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Weather Risk Management In The Agricultural Sector Of Poland And In The World

Abstract

Farming is an activity which is heavily exposed to risk. Farmers have to deal daily with the change of weather, crops, and prices, resulting not only in fluctuations in income, but also in the need to incur emergency expenses.

The purpose of this paper is to analyse the available catastrophic insurance dedicated to the agriculture sector, with particular emphasis on compulsory insurance and with a comparison of the insurance systems of other countries and the Polish system. I also examine the level of awareness of Polish entrepreneurs in the agricultural industry of the impact of weather conditions on the business. The methodology used to answer the research question was the CAWI survey and market research.

Despite the mandatory insurance of the selected risks, farmers still do not see the necessity to purchase insurance. The very design of the instrument raises questions, especially about the enforcement system for compliance with the insurance obligation and the type of risk being insured. The low awareness of the impact of weather on agricultural business and the possibility to protect the farm and benefits via the undertaken insurance activities is an undoubted problem in the development of insurance instruments on the market to protect the agricultural sector against adverse weather conditions.

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While one can see some similarities when comparing agricultural insurance schemes in different countries, nonetheless it is clear that these systems are significantly different from each other. This difference is justified, as is not possible to create a single coherent system which would take into account the economic, social, and cultural differences. Viewed against the background of insurance schemes operating in other countries, the Polish system looks disadvantageous. Given the rapid increase in the number of extreme weather phenomena and their increasing scale there is an urgent need for reforms.

Keywords: *agricultural insurance, compulsory insurance, weather derivatives, catastrophic weather risk management*

1. Introduction

Agricultural insurance is a specific area of insurers' activity. Farming is an activity heavily exposed to risk. Every day farmers have to deal with changes of weather, crops, and prices, resulting not only in fluctuations in income, but also in the need to incur emergency expenses (Ługiewicz, Szymański 2010, p. 179). Agriculture is dominated by damages caused by random events, which frequently take on the character of natural disasters. The relatively high probability of occurrence of adverse weather events and the large amount of potential losses is reflected in the high prices of this type of insurance, which leads to the fact that there is little interest in this instrument.

The purpose of this article is to analyse the catastrophic insurance dedicated to agricultural industry available in Poland, with particular emphasis on compulsory insurance and with a comparison of the insurance systems of other countries and the Polish system. I also examine the level of awareness of Polish entrepreneurs in agricultural industry of the impact of weather conditions on their business.

2. Agricultural insurance in Poland

In Poland, the issue of crop insurance, and its high price, is regulated by law. In addition, insurance companies offer insurance designed specifically for farmers, which allow for additional and voluntary protection of their business.

Problems with the profitability of agricultural insurance are emphasized by the insurance community. In late 2008, the PZU Group announced that it paid more than PLN 150 million due to compensation for drought damage. The

amount indicated by the insurer accounted for half of the amount of all premiums collected by the agricultural crops and livestock insurance market (including subsidies from the state budget) (Kaniewski 2010, p.130).

The 5% threshold means that farmers whose operations are exposed to the greatest risk may purchase appropriate insurance solely on market conditions, without using the subsidies provided by the budget. The risk for some types of crops (e.g., tobacco, fruits) is, however, so large that actually the insurer may offer insurance at twice the level.

It is also problematic to determine the amount of damage done by meteorological phenomena. The insurance community indicates that it is difficult to assess the relationship between the potential and actual crop yield. This is due to the fact that the farmers do not keep records of previous years. Those responsible for the valuation of damages are only able to visually assess the amount of losses in relation to the entire acreage (Kaniewski 2010, p.130).

Due to climate change and economic fluctuations the developmental opportunities of farms have become smaller, hence it is important to provide full insurance coverage. Insurance companies, in addition to compulsory insurance, also offer voluntary insurance. These types of coverage include, among others, the insurance of property, livestock, agriculture machinery and equipment, crops, stocks, means of production in agriculture, and crop production in progress (Ługiewicz, Szymański 2010, p. 179).

Insurance of property in farms is complementary to the compulsory insurance of farm buildings. It includes the effects of random events, such as fire, hurricane, hail, avalanche, flood, torrential rains, collapse of the land surface and landslides, lightning, explosion, aircraft fall and the rescue operation carried out in connection with the event, as well as damage caused as a result of theft or burglary or the escape of water from plumbing devices.

Another insurance designed specifically for the agricultural sector is the insurance of crops, fruit trees, fruit bushes and berry plantations, and perennial crops, but only during the years of their planning, and the fruit trees and fruit shrubs in nurseries in the year following their shield budding. The insurance covers damage resulting from hail and flooding in all crops and yields, spring frosts in annual crops sown or planted in the spring before 30 June, and a hurricane in the straw, flax, and hemp during the period of decortication, hop crops, a fire in the tobacco and herbs crops in the technological process of drying, as well as in the cereal crops, oilseed rape and turnip rape (Obstawski 2004, p. 238).

The sum insured is declared by the policyholder and should correspond to the unit price of the crop not higher than the purchase price and the estimated size of the crop in the particular area. The basis for calculating the amount of damages

is: surface area of the field on which crops have been damaged or destroyed, and the amount of yield which has been achieved (Obstawski 2004, p. 238).

Due to the polymorphism of farming, insurance companies suggest that people working in agriculture should use insurance and insurance packages to secure pro-agriculture activities, such as agro-tourism. Insurance companies offer comprehensive property insurance for farmers or so-called packages covering fixed and movable assets of the farm, livestock and production in progress (Obstawski 2004, pp. 239-240).

Polish farmers are only mildly interested in insuring crops (so far insurance policies covered mainly such disasters as fire, hurricane, hail, spring frost, flood, and rodent plagues; but not drought). According to industry estimates less than one-tenth of the crop in Poland is insured (one million hectares insured vs. 13 million hectares of crops). For example, only 30,000 to 40,000 farmers, or about 2 percent of the total number of Polish farms, insure their crops with PZU SA, which collects about 80 percent of the premiums for this type of policies. The interest in insurance against disasters increases immediately after the occurrence of weather anomalies, but this increase is short-lived (Obstawski 2004, pp. 239-240).

3. Compulsory insurance

The legislator, taking into account the social and economic considerations and the reality of the danger of large-scale damages, has imposed an obligation on the owners of farms to conclude insurance contracts (Rapkiewicz 2010, p.4). Article 3 of the Act of 22 May 2003 on Compulsory Insurance, on the Insurance Guarantee Fund, and on the Polish Motor Insurers' Bureau provides that liability insurance or property insurance of an entity is compulsory, if an Act or an international agreement ratified by the Republic of Poland imposes an obligation to conclude an insurance contract (Obstawski 2004, p.199).

In Poland, there are two types of compulsory insurance of agricultural activities. All farmers are required to take out the following compulsory insurance policies (Ługiewicz, Szymański 2010, p.183):

1. liability insurance for farmers who own the farm, called farmers' liability insurance,
2. insurance of farm buildings against fire and other hazards, called the insurance of farm buildings.

Compulsory Third Party Liability insurance also applies to agricultural activities and to all motor vehicles travelling on public roads (Obstawski 2004, p.238).

Agricultural insurance is regulated by the Act of 7 July 2005 on agricultural crop and livestock insurance. The crops and farm animals, the risk of damage caused by natural disasters, including floods, are the subjects of insurance listed in the Act. In the case of crop insurance, the obligation to conclude agreements was imposed on farmers who benefit from the system of direct subsidies. At the same time the Act introduced a mechanism of subsidies from the budget for insurance premiums for both crops and livestock, as well as a target subsidy to cover part of the compensation for the damage caused by drought. The budget for 2010 allocated 300 million PLN for the insurance of agricultural crops and livestock (Rapkiewicz 2010, p.4).

Compulsory insurance contracts should be concluded with a selected insurance company carrying out insurance activities in the field of this insurance. The contract specifies the amount of the guaranteed sum insured or the sum insured which represents the upper limit of the insurance company's responsibility. The contract is concluded for a period of twelve months, and the tariffs and the amount of insurance premiums for compulsory insurance are determined by the insurance company (Ługiewicz, Szymański 2010, pp.183-184).

Under the Act, the scope of the civil liability insurance applies to farmers and those staying in the same household or persons who work on the farm, for damages which result in death, injury, or health disorders; or loss, destruction or damage to property. Responsibility also includes damages incurred with caused by the slow-moving vehicles belonging to the farmer and used in connection with the farm activities (Ługiewicz, Szymański 2010, p.184).

The compulsory insurance system consists of groups of stakeholders encompassing insurers, reinsurers, brokers, insured, and government and supervisory authorities (Łasut 2008, p. 131).

A distinctive feature of the system of compulsory insurance in Poland is the fact that it compulsorily covers direct losses, i.e., the value of the assets of individuals and business entities; and municipal and Treasury property broken down into spheres of risk. The premium is mandatory in all spheres and is levied on the basis of public law liabilities. With the risk estimated at zero or as minimal, the premium rate is low, but it increases with increasing risk. The value of the premium is dependent on the probability of an event, rate of exposure to risk (e.g., the probability of a given depth of a flood or the duration of an event), susceptibility of the property to damage, and the value of the property (Łasut 2008, p. 131).

Mandatory insurance is offered under the policy along with other catastrophic risks, in section II of property insurance, by all legitimate insurers.

Other possible indirect losses resulting from floods (e.g., interrupted business) are insured optionally; in this case the value of the premium depends on the estimated risk of the occurrence of a given event in the area.

Moreover, if farmers receive direct subsidies for agricultural crops they are required to insure at least 50% of their acreage. Insurance is subsidized by the state budget; farmers receive a 50% subsidy for premiums (Kaniewski 2010, p.129). From 1 July 2008, all farmers receiving EU subsidies are required to insure at least half of their crops against damage caused by five risks: floods, drought, hail, adverse effects of winter, and spring frosts. On 16 February 2007 the Polish Sejm urgently adopted amendments to the Act, existing since 2006, on subsidies to crop and livestock insurance. However, the amendments did not satisfy insurance companies, particularly with respect to the participation of the state budget in the payment of compensation (reinsurance). The new government project included an article concerning reinsurance of drought, but it was not in line with the position of the Polish Chamber of Insurance. It defined the share of the state budget only when the amount of compensation payable would be higher than 90% of the premiums from the subsidized contracts than the insurance amount in the total portfolio as a whole, which in practice does not provide any protection for an insurance portfolio. The amendment to the Act assumes that the state's share will account for 60% of the difference between the total amount of compensation payable in a given calendar year with respect to damage caused by drought and the amount representing 90% of total premiums (Jankowski, Wojciechowska 2010, p. 141).

Compulsory insurance protects farmers, and above all their property, against the effects of events such as fire, flooding, torrential rain, hail, snow, lightning, explosion, landslides, subsidence, avalanches, falling aircraft, and a hurricane. A hurricane is defined as wind with a speed over 24 m/s (86 km/h), the effect of which causes massive damage (Article 67, Item No.1, of the Act of 22 May 2003 on Compulsory Insurance).

In Poland, 38% of the population, i.e., 14.6 million people, live in villages and rural areas. Seventy one percent, or 10.4 million people, are engaged in agriculture individually, and the average farm size is 8.3 hectares. It is estimated that 77% of farmers purchase the compulsory insurance, and only 3-4% purchase crop insurance (Jankowski, Wojciechowska 2010, p. 143).

The purpose of compulsory insurance is to raise public awareness about the probability of the occurrence of a hazard, discourage investment in flood plains, stimulate flood protection, assist victims of floods, and reduce the cost of flood damage recovery for taxpayers (Łasut,2008, p. 131). Determining the government premiums at a lower level than calculated by insurance companies may motivate insurance companies to engage in pro-environmental activities. Premium set at too low a level should lead to a lower risk (Jankowski, Wojciechowska 2010, p. 142).

The introduction of the obligation to conclude the insurance contract was designed to transfer the risk of damage caused by natural disasters on insurance companies, but according to data published by the Polish Financial Supervision

Authority (KNF), the obligation is not fully implemented. In 2009, individuals who own farms concluded 1,627,819 compulsory insurance contracts for farm buildings, with respect to which a total premium of nearly PLN 375 million was allocated.

However, according to the Statistical Yearbook of the Republic of Poland for the year 2009, published by the Central Statistical Office, in Poland there are 1,807,000 individual farms with more than 1 hectare of agriculture land. This data shows that almost 200 thousand farmers have not concluded insurance contracts, despite the fact that it is compulsory. However, the problem of non-compliance with the obligation to conclude an insurance contract for agricultural buildings is even larger. The obligation to conclude insurance contracts concerns all farmers, not only those who possess a farm with an area exceeding 1 hectare. It is worth pointing out that the analysis of data from the Polish Financial Supervisory Authority (KNF) shows that even fewer farmers conclude the public-liability insurance contracts than contracts for the insurance of buildings. In 2009, according to information published by the KNF, 1,439,391 individuals concluded the public-liability insurance contracts (Rapkiewicz 2010, p.4).

In addition, not all who conclude obligatory insurance contracts for farm buildings will receive full compensation for the damage suffered. The reason for the lower compensation is so-called underinsurance, i.e., a contract for an insured amount which does not correspond to the full value of the building(s). The number of other agricultural insurance contracts, by which the grower can get insurance coverage in case of floods and other accidents, is considerably lower. In 2009, according to the KNF 41,826 crop insurance contracts and 22,998 livestock insurance contracts were concluded (Rapkiewicz,2010, p.4).

The number of compulsory insurance contracts is low (in relation to the number of potential insured), even though non-compliance with the obligation may result in statutory penalties. The competent local wójt (mayor, president) is the authority obligated to conduct an audit of the insurance contracts for farm buildings and agricultural crops, while the starosta (the governor) is the legitimate body. The assessment of a penalty for non-compliance with the insurance obligation falls to the municipality. It is therefore the municipality which is burdened with an inspection and enforcement obligation. A penalty for non-compliance with the requirement of having a farm building(s) insurance contract is the equivalent of EUR 100, and crop insurance - the equivalent of 2 euros per 1 hectare of crops which should be insured. This amount can be considered high for the insured, but one can argue that it is not a potentially significant revenue for the local government and, as indicated by the analysis of the implementation of the budgets of selected municipalities, these insurance obligations are either not enforced, or only to a negligible extent (Rapkiewicz 2010, p.5).

The negligence of municipalities in this area can be considered not only as an infringement, but it may have implications in terms of farmers' reluctance to fulfil their insurance obligations. Actions with respect to the execution of this obligation should be treated as preventive (both in terms of general prevention, that is to all insurers, as well as specific prevention - to a particular farmer) in terms of fulfilment of the obligation to conclude insurance. Thus, the lack of supervision in this respect in previous years may have led to an increased number of farmers without the required insurance coverage (Rapkiewicz 2010, p.5).

Compulsory insurance is seen as a special form of additional taxation, and arouses widespread scepticism, therefore it is important to analyse the conditions of its (possible) introduction.

It is necessary to intensify education to increase insurance awareness, and not only among farmers. Such actions should be initiated by the public administration and local government units.The costs of such actions would certainly be significantly lower than the public funds spent on dealing with the consequences of natural disasters.

4. The level of awareness of Polish entrepreneurs in the agriculture sector in terms of the impact of weather conditions on economic activity: The CAWI study

Agricultural activity is particularly vulnerable to the adverse impact of both catastrophic and non-catastrophic weather risk. Catastrophic weather risk is the danger associated with the occurrence of extreme weather events such as hurricanes, floods, torrential rain, hail, snow storms or extremely high temperatures. The concept of risk of a non-catastrophic nature is used instead to describe the financial consequences for businesses caused by events such as heat, cold, rain, snow or wind.

In order to determine the level of awareness of entrepreneurs in the agricultural sector in the Lodz region of the impact of weather conditions on their business, a CAWI survey was used to examine the opportunities to insure business against weather risk, and its benefits.

A Computer-Assisted Web Interview (CAWI) is a computer-assisted interview (survey) conducted through a website. It is a method of gathering information in a quantitative survey of a market and public opinion, in which respondent are asked to complete a questionnaire in electronic form.

The survey was sent to 377 agricultural industry entities whose e-mail addresses can be found on the following sites: www.panormafirm.pl, www.pkt.pl, www.eksport-import.pl.

Out of 377 questionnaires sent to companies in the construction industry about 15 respondents filled out the questionnaire. Due to the low response rate, the study was treated as a pilot study. The majority of the respondents (9 responses), when asked about the nature of their business, checked forestry. The next largest group checked agriculture (6). The least of these entities are engaged in the manufacturing (4). It should be noted that the respondents could choose more than one answer. Figure 1 shows the distribution of the agricultural sector entities participating in the survey by the nature of their business. As can be seen, 66.67% of the surveyed companies employ 11 to 50 employees, 20% - 51 to 200, and 13.33% up to 10.The vast majority of companies (66.67%) have been in business for over 20 years, 20% from 11 to 20 years, the remaining 13.33% checked the interval from 6 to 10 years (see Figure 2).

Figure 1.Type of business

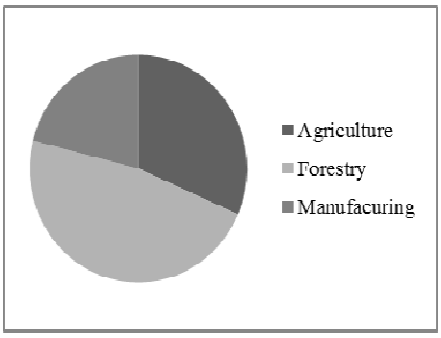
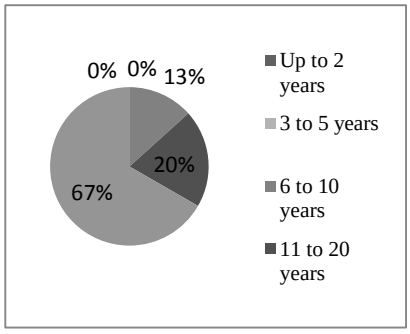


Figure 2. Number of years in business

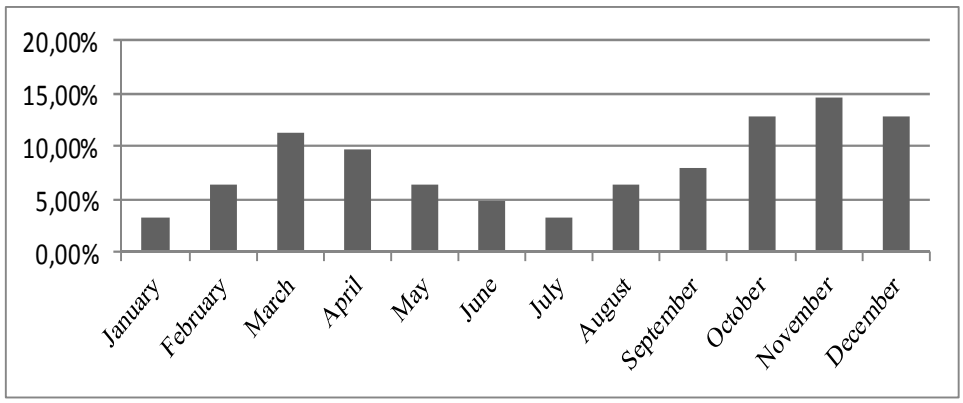


Source: Author's own compilation based on CAWI.

Asked about the form of business, 53.4% of the respondents checked state enterprise, 20% - limited liability company, 13.33% - self-employed, 6.67% - general partnership, and 6.67% - cooperative.

The respondents reported the highest revenues in November (14.5% of responses), October and December (12.9%), March (11.3 %%), April (9.6%), September (8%), February, May and August (6.4%), June (4.8%), July, and January (3.2%).

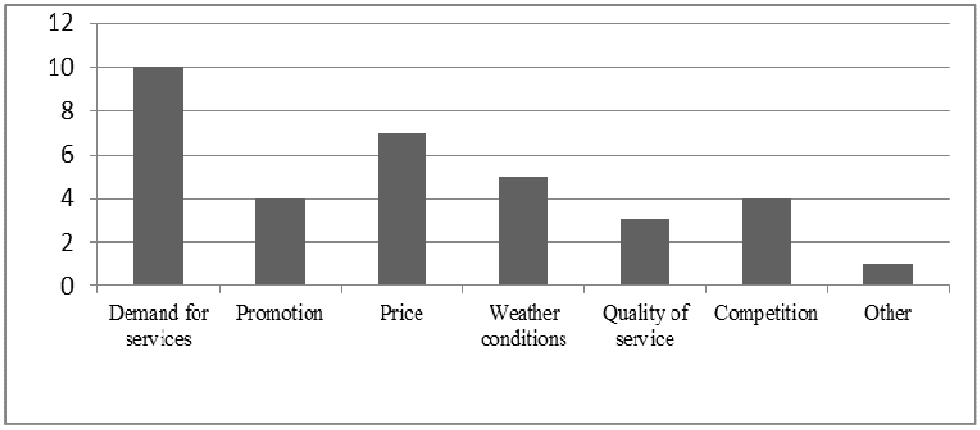
Figure 3. Months in which entities in agriculture sector achieve the greatest income



Source: Author's own compilation based on CAWI

During the survey, most of the respondents (53.33%) considered that weather conditions did not affect the company's business activities, while among the factors that may affect the achieved revenues five entities chose weather, (weather conditions were the third most frequently reported factor). The demand for services (10 responses) was the most frequently indicated factor, followed by price (7), promotion and intensity of competition (4 responses each), quality of service (3) and other (seasonality was indicated in 1 response).

Figure 4. The influence of various factors on the revenue in the agricultural industry



Source: Author's own compilation based on CAWI.

57.14% of respondents indicated that cloudy conditions and little sunlight did not affect the amount of revenue of the company. The next most often indicated factors without impact on the financial result of the company were: the average

monthly wind speed (42.86%), the average monthly rainfall and the intensity of snowfall (14.29%). Only one entity pointed out that the average monthly temperature had a strong impact on revenues.

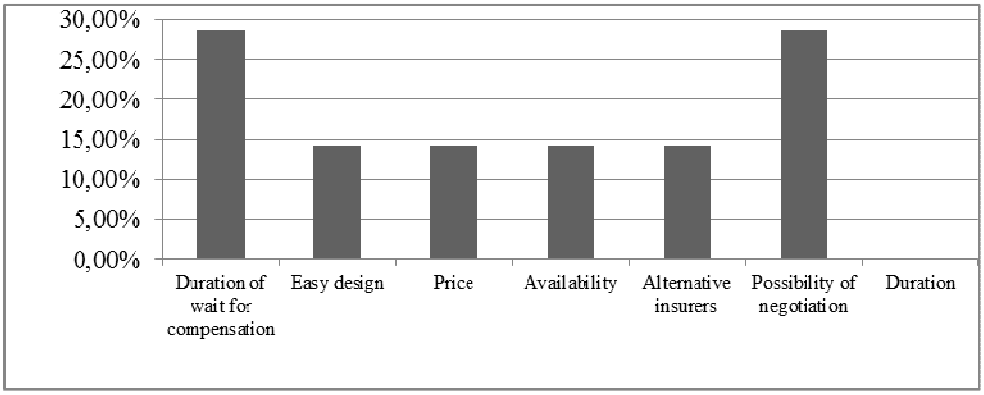
More than half of the respondents (57.14%) declared that in the history of the company there were weather events of both a catastrophic and non-catastrophic nature.A hurricane was indicated as the main extreme weather event causing harm to entities in the agricultural sector. Other weather anomalies included: flood, storm, drought, snowstorm, torrential rain, and hail, and the losses were mainly at the level of PLN 5,000 to PLN 50,000. One respondent declared a loss of over one million Polish zlotys (PLN). Losses involved destruction or decrease in the value of fixed assets.

Because the losses were "potentially low" or "difficult to prove", 71.43% of entities surveyed did not consider using, nor used instruments to protect against the adverse impact of weather. Two companies insured their business against the "fire and wind" and "random events".

None of the entrepreneurs knew about the concept of weather derivatives and none took advantage of this tool.

Figure 5 shows the distribution of attributes which, according to the respondents from the agricultural sector, should be contained in insurance against the adverse effects of weather. According to the respondents the most important attributes include the ability to negotiate the terms of the contract (28.57%) and prompt compensation (28.57%). The other most frequently-mentioned characteristics were: easy design of the protecting instrument, price, easy access to the insurer, and the possibility to select the insurer (each 14.29%). None of the respondents saw the duration of the insurance contract as a significant attribute.

Figure 5. Attributes of insurance against weather risk



Source: Author's own compilation based on CAWI.

After a thorough analysis of the CAWI results it can be concluded that the operators in the Lodz region agricultural sector declared, on the one hand, that the weather did not affect their business, while on the other hand in the history of their business they experienced catastrophic and non-catastrophic weather events that caused large losses. This dichotomy may be due to inaccuracies in filling out a questionnaire or a lack of awareness of the entities in the agricultural industry of the impact of weather conditions, which is confirmed by the fact of not using insurance instruments.

5. Agricultural insurance systems in selected countries

Comparative analysis of the present agricultural insurance schemes shows large differences between countries. Governments in many countries support the emergence of crop and livestock insurance, treating this as a form of subsidy and support for the development of agriculture. Insurance of basic crops is often mandatory or, in connection with loans to farms, both conventional and partially reimbursed by individual governments. Moreover, every year, governments in many countries establish and manage so-called disaster funds.

In the U.S., there is no insurance for specific risks, but crop insurance covers most of the risks, from the basic coverage or Catastrophic crop insurance (CAT), which guarantees from 50% of the average yield of a farm to up to 80% or 100%. The USA and Canada have also developed crop-revenue insurance and crop-income insurance (Wojciechowska- Lipka, Rojewski 2002).

In the U.S., both crop-revenue insurance and crop-income insurance can be found. As many as 73% of premiums come from revenue insurance products, which include: revenue insurance indexed by surface area, livestock price insurance, livestock gross margin insurance, and insurance of entire household income. Three standard revenue insurance products are Crop Revenue Coverage (CRC), Revenue Assurance (RA) and Income Protection (IP).

About 17 private companies are engaged in crop insurance in the U.S. They work in agreement with the Risk Management Agency (RMA) USDA. About 45% of field production is insured (23% in the EU). The average premium rate is close to 9%, much higher than in Europe (4%), mainly because they offer a wider coverage: crop-revenue insurance or crop-yield insurance versus mainly single risk insurance. Premium subsidy is US$ 1.900 million, or 58% of the total premium. The U.S. government also provides funding for the administrative costs of insurance

companies and provides reinsurance. Total insurance support is 72% of the total premium (in the EU about €500 million = 32% support) (Wojciechowska- Lipka, Rojewski 2002).

In analysing existing insurance schemes in Europe, it's clear that in almost all European countries the most popular form is single risk (mainly hail) insurance. There is a noticeable direct relationship between the involvement of governments and the development of agricultural insurance. Frequently private companies are willing to insure only hail and fire, and with the increase of government involvement, they provide a more comprehensive insurance coverage.

Comparing insurance schemes, it should be noted that with European crop insurance it is necessary to ascertain which risk caused the loss, while the U.S. multi-peril crop insurance (MPCI) covers crop losses due to plagues and diseases, and damages are calculated simply as the difference between the guaranteed and the actual yield. The European system has higher loss-adjustment costs, but it helps to avoid moral hazard, which is one of the major problems of the US insurance system.

In Bulgaria, the Czech Republic, Hungary, Portugal, Slovenia, and Sweden, combined risk insurance is available (as in Poland). For Belgium, Germany, the Netherlands, and the UK hail insurance or single-products insurance are the main products available. Demand for other products is negligible. There is no public support for insurance. In some northern countries, there is either less demand for crop insurance or they are starting to develop their systems (Latvia and Lithuania). In Finland, private crop insurance is less developed, but there is a public "Crop Compensation Scheme" designed to compensate for yield losses after natural disasters (Łozowski, Obstawski 2009, p.190).

In France, the government finances 50% of the purchase of crop insurance. French insurers insure crops only against hail (corn and sunflower also against hurricane). In the case of a natural disaster, in order to receive assistance it is necessary to have a comprehensive property and crop insurance and the minimum loss of a particular crop must be 27%, and 14% for the whole farm (Baranowski 1997, pp.51-52). Also there is a program of assistance in Israel for farmers affected by natural disasters, but it concerns only those who have taken out insurance at least against hail. Insurance of vegetables, fruit, and citrus, bananas, and cotton crops against hail, frost, and flooding is mandatory. In Greece, crop insurance is also compulsory and costs 3% of the turnover of the farm. This insurance protects the crops from the effects of almost all natural risks and the upper limit of compensation amounts to 70% of the damage. In Great Britain and Italy, crops are insured only against hail (subsidized from the state budget in the amount of 50% of the premium); other risks with respect to crops are seen as uninsurable. In these countries assistance to victims of natural disasters is in the form of low-interest loans and subsidies, *ad*

hoc assistance and compensation for loss to crops, tax rebates, deferral of taxes, and taking over social insurance liabilities. This assistance concerns farms affected by natural disasters where the damage exceeds 35% of crops in particular area (Łozowski, Obstawski 2009, pp.192-193).

6. Conclusions

In Poland the conditions which constrain the use of weather-hedging instruments (i.e. catastrophic insurance and weather derivatives) by the agricultural sector involve a very low level of education of the agricultural community with respect to the functioning of financial markets, low awareness of the possibilities of using financial instruments to reduce the adverse effects of fluctuations of weather factors, and lack of large cooperatives (agriculture producer groups) that would make it possible to employ specialists in the fields of trade, marketing, and risks, including weather risk.

Despite the mandatory nature of the insurance of selected risks farmers still do not see the necessity to buy insurance policies. The design of the instrument itself raises serious doubts, especially with respect to the system of enforcement of compliance with the insurance obligation and the type of risk being protected. There is still a large gap in the market in terms of the weather risk insurance offered. On one hand there is no demand for this instrument, and on the other hand owing to the large risk for insurers this niche is not filled out. It should be noted, however, that the adverse impact of weather on the agricultural sector is not a problem of an individual farm. Losses incurred in agriculture affect the entire economy, and therefore it seems necessary to reform the compulsory insurance system. In addition, the government should not confine its actions to creating a system of incentives to protect businesses against adverse weather conditions. For Poland to follow the model of insurance schemes of other countries, it would be more appropriate to abandon certain actions on the part of state institutions, such as financial assistance for uninsured entities in the event of a natural disaster.

In comparing the agricultural insurance schemes in different countries one can see some similarities, however it is clear that these systems are also significantly different from each other. This fact is justified as it is not possible to create a single coherent system which would take into account the economic, social, and cultural differences. Viewed against the background of insurance schemes operating in other countries, the Polish system appears disadvantageous. Given the rapid increase in the number of extreme weather phenomena and their increasing scale there is an urgent need for reforms.

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Streszczenie

ZARZĄDZANIU RYZYKIEM POGODOWYM WŚRÓD PODMIOTÓW BRANŻY ROLNEJ W POLSCE I NA ŚWIECIE

Prowadzenie gospodarstwa rolnego jest działalnością w dużym stopniu narażoną na ryzyko. Rolnicy codziennie mają do czynienia ze zmianą pogody, plonów czy cen, czego wynikiem są nie tylko wahania dochodów, ale także konieczność ponoszenia nagłych wydatków.

Celem artykułu jest analiza dostępnych ubezpieczeń katastroficznych dedykowanych branży rolnej, ze szczególnym uwzględnieniem ubezpieczenia obowiązkowego wraz z porównaniem tych ubezpieczeń z innymi krajami oraz zbadanie poziomu świadomości przedsiębiorców branży rolnej na temat wpływu warunków atmosferycznych na prowadzoną działalność.

Mimo obowiązkowego charakteru ubezpieczeń wybranych ryzyk rolnicy nadal nie dostrzegają konieczności wykupu polisy ubezpieczeniowej. Duże wątpliwości budzi sama konstrukcja narzędzia, przede wszystkim system egzekwowania niewywiązania się z obowiązku ubezpieczeniowego oraz rodzaj zabezpieczanego ryzyka. Niewątpliwym problemem w rozwoju rynku instrumentów zabezpieczających przed niekorzystnym wpływem warunków atmosferycznych dedykowanych branży rolnej jest niska świadomość na temat wpływu pogody na prowadzoną działalność oraz możliwości zabezpieczania gospodarstwa rolnego i korzyści płynące z podejmowanych działań zabezpieczających.

Porównując systemy ubezpieczeń rolnych w różnych krajach można dostrzec pewne podobieństwa jednak widać wyraźnie, że systemy te znacznie różnią się od siebie. Fakt ten jest uzasadniony, nie ma bowiem możliwości stworzenia jednego spójnego sytemu uwzględniającego różnice gospodarcze, społeczne i kulturowe. Na tle systemów ubezpieczeniowych funkcjonujących w innych krajach polski system wypada źle, widać wyraźnie, że niezbędne są szybkie zmiany.

***Słowa kluczowe**: ubezpieczenie rolne, ubezpieczenia obowiązkowe, derywaty pogodowe, zarządzanie katastroficznym ryzykiem pogodowym*