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MUTUAL INSURANCE FUND AS A FORM OF RISK MITIGATION IN AGRICULTURE

Abstract

The paper discusses the issue of agricultural production insurance with the use of mutual funds. This issue is of particular importance in the context of the Common Agricultural Policy reforms that sets out new support instruments for agricultural risk mitigation with the use of mutual funds. Relying on national and the EU legislation, the authors of the paper analyse the legal conditions of functioning of this insurance reform at the backdrop of regulations regarding mutual insurance funds. It was shown that despite similarities these forms are not identical.

The second part of the paper analyses the rules of functioning and significance of selected mutual funds in the Netherlands. The review of funds considered in the analysis shows that the basic factor contributing to their establishment was the lack of the possibility to insure specified agricultural production risk factors of agricultural production in other insurance company.

Keywords: Poland, the Netherlands, mutual insurance fund, risk mitigation, agricultural insurance, Common Agricultural Policy, risk factors.

Introduction

One of the of economic and social concepts, widely discussed in recent years, is the notion of the so-called social economy, which assumes that not only individual profit and competition, but also co-operation for the purpose of other values may constitute the meaning of human economic activity (not denying the profit/surplus as a factor determining the sustainable development of organizations and societies) (Wygański J., 2009). This approach constitutes an extension of the concept of *homo oeconomius*, who clearly puts forward individual interest over group interest. However, it should be stressed that in many situations the contradiction between the *homo oeconomius* concept and the social economy concept is apparent, since the realization of group interests leads to the achievement of individual goals. One of the distinguishing features of the concept of social economy is the principle of reciprocity, which in practice exposes itself, among others in the case of insurance. Typically, this principle, when referring to insurance, has the following attributes: lack of profit orientation, activity driven to meet the insurance needs of the members of the insurance company, superior role of the insured members in deciding on the fate of the company and the co-responsibility of the insured members for this fate (Milewski P., 2005). It is indicated that reciprocal groups in insurance play a particularly vital role in the case of small communities which, for various reasons, have limited opportunities to use commercial insurance. In addition, insurance systems based on the mutual benefit principle have a number of advantages, making them particularly useful, e.g. in agriculture.

This study is of conceptual and reviewing character. Its purpose is to assess the viability of mutual funds as a form of income stabilization in agriculture. The case study examines the functioning of mutual funds in the Netherlands, where this form of insurance is particularly popular. The source material consisted of Polish and foreign literature on this subject as well as Polish and EU legislation on the functioning of mutual insurance.

An overview of the history of mutual insurance

Insurance companies operating on the mutuality principle are historically the oldest form of assurance. Insurance based on the idea of reciprocity dates back to the ancient times and the Code of Hammurabi, which regulates the principles of mutual help between merchant caravans during travelling in case of losses suffered by one of them (Banasiński A., 1993; Sangowski T., 1998; Ronka-Chmilowiec W., 2002). Similarly, there were agreements between Jewish donkey drivers in Palestine, which provided that if the animal escaped, died, was stolen or torn, its loss would be compensated in nature (Banasiński A., 1993). There were also associations of the Phoenicians, Babylonians or Indians that operated on the mutuality principle; they were formed for the mutual payment of the maritime transport risk. One of the oldest forms of risk mitigation in maritime transport was the institution of Roman law, which bore the name *lex Rhodia de iactu* and whose essence consisted in dividing between members of the maritime expedition the damages resulting from the necessity to discharge overboard part of the cargo in order to save the ship from sinking. The origins of ancient Rome constitute also the origins of personal insurance, whose prototype can be found in the plebeian associations, created by the free but poor people, called *collegia funeratica* and *collegia tenuiorum*, which were meant to help in case of death of their members, e.g. in covering the costs of the funeral

(Kotowski Z., 1999). On the Middle Ages, similar institutions, acting on the mutuality principle, were established in England and in the Germanic countries. In more formalized groups, the mutuality emerged in the 17th century; records of insurance against hail, livestock death, as well as sickness and life insurance from that times have been found (Kotowska O. et al., 2007). The number of commercial insurance companies have begun to drastically increase only in the 19th century, mainly in countries such as the United States, England and Germany. In the Polish lands, "fire regulations" dating back to the 16th and 17th centuries, which regulated, inter alia, the rules of mutual assistance in case of fire, are assumed to mark the beginning of mutual insurance (Bratkowski A., 1999). In Poland, the origins of the insurance system after gaining independence were also connected with the insurance mutuality. The Act of 1921 on the compulsory insurance against fire and on the establishment of Polska Dyrekcja Ubezpieczeń Wzajemnych (Polish Mutual Insurance Directorate) introduced the obligation to insurance all buildings and structures as well as "movable property against fire, harvest against hail and livestock against death" (Nowak R., 2006). In 1921, the Polish Mutual Insurance Directorate was established together with local branches, which in 1927 was transformed into Powszechny Zakład Ubezpieczeń Wzajemnych (Common Mutual Insurance Company). In 1952 this institution was transformed into a Państwowy Zakład Ubezpieczeń (State Insurance Institution), obtaining monopoly on conducting insurance activity, which resulted in the liquidation of mutual insurance.

Mutual Insurance Companies as a modern form of implementation of the principle of insurance mutuality

The current form of "associations", created to cover the losses suffered by any of the members, is representing *mutual insurance companies*. They are one of the two possible forms – with joint-stock company – of conducting insurance business in Poland (similarly in other countries). Legal basis in this respect is defined by the Insurance Activity Act of 22 May 2003, whose Article 38 states that a mutual insurance company (TUW) is an undertaking which insures its members on a reciprocal basis. However, the law does not define the legal attributes of this principle. There is no doubt, however, that unlike joint stock companies, which are associations of capital, TUWs are associations of interested parties (Milewski P., 2005). An important element determining the practical scope of TUW activities in the current legal order is also the provision in Article 44 of the Act on Insurance Activity, according to which, unless the statute of the association provides otherwise, the acquisition of membership in the company must be related to the conclusion of the insurance contract and its loss must be connected with the expiry of the insurance relationship. In practice, however, this implies that the relevant statutory provisions may allow non-insured persons to be included in the membership, which has certain consequences for the capital equipment (shareholders may be natural or legal persons who contribute capital without any interest on becoming insured, which constitutes a departure from the original assumptions of the mutuality). On the other hand, the law stipulates that the statutes of mutual insurance companies may also allow persons who are not members become insured by this company (although their share in the gross contributions cannot exceed 10%). The abovementioned regulations, as well as a number of other factors, make activity of the mutual insurance companies in practice similar in many respects to the model of functioning of joint stock companies, and this applies to the insurance market both in Poland and in other countries (Sulewski P., 2012). Nowadays, the principle of insurance reciprocity in a relatively "pure form" can be realized in the case of so-called small mutual insurance companies (Article 43 of the Insurance Act), which are characterized by a small number of members, a small territorial scope and whose capital requirements are significantly lower than those of ordinary TUWs (although, as experience shows, in practice this institution hardly functions – there is only one such a company). An alternative to small TUWs, which allows for the functioning of the basic principles of insurance reciprocity, is the creation of member reciprocity linkages. They are a form of association of certain groups of members linked by a kind of professional or regional union, which results in a risk common for the association as well as different type of risk and incidence of losses from the other participants of the association. According to Gołąb (2009), these unions constitute, in this situation, their own insurance company, and TUW is in fact a multi-entity corporation of reciprocity unions.

Mutual funds in agriculture in comparison with TUWs

Mutual insurance in agriculture of some countries is implemented in the form of ***mutual funds***. These institutions, despite similarity to the formerly discussed ***mutual insurance companies***, should, however, be seen as a separate legal and organizational form dedicated to the agricultural sector. It is worth noting, however, that in spite of the uniqueness of the indicated solutions, the first mutual insurance company, i.e. the Warsaw Mutual Insurance Company "TUW" (1991), was established in Poland in connection to the problem of risk in agriculture (Dygas M., 2005). The company consisted originally of a group of farmers.

Despite the great similarity between the legal form of mutual companies (described in the Polish legal system as well as the legal systems of other countries) and the mutual funds, there is a significant difference between the two in formal terms. In the case of mutual insurance companies a legal title is created for *compensation* and insurance premiums are calculated on an actuarial basis (with an individual risk assessment of the insured person). In the case of mutual funds, the premium is predetermined amount and independent of the risk level of a specific fund participant (Deutsche Bank Research, 2010). The paid premium remains at the disposal of the fund's contributors until the compensation is paid – so it is not a risk transfer payment, as is the case of typical insurance instruments. Mutual funds are not so much a type of economic insurance in the strict sense of the word, but they rather develop one of the simplest and oldest risk management strategies to accumulate funds in good times for use in weaker years. In addition, this strategy is implemented in the form of co-operation and self-organization, which brings the benefits of group action. Mutual funds mainly play a stabilizing role, limiting (smoothing) fluctuations of certain parameters (income, revenue) between periods, which is why they are sometimes referred to as *mutual stabilization funds* (Bielza Diaz-Caneja M. et al., 2009). It should be noted that the terms of mutual insurance carried out by mutual insurance companies and mutual funds are commonly used interchangeably. In the legal sense this may be a simplification – the decisive role in the matter is played by legal regulations in the area of the insurance system of individual countries.

The problem of definitional differences can be significant in the context of the principles of supporting agricultural risk management within the EU's common agricultural policy. Bearing in mind the Dutch experience, the European Commission recommended in 2001 the creation of mutual funds in the EU Member States in order to stabilize revenues in the pig sector (EC, 2001). The Council Regulation (EC) no. 73/2009 (Official Journal of the European Union, 2009) was published in 2009, in which the expression "*mutual fund*" was the translation of the Polish expression "*fundusze wspólnego inwestowania*". It also provided the basis for the financial support of mutual funds within the framework of the CAP, giving the Member States the opportunity to develop risk management support programs through co-financing of mutual funds. Article 71 of Council Regulation (EC) no. 73/2009 of 19 January 2009 states that "Member States may provide for financial compensation to be paid to farmers for economic losses caused by the outbreak of livestock or plant disease or an environmental incident by way of financial contributions to mutual funds." This support could come from the so-called specific support (part of the national envelope under the direct support scheme – 10% – which EU Member States may use according to their needs). This instrument has not been implemented in Poland. The above-mentioned regulation defines the "mutual fund" as "a scheme accredited by the Member State in accordance with its national law for affiliated farmers to insure themselves, whereby compensation payments are made to such farmers affected by economic losses caused by the outbreak of livestock or plant disease or an environmental incident." The above definition of a mutual fund system, therefore, requires separate legal provisions under agricultural policy instruments, irrespective of the existing arrangements for mutual insurance as such.

Mutual funds in the common agricultural policy after 2013

Although the issues of mutual fund and the entire agricultural risk management area have been emphasized in the principles of the common agricultural policy for a dozen or so years, they have significantly gained importance in the regulations concerning the CAP after 2013. In December 2013 the EU Agriculture and Fisheries Council adopted a package of regulations introducing changes in the Common Agricultural Policy, which reform various aspects of its functioning and set the framework for action until 2020. The texts of the regulations were published in the Official Journal of the European Union L 347 of 20 December 2013 (Official Journal of the EU, 2013). Direct regulations on risk and support for instruments of its mitigation were included in the regulation on support for rural development (Regulation (EU) no. 1305/2013), which means that they will be financed from the so-called Pillar 2 of the Common Agricultural Policy. The legal framework establishing the risk management support instrument is laid down in Article 36 of the abovementioned regulation. It defines three basic areas of agriculture support in the area of risk management, namely:

- financial support for insurance premiums in insurance for economic losses incurred in plant and livestock production caused by adverse climatic events, plant and livestock diseases, pest infestations or environmental incidents;
- financial support for mutual funds to compensate farmers for economic losses caused by adverse climatic conditions, epidemic outbreaks, pest infestations or environmental incidents;
- set up an *income stabilization tool* in the form of financial support for mutual funds, providing compensation to farmers who have suffered a loss of income.

It is apparent from the abovementioned regulation that two of the three instruments to support farmers in terms of risk reduction will be implemented through mutual funds, making them one of the main opportunities for Member States to directly finance risk management in agriculture. In this context, however, there are two major problems that, despite the general suitability of proposed solutions, may discourage countries from implementing them, thus limiting the potential for this form of risk reduction in agriculture. The first is due to the need to comply with the WTO arrangements, according to which forms of state aid for the so-called *green box*, which may include insurance subsidies, may be granted only in the case of losses exceeding 30% of the average over the preceding 3 years (or 5 years after the rejection of the extreme values) (Łozowski M., Obstawski Z., 2009). The second problem is the issue of setting priorities at national level – the allocation of support for mutual funds means the reduction of the envelope for other actions under the second pillar of the CAP. It should be stressed, however, that while agricultural policy regulations are intended to support the development of mutual funds, they are not a prerequisite for the creation of such institutions that can be formed on the basis of general rules (provided they exist).

Advantages and disadvantages of mutual funds

Mutual funds, like all mutual insurances, have a number of features that make them particularly suitable for use in agriculture. Due to the large number of possible risk factors, diversification of production profiles, regional heterogeneity of agriculture and natural conditions, unified insurance offers proposed by large insurance companies in many cases do not meet the needs of farmers.[1] Mutual funds can be created to compensate for losses that fund members cannot become insured against in other insurance companies. They are, therefore, a tool to reduce agricultural income fluctuations resulting from specific risk factors. In comparison to other forms of insurance, mutual funds – which are some kind of agreement between farmers – are characterized by a lower level of moral hazard[2], and often direct knowledge of other farmers influences the reduction of negative selection[3] (Cafiero C. et al., 2007; OECD, 2009), although these phenomena are not completely eliminated. A lower risk of moral hazard is due to the fact that in a relatively small group of people the feeling of a community of interests is greater than in the case of larger communities. The relatively small number of participants also means that at least some of them know themselves, which reduces the asymmetry of the information and reduces the likelihood of negative selection (access to the fund of those at higher risk). The scope of self-control in this type of institution is much higher than in other insurance companies (Skees J.R., 2004).

Mutual funds, similarly to the TUWs in principle, pursue non-profit oriented policies, but to meet the insurance needs of their members, so that the paid premiums (contributions) do not have to cover the margin of the capital owner, which may in many cases be lower than in case of commercial insurance companies (although they must ensure the profitability and liquidity of the fund). In addition, in the case of low damage claims, the unused part of paid premiums are paid back to the fund's participants. One of the main problems with mutual funds is the risk associated with the systemic nature of catastrophic risk factors such as floods and droughts (Meuwissen M.P.M. et al., 1999; Cafiero C. et al., 2007), whose scope of action may include all members of the fund. This may lead to a situation in which accumulated contributions are not sufficient to cover losses, especially in the initial years of the fund's operation (Bielza Diaz-Caneja M. et al., 2009). One solution to this problem may be co-assurance, territorial diversification of the scope of the activity or geographic limitation of such scope.

[1] The research carried out under the NCN project entitled "Methods of measuring and reducing the risk in agricultural production in Poland in the context of institutional changes and climate change" indicates that one of the reasons for not insuring crops within the obligatory insurance system in Poland is the lack of offer covering risk factors that are significant from the farm's point of view.

[2] Moral hazard – a temptation to abuse – a thesis stating that a risk-protected entity may behave differently than if it were fully exposed to risk (www.wikipedia.pl).

[3] Adverse selection – a situation in which people with higher risk are more likely to become insured. This problem is related to the phenomenon of information asymmetry between the insured and the insurer.

The Netherlands is an example of a country with a significance of mutual funds in agricultural insurance.

General information

Among the European countries, the Netherlands is the country where agricultural insurance schemes operating on a reciprocal basis developed the most (Meuwissen M.P.M. et al., 2008). Among other countries is Italy (Janowicz-Lomott M., 2012), although there is a number of problems in the development of this form of insurance (www.agroinsurance.com). In the case of the Netherlands, the discussion on mutual insurance became important in 1999 due to unfavourable weather conditions (floods and droughts), although some of the mutual funds functioned there for much longer (Meuwissen M.P.M. et al., 2008). Another factor contributing to the development of mutual funds was the emergence of the swine fever epidemic (1997/98) as well as foot-and-mouth disease (2001). Commercial insurance companies did not offer insurance policies on these types of events, so farmers started taking initiatives to create a "non-profit" institution that was designed to protect against financial losses from various, sometimes very specific, risk factors.

Table 1 presents the characteristics of selected Dutch mutual funds operating in different agricultural sectors, based on analysis conducted by Assef, Meuwissen and Asseldonk (2012). One problem was the replacement of the terms mutual funds and mutual insurance companies. For example, Assef, Meuwissen and Asseldonk (2012) generally use the term "mutual insurance company" whereas Melyukhina (2011), when referring to similar institutions, concludes that insurance "products" are provided by "mutual funds" representing independent societies but linked to major insurance companies through reinsurance and advisory services. In this sense, they must be regarded as an institutional link between the mutual fund, as defined by the EU regulations for agricultural policy, and the mutual insurance company within the meaning of the Polish Insurance Act. The distinction between the two can also be connected to the scale of activity. As noted by Bielza et al. (2007), mutual funds that are regional in nature can gradually grow and evolve over time, becoming mutual insurance companies, similar to larger insurers. Taking into account, however, the way in which the premium (contribution) was calculated and its subsequent management, the term "mutual fund" is used in the further part of the study, although the term "mutual insurance company" appears in the source materials in relation to the described institutions.

The ***Agriver*** mutual fund was established in 1892 and deals with the insurance of field and greenhouse crops. It was created as a result of the takeover of eight insurance companies offering insurances against weather conditions. In the fund one could buy a policy from one and many risk factors. Agriver's offer is different from that offered by the government program with a broader range of activities and a lower level of franchise.[4] Agriver also offers garden plant insurance. The only unusual requirement to be fulfilled in order to participate in the rain insurance was the five-year period of participation in the fund prior to the compensation for damages caused by intense rain in 2002.

The ***OFH*** fund insures the producers of such fruits as apples, pears, stone fruits, strawberries and grapes. The basic scope of insurance initially included the hail factor, since 2007 the offer was extended to losses caused by frostbite, and since 2010 also other weather factors. OFH does not carry out profit-oriented activities, and possible surpluses are reimbursed to farmers.

Table 1

General characteristics of selected mutual funds operating in the Netherlands

Name of fund	Year of creation	Production profile of the insured farms	Insured plants and livestock	Type of insured damage	Special requirements for members of the fund
Agriver	1892	Farms with field, horticultural and greenhouse crops	Agricultural arable crops and vegetables	Weather factors (hail, storm, frost, torrential rain, snow, ice, lightning, hurricane, erosion)	At least 5 years of membership to cover losses caused by rain in 2002
OFH	No data	Orchard farms and fruit plantations	All fruits	Weather factors (hail, frost, rain and snow, snow, storms, torrential rain, drought, erosion, fire caused by a lightning strike)	-
Avipol	1996	Poultry breeding – breeding and utility herds	Hens and broilers	Salmonella, Mycoplasma Gallisepticum, hen hysteria	Implementation of the quality assurance system in compliance with the Integral Chain Control and Salmonella Control (ICCsc)
Potatopol	1997	Farms specializing in potato cultivation	Seed, edible and starch potatoes	Brown rot of potato, potato spindle tuber viroid	-
Porcopol	2002	Pig breeding farms	Sows	Pseudorabies, foot-and-mouth disease, swine fever	

Source: Assefa T.T., Meuwissen M.P.M., Asseldonk M.A.P.M., 2012.

[4] Franchise constitutes a provision in the insurance contract transferring the insured liability for a part of the damage caused to the insured. An integral franchise means that the insurer does not cover losses below a certain level, the deductible franchise means the reduction of the compensation by a certain amount.

Avipol is a fund whose offer is addressed to the poultry industry. It was set up in 1996 at the initiative of broiler breeders to protect them from salmonella losses. In later years the scope of activity was extended to the losses caused by *Mycoplasma gallisepticum* bacteria and hen hysteria. The state did not compensate for the losses resulting from these diseases, and there was no possibility of insuring against these diseases in other insurance companies. To become a member of Avipol and to acquire insurance, one must obtain a certificate of compliance with the quality assurance system called: Integral Chain Control and Salmonella Control (ICCsc). This system requires a biweekly farm inspection for the detection of these diseases by an organization called the Product Board for Poultry Meat and Eggs (PPE). The insured are the fund's owners, it is not intended to make a profit, and any potential surplus are reimbursed to farmers in the form of a refund or reduction of premiums in the subsequent insurance period.

Potatopol mutual fund started operating in 1997 on the initiative of the Dutch Federation of Agriculture and Horticulture in cooperation with the Dutch Agricultural Retail Association. The initial capital amounting to € 680 thousand was provided by the government. Potatopol was established after severe losses of potato crops caused by the brown rot of potato (*Pseudomonas solanacearum*) in 1995 and 1996. The Dutch government partially covered the loss incurred by the farmers by creating special aid schemes without guaranteeing at the same time any future support. The fund compensates for the financial losses borne by farmers in potato crops caused by brown potato rot and potato ring rot disease. Since 2008 it also provides protection against losses caused by PSTVd (potato spindle tuber viroid). Any potato producer from the Netherlands may join Potatopol. Similarly to other mutual funds, Potatopol is not profit-oriented, and potential financial surplus is returned to farmers.

The last of the funds included in the review is ***Porcopol***. It was set up in 2002 in order to insure Dutch sow breeders against pseudorabies, in the situation of growing epidemics and the intensified withdrawal of the government from helping to cover losses. It was set up by breeding farms exempted from vaccination against this disease, because they exported to countries where such vaccination is prohibited (e.g. Germany). In 2008, the company expanded its scope of activity by covering damages resulting from swine fever and foot-and-mouth disease with the insurance. Compensation payments are made when the sows are infected with the disease and there is the need to remove them from the herd or to carry out a preventive liquidation of the herd. Like other mutual funds, Porcopol is owned and managed by the insured. It is also not-profit oriented, and any potential surplus are returned to breeders in the form of a refund or reduction of premiums. In 2012 it was decided to liquidate the fund because of the low probability of occurrence of illnesses covered by the insurance. The decision to continue the activity was made dependant on the possible doubling of the number of members.

Rules for determining premiums and payment of compensation in the analysed mutual funds

The individual mutual societies operating in the Dutch agricultural sector are characterized by very different models of action, thus it is not possible to indicate the general principles common to all undertakings. The rules laid down in each fund are summarized in Tables 2 and 3.

In the ***Agriver*** fund insurance premiums are subsidized by EU funds. It receives subsidies of up to 60% of the insurance premium covering packet insurances (hail, frost, storm, snow, drought and torrential rain) and "climate insurance policy". In case of torrential rain insurance all losses exceeding 25% of the insured amount are fully covered by the company. For package insurance policies compensation is paid only in case of losses exceeding 30% of the value of the insured production. It is connected with using EU funds, which is regulated by the EU Council Regulation no. 73/2009 setting the threshold of 30% as a limit for granting public aid (in line with the EU agreements with the WTO). Furthermore, Agriver pays only 25% of the insurance amount, regardless of the size of the loss, to people using package insurance policies. In the case of a "climate insurance policy", characterized by a wider range of insurance, no franchise deductible is applied to losses exceeding 30% of the insurance sum. Below this threshold all risk is borne by the farmer.

Table 2

The way to cover losses and reduce the level of franchise deductible

Name of fund	Type of covered losses		
	direct	indirect (consequences of losses)	franchise deductible
Agriver	Destroyed plants and equipment (in the case of greenhouses)	-	From 0 to 75% of the insured value
OFH	Destroyed plants and plantations	-	From 0 to 75% of the insured value
Avipol	The value of hens and eggs	€ 0.045 per broiler per week, age: <19 weeks; € 0.085 for hen per week, age: up to 51 weeks	25% of the value of the loss
Potatopol	Destroyed plants and disposal costs	-	10% of the value of the loss, 20% when the number of seed potato suppliers was >15
Porcopol		€ 225/sow	25% of the loss

Source: as in Table 1.

Table 3

The method of premiums valuation in selected funds

Name of fund	Basic premium	Additional premium			Premium subsidies received	The basis for differentiating premiums	% of reimbursement
		maximal permissible	maximal in the last 15 years	the frequency of premium collection in the last 15 years			
Agriver	No data	No data	No data	No data	60%	No data	No data
OFH	No data	No data	No data	No data	60%	The nature of the damage, the type of plant, the level of responsibility and the type of risk	No data
Avipol	€ 0.09/ hen; € 0.03 per broiler	4 × basic	-	-	None	Herd type	65-75% in the last 10 years
Potatopol	% of the insured amount or fixed rate per hectare	3 × basic	3 times in 1998 and 1999	Every year between 1997 and 2000	-	Type of potatoes	In the years 1997-2000 a maximum of 34% and a minimum of 6.5% was returned
Porcopol	Rigid rate per sow	4 x basic	-	-	None	None	70-80% in 2007-2010

Source: As in Table 1.

OFH, as indicated above, insures fruit plantations and orchards. Unlike Agrivera, it does not offer insurance for drought and torrential rain. Insurance rates range from 0.5 to 30% of the insured sum. The diversification of contributions results from the chosen threshold of fund liability – the lower it is, the higher the premium. In 2011 farmers received subsidies of 60% of the insurance premium (co-financed by the EU). Farmers pay premiums by instalments, i.e. 30% in June and the remaining 70% in November. The level of franchise varies depending on the risk factor – for example, in the case of a hail, the company pays 100% of the total loss amount (the franchise is zero), but the level of loss coverage decreases (franchise grows) along with a decrease in the loss level. In the case of package insurance, the franchise deductible can reach up to 75%.

Avipol compensates for indirect and direct losses in situations where the occurrence of diseases, such as mycoplasma, salmonella and hen hysteria, is confirmed by appropriate institutions. As the contaminated livestock and breeding eggs need to be disposed of, the PPE (Product Board for Poultry Meat and Eggs) covers 25% of the value of the flock and eggs being disposed of, and the remaining 75% of the value of the loss remain on the farmers' side, with Avipol covering the next 75% to insured farmers, applying a 25% franchise. Direct losses in the case of eggs are assessed at a fixed rate of € 1.8 per kilogram. Avipol also compensates for "empty poultry houses" (indirect losses), using a 25% franchise deductible. The amount of compensation depends on the age at which the livestock were liquidated and it is paid by the end of the planned stay in the poultry house (the rate is € 0.045 per week for broilers removed up to 19 weeks of age and € 0.085 for hens removed from the herd before the age of 51 weeks). The insurance premium differs only from the type of insured livestock (herd or breeding flock) and is charged in advance at € 0.09 per hen in breeding farms and € 0.03 per livestock unit in utility herds. In the event of a loss, an additional premium collection may be ordered at a rate of four times the basic rate. Between 2002 and 2012, from 65% to 75% of premiums were returned to insured breeders. Avipol does not use any form of premium subsidising.

Potatopol, however, compensates only for direct losses (lost production) – it does not pay compensations e.g. for the cost of field decontamination. The company applies a 10% franchise, but for example if the farm uses seed potatoes from more than 25 suppliers then the franchise is 20%. Potatopol charges basic and additional insurance premiums. The premium can be expressed in % of the crop value (e.g. 0.3438% in seed potato crops and 0.06% in potato starch potato crops) or fixed amount per ha. The only factor that distinguishes the premium is the type of potatoes (seed, edible, starch). The additional premium should not be higher than three times the basic premium and is charged in the event of a loss.

Porcopol paid compensations for the consequences of losses resulting from the occurrence of previously identified livestock diseases. The consequence of this was the loss of income from the sale of piglets (because sows are liquidated). Direct losses such as the value of livestock, the cost of vaccination and other veterinary costs were not covered by Porcopol as they were borne by the Animal Health Fund (Meuwissen M.P.M. et al., 2003). Compensation for lost income was a fixed amount of € 225 per sow and was paid with an appropriate 25% franchise deductible. Porcopol, like other companies, charged a basic and additional premium, depending on the occurrence of losses. The basic premium was a fixed amount and in 2008 it was € 5 per sow. The fund did not apply different premiums. If the basic premium collected was not enough to cover the losses, an additional premium was charged up to four times the basic rate. Porcopol did not receive funding either from national funds or from the EU. Unused surpluses made up the fund reserves.

The degree of participation of farmers in the funds and the claim ratio

The available information allow for determining the degree of participation in the fund and the claim ratio only in relation to three of five analysed funds (Table 4). It should be emphasized that due to the specific nature of the offer, it is not possible to estimate the market share of individual funds, as in some cases they are the only bidders of each type of insurance. The estimated "participation rate" refers to the percentage of agricultural producers in a given industry, participating in individual companies, or to the share of insured area/livestock in their total number in the Netherlands. According to the information presented, Avipol is characterized by the highest degree of penetration, which covers more than 80% of the livestock in the framework of basic herd and in which more than 70% of Dutch poultry breeders participated. Potatopol is also characterized by a quite high degree of penetration. In case of Porcopol the interest was much lower – approx. 5% of the total number of sows (low interest, as mentioned earlier, was the reason for the decision to terminate the fund). The available data show that all funds on average reached a loss ratio below 1, which means that the compensations paid did not exceed the collected premiums.

Table 4

Scale of activities of selected companies

Company	Loss ratio	Degree of penetration	Number of participants
Avipol	0.2 on average for the period 1997-2011	On average, 83% of the basic herd and 64% of the circulating herd; 75% of breeding farms and 71% of breeding broilers	On average ~ 320 farmers
Potatopol	0.85 for the years 1997-2000	On average approx. 60-63% of the potato area	4192 farmers in 2007; 3552 in 2010
Porcopol	from 0.12 to 0.18 in the period 2007-2010	An average of 5.5% of the total number of sows	119 farmers in 2007 to 73 in 2012

Source: as in Table 1.

The ways of limiting moral risk, negative selection and problems resulting from the systemic nature of risk

As mentioned above, in the case of mutual insurance, the problem of moral risk and negative selection may be limited by direct knowledge of other members of the society, but it is not possible to eliminate it completely, especially in the case of societies with a greater territorial scope. On the other hand, limited territorial coverage means that the risk being insured is systemic. These problems are of particular importance in small companies because even relatively few events can cause a financial imbalance of the fund. As a result, insurance companies in the Netherlands take various steps to minimize the likelihood (or negative consequences) of their occurrence (Table 5). The franchise deductible of various levels is most commonly used; it makes the paid compensation lower than the losses incurred, which is a motivating factor for the participants of the fund to care for the farms and to respect the principles of good manufacturing practices. In some cases additional funding is required from members of the fund, such as the implementation of certified quality assurance systems. The problem of the systemic nature of insured risks is usually solved through reassurance.

Table 5

Ways to reduce the negative impact of insurance-related phenomena in analysed mutual funds

Name of fund	Ways to reduce the moral hazard	Ways of constraining negative selection	Systemic risk		
			allowable geographical concentration of farms	methods of mitigating the systemic nature of risk	subsidies for reinsurance
Agriver	Franchise deductible, additional premium	No data	No data	Assurance (government)	Yes, only in case of frost (49% of reinsurance premium)
OFH	Deductible franchise	No data	No data	Assurance (government)	Yes
Avipol	Franchise deductible, additional premium	Premium increase for older livestock	40% of farms in 1 province	Private reinsurance	None
Potatopol	Franchise deductible, additional premium	Differentiation of franchise		Private reinsurance	None
Porcopol	Franchise deductible, additional premium	None	13% of sows within the 3 km radius	Private reinsurance, regional diversification	None

Source: as in Table 1.

Summary

A review of the Polish legislation on mutual insurance, the revision of EU legislation under the reformed agricultural policy, and the analysed examples of mutual funds from various sectors of the agricultural industry in the Netherlands make it possible to draw the following conclusions:

1. Mutual funds can be one of the most important elements of a risk management system in agriculture (mitigation of the results of risk occurrence). In comparison to typical production insurance they have a number of advantages, making them particularly suitable for the use in areas where there is no possibility of insuring production through “conventional” insurance companies. The mutual fund’s offer is tailored to the needs of a very narrow stakeholder

group. In this context, they do not compete with large companies offering standardized insurance products. By skipping the profit as a business goal, however, they also have the opportunity to create a competitive price offer in comparison with the commercial companies.

2. The Dutch experience indicates that the formation of individual funds was usually preceded by adverse events that led to significant production losses, while the authorities announced their withdrawal from the affected farmers in case of a recurrence of events of the same nature. In this situation of the inability of commercial insurance against the risk factors in question has become a motivating factor for the self-organization and association in mutual funds.
3. According to the literature on the subject, mutual insurance is less likely to be subject to moral hazard and negative selection, but funds operating in the Netherlands are subject to a number of restrictions in order to eliminate these risks. This makes the rules for the functioning of individual funds quite complex, which can be a deterrent for potential new members, especially in the case of the high level of franchise deductible.
4. Mutual funds as a form of insurance are not authorized in the Polish legal system. It should be assumed that the mutual insurance companies described in the Act on Insurance Activity constitute, in principle, a higher form of organization of insurance activity than agricultural mutual funds. It seems, however, that formal requirements established in the Act, even with regard to the organizational form of small TUWs, are too complex to constitute legal framework for self-organization of farmers in the area of insurance business. One possible facilitator in this regard could be the preparation of an appropriate support program under the new rural development programme, but available information indicates that the Ministry of Agriculture and Rural Development is not planning to implement such an instrument. However, it should be emphasized that although such an action could undoubtedly contribute to the popularization of mutual funds, it is not a necessary condition for the development of this form of insurance in agriculture. The Dutch experience indicates that only some of the funds operating there use public funding.
5. The issue of mutual funds become of particular importance in the context of the reformed Common Agricultural Policy, in which the need for agricultural risk management is increasingly emphasized. Mutual funds constitute a fundamental element in this mechanism of transferring aid to loss-making farms. Moreover, this concerns not only a loss in production, but also a decrease in income. Mutual funds are supposed to become an instrument of income stabilization. In the meantime, indirect income stabilizers are mainly indirect payments, but it cannot be ruled out that the next budgetary perspective will transfer, to a greater extent, this role to the risk management area, including to mutual funds. In this context, it is justified to ask for priorities in allocating funds from the second pillar of the CAP and to place them in support of farmers' self-organization for the purpose of risk management.

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