of insurance contracts concluded in 2016, this number decreased (Figure 2). This may be a result of the fact that farmers not only reduced the insurance purchase of selected risks, but also reduced the area of crops subject to insurance.

Analysing data on changes in the area of insured crops compiled in the above graph, it can be concluded that in each of the analysed years, except for 2015 and 2016, there

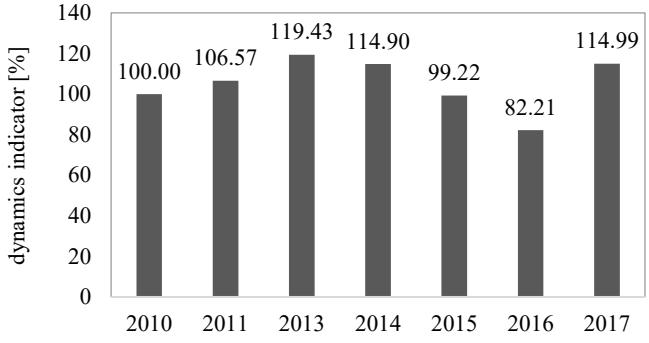

Figure 2. Insured crops in ha (dynamics of fixed base)

Source: own calculation on the basis Central Statistical Office data [GUS 2011-2018]

has been growth in relation to 2010 (dynamics indicators above 100%). A similar situation took place in 2008-2010, when the area of insured crops increased from 1.83 million hectares to 2.80 million hectares in 2009 (the rate of dynamics was 155%) and to 2.84 in 2010. According to Joanna Pawłowska-Tyszko [2017, p. 68], the continuously small size of cultivated area covered by insurance in relation to the assumptions contained in the draft to the Act (in 2015, 3.8 million ha were due to be insured, but actually 2.8 million were), may be a result of the following factors:

– on the demand side: frequently changing levels of subsidies for contributions, too low a budget for subsidies in a given year, the high cost of a single insurance policy, the farmer's high share in damages, low penalties for non-compliance,
– on the supply side:– too low tariff levels entitled to additional payments, high iability of plants for damages, a high loss ratio of crop insurance and a high risk of agricultural activity.

These determinants were also indicated by other authors dealing with the issue of insurance for subsidized crops. It is worth mentioning the works of, among others, Krzysztof Łyskawa [2015], Aleksandra Wicka [2014], Marietta Janowicz-Lomott and K. Łyskawa [2016], Agnieszka Kurdyś-Kujawska [2017], Andrzej Janc [2012], and Józefina Król [2017].

Considering the factors affecting the purchase of insurance policies, it is worth paying attention to the level of subsidies from the state budget, which in some way limit the possibility of purchasing insurance coverage and the price of protection of individual risk. The growing average cost of insurance per hectare from year to year (Figure 3) may indicate that, in 2016, farmers chose more expensive insurance. For example, instead of taking out an insurance policy for oats from the risk of hail, farmers insured oilseed rape against the negative effects of wintering and spring frosts.

During the years 2010-2017, the insured sum doubled. In 2010, it amounted to PLN 2,756/ha, and in 2017 – PLN 5,580/ha. The observed growing trend shows that the an-

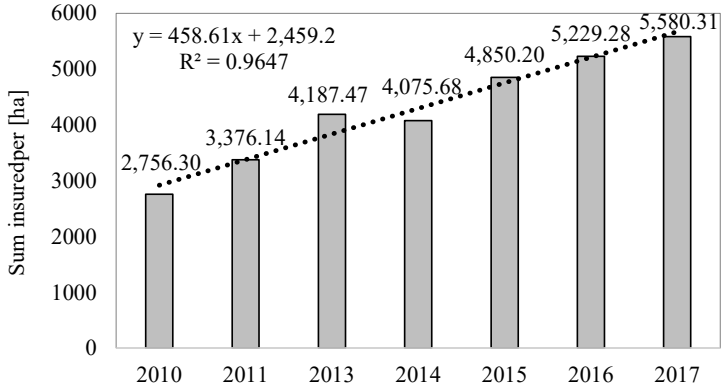

Figure 3. The average sum insured per ha

Source: own calculation on the basis of Central Statistical Office data [GUS 2011-2018]

Table 2. The structure of the insured crop from 2010-2017

Insured production	2010	2011	2013	2014	2015	2016	2017
Cereals	59.67	55.76	56.56	53.25	55.54	56.51	50.54
Rape	29.13	32.84	31.08	30.50	27.90	22.98	33.74
Corn	7.05	5.74	8.13	11.13	10.62	12.24	8.99
Potatoes	0.55	0.53	0.42	0.77	0.61	0.98	0.78
Sugar beet	1.46	1.61	1.37	1.85	1.73	2.52	2.16
Leguminous plants	1.08	0.66	0.64	1.05	2.22	2.66	1.61
Fruit of fruit trees and shrubs	0.28	1.75	0.24	0.30	0.46	0.80	1.02
Ground vegetables	0.39	0.88	0.36	0.57	0.57	1.04	0.80
Fruit trees and shrubs	0.11	0.10	0.08	0.06	0.05	0.03	0.16
Tobacco	0.28	0.11	1.10	0.23	0.23	0.19	0.15
Strawberries	0.01	0.01	0.01	0.29	0.02	0.03	0.03
Hops*	0.0029	0.0032	0.0046	0.0073	0.0445	0.0143	0.0160
Turnip*	0.0000	0.0000	0.0032	0.0006	0.0020	0.0035	0.0013
Total	100	100	100	100	100	100	100

* Structure indices for hop and colza cultivation were deliberately shown to four decimal places

Source: own calculation on the basis of Central Statistical Office data [GUS 2011-2018]

nual increase in the sum insured per ha in the research years amounted to over PLN 458.

The discussed barriers of the development of the subsidized insurance of crops were partially eliminated due to modifications of the Act that took place after 2016, mentioned in the first part of the study.

Another important issue analysed within the framework of this study is the evaluation of changes in the structure of insured crops. A very similar situation can be observed during the past years. Cereal crops still hold a dominant position in the total area of cultivated crops. In each of the analysed years, it constituted over 50% (Table 2). In second place, with an average value of 30% for 2010-2017, were rape crops and third position was taken by maize crop – an average of 9%. The crop insurance for these three types of plant accounted for 89% of the total area of insured crops.

On the basis of the data presented in Table 2, it can also be stated that the remaining 11% of area covered by crops concerns 10 out of 13 items, which include, for example, fruit trees and ground vegetables, i.e. extremely varied categories taking into account the plant species that make them and their sensitivity to unfavourable climatic conditions. However, it is worth paying attention to the growing share of insured sugar beet crop in the total area of insured crop; in the examined years, it increased on average by 1.81% (from 1.46% in 2010 to 2.16 in 2017).

CONCLUSIONS

Subsidized crop insurance is an instrument used for risk management in agricultural production. The paper presented the changes in the functioning of this type of insurance and its impact on the level and structure of crop insurance. Based on the analyses carried out in this paper, it can be concluded that:

1. The number of insurance contracts for subsidized crops concluded by farmers in 2017 was over 162,000. Its growth compared to 2010 is evidenced by the dynamics rate level of 120%.
2. During the years 2010-2017, the sum insured for crops increased twice, in 2010 it amounted to PLN 2,756 per ha, and in 2017 – PLN 5,580 per ha.
3. In the analysed years, the dominant position in the area of insured crops is held by cereal crops, in each examined year it constituted over 50% of the share. The situation in this area has not changed for many years.
4. In 2019, maintaining subsidies for the insurance premium in crop insurance at a level of 65% and changing the rules of their operation may be an incentive for farmers to increase their interest in such types of insurance policies.

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OCENA FUNKCJONOWANIA DOTOWANYCH UBEZPIECZEŃ UPRAW W POLSCE

Słowa kluczowe: dotowane ubezpieczenia upraw, ryzyko, ubezpieczenia upraw

ABSTRAKT

Celem artykułu jest dokonanie oceny dotowanych ubezpieczeń upraw w Polsce w latach 2010-2019 w kontekście wprowadzanych zmian zasad ich funkcjonowania. Produkcja roślinna jest silnie narażona na oddziaływanie niekorzystnych zjawisk atmosferycznych prowadzących do istotnych wahań plonów. Z tymi zjawiskami rolnicy nie są sobie w stanie w pełni poradzić. Mogą stosować dostępne dla nich techniki ograniczania ryzyka, np. przez dywersyfikację produkcji, lecz nie są to działania wystarczające. Dodatkowo jest potrzebna możliwość transferu ryzyka poza gospodarstwo, po rozsądnej cenie. Taki efekt można uzyskać przez ubezpieczenia upraw oferowane w Polsce z dotacją państwa. W opracowaniu wykorzystano dane ze statystyki GUS. W ocenie zmian wykorzystano wskaźniki struktury powierzchni ubezpieczonych upraw i wskaźniki dynamiki dla ustalenia relatywnej zmiany znaczenia poszczególnych gatunków roślin uprawnych objętych ubezpieczeniem. Obliczono także średnią sumę ubezpieczenia przypadającą na 1 ha ubezpieczonych upraw i określono jej trend. Wskazano na wciąż niezadowalający poziom ich powszechności ubezpieczenia upraw wśród rolników. Mimo modyfikacji regulacji prawnych, mających na celu popularyzację ubezpieczeń wśród rolników, szacuje się, że objętych ochroną jest tylko około 20% powierzchni upraw. Najczęściej ubezpieczano produkcję zbóż, które miały ponad 50% udziału w ogólnej powierzchni objętej ubezpieczeniem. Najwyższy odsetek ubezpieczeniowej powierzchni obserwowano dla rzepaku, którego dotyczy najwyższe ryzyko produkcyjne.

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