Study on risk management in EU Agriculture

Annex 2 - Case study 2

How to enhance the participation of small-scale and non-specialised farms in crop insurance schemes?
Study on risk management in EU Agriculture

Case Study 2: How to enhance the participation of small-scale and non-specialised farms in crop insurance schemes?
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Foreword

This case study report has been prepared within the “Study on risk management in EU Agriculture” which has been implemented by Ecorys and Wageningen Economic Research between December 2016 and October 2017.

The case study has been prepared by individual expert. The authors of each case studies were selected because of their specific subject expertise. It should be noted that the case studies reflect the opinion and personal style of these experts. The findings in these case studies are used to illustrate and triangulate the outcomes of the data collection in the main report.

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**Executive summary**

Main findings with respect to the specific question of the case study

Farm size is often a significant factor in explaining insurance uptake. In particular, larger farms are generally more specialised and thus more exposed to risk. Moreover, larger farms are more inclined to adopt more sophisticated risk management strategies. Small-scale and non-specialised farms tend to adopt several risk management strategies instead of using crop insurance. These strategies may play a synergic role as well as being a substitute for crop insurance, with irrigation, crop diversification, and off-farm labour as a few examples of the strategies that may be adopted by smallholders in order to cope with risks.

Several interviews have been conducted in order to conclude how it would be possible to enhance the participation of small-scale and non-specialised farms in crop insurance schemes. More specifically, three questions have been posed: 1) Are small and non-specialised farms insured in your Member State? If not, why not? 2) How do small and non-specialised farms cope with risks in agriculture? 3) How could participation in crop insurance schemes be enhanced for small and non-specialised farms?

We conclude that for some Member States (e.g. Italy and Slovakia), promoting greater flexibility into the terms and conditions for crop insurance is perceived to be an effective strategy worth implementing. In other cases (e.g. Italy and Poland) the lack of information campaigns and simplification of the contractual procedures are the main obstacles hampering participation by small-scale farmers. In other cases (e.g. Finland and Bulgaria) the economic incentive may play a key role (subsidies or reduction in taxes may enhance participation). Lastly, it is important to stress that targeting small-scale and non-specialised farmers to encourage crop insurance uptake is not a priority in all Member States. For instance, in the Netherlands as well as in Finland, targeting specific segments of the insurance market is not considered a main policy issue.

Main implications with respect to public policy

We argue that small-scale and non-specialised farms are not well represented in the crop insurance market. Subsidies are not provided in all Member States, and in others they are not sufficient to encourage uptake profoundly. As a result, small-scale and non-specialised farms, being exposed to high transaction costs, due to the limited knowledge that they have of crop insurance, and lacking collaterals to bargain reduced premium rates, tend to not participate in the crop insurance market.

Flexibility in the terms and conditions of insurance contracts, a targeted communication strategy, and aggregation of the demand for insurance are viable directions that may lead to a larger participation in crop insurance programmes. The current system of subsidized crop insurance allows to stipulate contracts, fulfilling strict and specific deadlines, that cover the entire farm (e.g. if a contract is stipulated, the entire land used to cultivate the crop has to be insured in most Member States), with threshold set to 30% (i.e. indemnities are paid when losses exceed 30% of historical yield), for adversities listed by the Ministry (e.g. only certain adversities are covered by insurance). Flexible contracts according to farm representatives should allow more flexibility in
terms of deadlines (i.e. the timing to subscribe insurance contract should be flexible), should allow different (and possibly lower) thresholds, and should allow the coverage of any type of adversity. In addition, farmers should choose which part of the farm and crop is insured. Put differently, farmers look for flexible contracts in terms of conditions: the more the contract will match their needs, the higher the likelihood of uptake. Farmers stated that private contracts are much more flexible in terms of conditions: farmers may bargain almost every single condition with the insurance company and, therefore, may stipulate an ad hoc contract.

The present study cannot draw conclusions on the appropriateness of mandatory participation in crop insurance programmes, or on the effectiveness of linking crop insurance to other payments (e.g. a “conditionality” principle). Indeed, it seems that the adoption of crop diversification and off-farm labour are existing strategies that need to be taken into account when designing flexible insurance schemes for small-scale and non-specialised farms.

In addition, reinforcing the flexibility at the national level (with a coordination at the EU level) seems to be the only path able to allow, on one hand, the development of a stronger culture of risk management and, on the other hand, the construction of a more solid and integrated EU system of risk management. How crop insurance for small-scale and non-specialised farms should co-exist with other policy instruments such as direct payments is not clear. The present study does not conclude on the appropriateness of mandatory participation in crop insurance programmes, or on the effectiveness of linking crop insurance to other payments.
1 Introduction

1.1 Risk management strategies in agriculture

This case study focuses on the theoretical and applied insurability of small-scale and non-specialised farms. In order to formulate conclusions on the mentioned issue, the case study reports on risk management (RM) strategies, legislative framework, and on crop insurance markets in selected Member States. In order to deepen analysis of the issue and present the potential development of an EU wide insurance system, one of the selected Member States is Italy, an emblematic case for two major reasons: firstly, participation in crop insurance programmes is generally low and heterogeneous across regions and crops. Secondly, small-scale and non-specialised farms are a large fraction of the farming population. The Italian insurance approach will be cross-referenced with five Member States (Bulgaria, Finland, Poland, Slovakia and the Netherlands) with respect to the uptake of crop insurance (and other risk management tools) on small-scale and non-specialised farms.

1.2 Structure and development of farms in the EU

EU farm structure is rapidly developing towards large-scale and specialised production to achieve economies of scale. The concentration of production has led to a reduction in the number of farms. However, structure and development are both heterogeneous across Member States and regions, caused by differences in local production circumstances (e.g. land quality, weather conditions and water supply), economic circumstances (e.g. cost of production factors, especially land and labour, and distance to processors and markets) and socio-economic circumstances (e.g. economic viability of rural areas and unemployment) (Vrolijk and Poppe, 2008).

The average economic size in the different EU FADN (Farm Accountancy Data Network) regions is mapped in Figure 1. Farm economic size is included and expressed in standard output (SO). In the North-western part of Europe, farms are on average larger; due to high labour, land, and capital costs there is a high pressure to concentrate production to achieve economies of scale.
1.3 Regulatory context of historical development

As for the legislative framework with respect to crop insurance, the basis is provided by article 37 of Regulation 1305/2013 which states, "Support [...] shall only be granted for insurance contracts which cover for loss caused by an adverse climatic event, or by an animal or plant disease, or a pest infestation, or an environmental incident [...] which destroys more than 30 % of the average annual production of the farmer in the preceding three-year period or a three-year average based on the preceding five-year period, excluding the highest and lowest entry". Annex II established that subsidies are granted for up to 65% of the insurance premium due. There are no specific arrangements for small-scale farmers.
2 On the risk management strategies of small and non-specialised farms

2.1 Theory and literature

Farm size is often a significant factor in explaining insurance uptake: in particular, the larger the farm, the higher the specialization and thus the exposure to specific risks. In addition, the larger the farm, the higher the likelihood to adopt sophisticated risk management strategies (see for example Goodwin et al. 2004; Sherrick et al. 2004; Van Asseldonk et al., 2016; Santeramo et al. 2016). Yet insurance adoption can best be rationalized if a broad set of risk management tools are analyzed at the whole-farm risk management level, i.e. approaches in which multiple risks and farm activities are considered simultaneously (Huirne et al. 2007). For example, a recent study based on FADN records concludes that larger farms are more likely to adopt crop insurance, but also use price contracts more often than small farmers. Larger farms are more likely to access to credit and to use off-farm employment, possibly due to the low efficiency of these strategies for large scale farms (Van Asseldonk et al. 2016).

Apart from these findings, which are interesting but not specifically linked to how small-scale and non-specialised farms cope with risks, it is important to synthesize their main characteristics in order to understand how they manage risks (Reynolds-Allie et al. 2013; Santeramo et al. 2012; Santeramo et al. 2014). First, most small-scale farms rely almost entirely on family members for labour and management: as a result, an adverse event (a temporary/permanent disability, fatigue/stress, a disagreement/divorce, or a death in the family) may be disruptive and lead to farm closure. Second, due to the off-farm labour, there may be relatively limited time to make decisions - it is difficult to follow the market (Santeramo et al. 2016) and evaluate novel risk management options - as a result, decisions are usually sub-optimal. Third, the limited availability of financial resources (and the low access to credit) might delay investments for risk prevention (e.g. irrigation systems). Fourth, the difficulty in replacing and improving farm equipment and facilities exposes farmers to additional risks, particularly for their safety.

2.1.1 On risks faced by small-scale farmers

A digression on the different types of risks faced by small-scale and non-specialised farms may help emphasize what the main issues and challenges to be faced are. First, farmers face production risks (i.e. risks affecting the quantity and quality of production, such as weather, pests and diseases) that are usually coped through risk management strategies such as crop diversification or adopting risk-reducing technologies. In addition, human risks (i.e. the risks due to changes in labour costs) are also important for small-scale farmers - given the relatively high incidence of hand-harvested crops, labour management becomes critical to small-scale farmers.

As mentioned, marketing risk is also present for small and non-specialised farms. While it is true that selecting an adequate marketing channel is essential to obtain high profits, this is certainly even more important for small-scale and non-specialised farms. Financial

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1 In other terms, the limited credit access may hamper farm expansion and limit benefits due to efficient scale (so called “poverty trap”).
risk, related to risks threatening a farm’s financial health, are important in that small-scale farms tend to have limited access to financing options, capital loans, and operating loans, and tend to incur high costs when they do decide to access credit. In fact, smaller farms lack both collateral and adequate, detailed financial and performance records. As a result, lending institutions tend to neglect granting credit, or to increase the cost to access it. Legal risks, stemming from the uncertainties that threaten the legal standing of a farm, are also relevant for small-scale farmers. Those risks tend to exist regarding labour issues, market contracts, and issues related to food safety.

2.1.2 On possible solutions
A strategy worth noting for small-scale farms is the extension of the crop season which, while it may increase exposure to production risks, certainly mitigates the potential effects of sudden changes in the market. Acquiring crop insurance is another method to cope with production risks. However, small-scale farmers represent a small share of the total liability coverage (i.e. less than 10% in Italy) of insured crops and comprise a vast diversity of crops in comparison to large-scale farms cultivating commodity crops. Access to insurance is more limited and transaction costs (i.e. the searching and administrative costs to stipulate an insurance contract) are relatively high. Also revenue-insurance (a contract that is still challenged by transaction costs and thus rarely offered by insurers) may be an effective risk-management strategy for small-scale and non-specialised farms.

Marketing risks may be avoided through food hubs and organizations aimed at aggregating, storing, distributing, and marketing food are valid tools to increase demand and profits (Matson and Thayer 2013).

The use of price contracts is increasing and may represent an effective risk management strategy, especially for small-scale farms. They guarantee access to technology and stabilize market conditions, reducing income variability. A drawback of these contracts is the language of the contract and the legal issues that may be established: those aspects induce extra costs (usually fixed costs) that need to be evaluated.

2.2 Empirical Evidence: Italy
In Italy the crop insurance system is regulated by the Piano Assicurativo Nazionale (PAN), which oversees the set of obligations required to be eligible for crop insurance subsidy. In order to increase participation, in 2015 PAN abolished the pluri- and multi-risk policies (respectively against several perils and all perils) for crops, and introduced three categories of insurable adversities: catastrophic adversities (flood, freezing, frost and drought), frequency adversities (excess of rain, excess of snow, hail, strong wind) and additional adversities (sunstroke, hot wind, temperature jumps). Furthermore, the Ministerial Decree 162 (12 January 2015) introduced the Piano Assicurativo Individuale (PAI), a mandatory document to be eligible for crop insurance subsidies. Each PAI collects historical information on the subsidized crop insurance contracts stipulated by the farmer, as well as data on yields, insured quantities, insured value, and other information. The PAI has been established to improve the monitoring activity of the Ministry so as to promote interventions that may stimulate participation. In 2015 and 2016 the insured values for crops (in the subsidized crop insurance market) have decreased, and were €5 million in 2016, with 86% of insurance contracts sold in
the North (9% in the Centre and 5% in the South). In order to form conclusions about small-scale and non-specialised farms, it may be helpful to take into account few stylized facts of the crop insurance market in Italy emerged from the in-depth interviews to farmers unions, and ministry of agriculture and insurance companies:

- The loss ratio (indemnities over premium) is generally below 1;
- Several on-farm RM strategies are implemented and preferred (by farmers) to insurance;
- Transaction costs for insurance are perceived (by farmers) to be too high for small-scale farmers;
- Crop insurance is mainly adopted by large-scale farms and specialised farms.

### 2.2.1 Returns in crop insurance markets

The Italian crop insurance market is in continuous turmoil, development, and expansion. However, a few macro-features may help with characterizing the market. First, in terms of insured farmers, participation in (subsidized) crop insurance markets is limited, and does not exceed 15% (participation, in terms of number farmers is stably around 15% since one decade). Second, participation is very heterogeneous across regions (85% of contracts are sold in Northern Regions) and crops (mainly apples and grapes). The pool of insured farms is rather stable with approximately 15,000 farms insured every year. Third, the vast majority of contracts that have been sold in the past are mono-peril contracts. Fourth, the loss ratio (computed as indemnities over premium) is generally below 1 suggesting premia exceed paid indemnities (i.e. insurees make positive profit). Overall, these characteristics suggest that the Italian crop insurance market is not mature, and has a large potential for development. The loss ratios suggest that premiums are not actuarially fair (fairness is implied by a loss ratio of one, that is premia equal paid indemnities), and the market is highly distorted by public subsidies (the distortion is inferred by the coexistence of a low loss ratio and an high level of rate of subsidies). The large predominance of mono-risk contracts for specific adversities hampers the development of a widespread market; the narrower the coverage, the higher the vulnerability of the entire system to systemic risks and the likelihood of delays in payments when indemnities are due. The delays may be particularly problematic for small-scale farms, as they tend to be more vulnerable to liquidity constraints.

### Table 2.1 Loss ratio in Italian crop insurance market (computed as indemnities over premium)

<table>
<thead>
<tr>
<th></th>
<th>Italy</th>
<th>North</th>
<th>Center</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>0.61</td>
<td>0.55</td>
<td>0.85</td>
<td>0.93</td>
</tr>
<tr>
<td>2014</td>
<td>0.67</td>
<td>0.69</td>
<td>0.60</td>
<td>0.63</td>
</tr>
<tr>
<td>2015</td>
<td>0.53</td>
<td>0.56</td>
<td>0.36</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Loss ratio is computed as indemnities over premium. Elaboration by ISMEA

### 2.2.2 Risk management strategies for small-scale and non-specialised farms

In 2010 the Italian Agricultural System consisted of 1.6 million farms, with a vast majority of farms (1.1 million) of limited size (below 5 hectares). The picture drawn leads one to hypothesize that farmers operating on small-scale farms may differ from large-scale farms in terms of the optimality of choices and in their aversion to risks. It is reasonable to believe that large-scale farms operate pro-business and on an efficient

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2 A possible explanation is that farmers have internalized the transaction costs, due to the bureaucracy to be followed to sign the contracts and receive the subsidies, as sunk costs and, therefore, tend to renew insurance contracts year after year (in other terms, it is rare to observe new clients in the crop insurance market) (Santeramo et al. 2016).

3 Source: 2010 National Agricultural Census by ISTAT.
scale: on one hand the specialization of large-scale farms exposes their activity to higher risks, on the other hand it allows them to raise the expected returns. The high specialization is less compatible with some RM strategies (e.g. crop diversification and off-farm labour), and more compatible with others (e.g. irrigation).

As mentioned, in Italy small-scale farms (predominant in the Southern Regions, which are characterized by less productive agricultural systems) tend to be non-specialised farms, and to not adopt irrigation systems.

### 2.2.3 Crop insurance participation for small-scale and non-specialised farms

In Italy (subsidized) crop insurance is more diffused among large farms. A concise description of this situation is provided by two tables of detailed statistics on the crop insurance market in Italy. In particular, table 2.2 shows the participation rate in crop insurance market by farms’ class size. Participation (in terms of number of insured farmers) is lower among small farms (participation is as low as 9 %) with respect to large farms (participation reaches 18 %).

**Table 2.2 Crop insurance participation by farms’ class size**

<table>
<thead>
<tr>
<th></th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Insured</td>
<td>91 %</td>
<td>86 %</td>
<td>82 %</td>
</tr>
<tr>
<td>Insured farms</td>
<td>9 %</td>
<td>14 %</td>
<td>18 %</td>
</tr>
</tbody>
</table>

Data refers to a representative sample of farms. Small farms are defined as farms with less than 5 ha or revenue below €20 000; large farms are defined as farms with more than 35 ha or revenue above €1 million.

Table 2.2 suggests that larger farms, either in terms of economic size or by total area under cultivation, are more likely to participate in crop insurance. This is not surprising: several studies conclude that farmers' endowments are a key driver for crop insurance decisions and the larger the farm, the higher the likelihood to use crop insurance as a risk management strategy (Goodwin 1993; Smith and Goodwin 1996; Santeramo et al. 2016).

The limited percentage of small-scale farms in the insurance markets is likely dependent on the high transaction costs (i.e. the cost of bureaucracy to claim subsidies and the delays in payments) associated with enrollment in insurance schemes, which may inhibit operators of small farms, insurance agents, and companies that service these small farms, leading to limited participation (Santeramo 2016).

### 2.2.4 Crop insurance participation for small-scale and non-specialised farms in a nutshell

**Question 1: Are small and non-specialised farms insured in Italy? If not, why not?**

As explained above, small-scale and non-specialised farms are relatively less present in the insurance market in Italy. In terms of percentage, the likelihood that a small-scale farm is insured is as half as much the likelihood that a large-scale farm is insured. These characteristics are well evident in the South, where small-scale farms are the vast majority and, as a result, participation in crop insurance is very low. As previously mentioned, studies show a direct correlation between farm size and insurance enrolment.
**Question 2: How do small and non-specialised farms cope with risks in agriculture?**

Crop diversification, off-farm labour, and irrigation are risk management strategies adopted by small-scale and non-specialised farmers, in substitution of crop insurance. In particular, crop rotation and crop diversification are the rules rather than the exceptions for small-scale and non-specialised farms, whereas irrigation and physical barriers against insects or weather events (e.g. hail) are the most preferred strategies for small but highly productive farms. The use of off-farm labour as a diversification strategy is adopted either by relatively very small farms or non-specialised, or by small but specialised and high productive farms.

**Question 3: How could participation in crop insurance schemes be enhanced for small and non-specialised farms?**

It is difficult to list the major obstacles to the participation of small-scale farms in crop insurance programmes. The lack of a culture on cop insurance, the cost of bureaucracy and the adoption of alternative risk management strategies are some of the potential obstacles. Last but not least, the legislative framework for subsidized crop insurance is perceived as complicated by small-scale farmers and it has been complicated even more by the transition to a centralized system (the PAI). The Ministry of Agriculture is constantly looking for a deeper understanding on how solving this issues and, in particular, conclude on three aspects: first, flexible contracts should be offered (e.g. revenue insurance is a promising tool); second, communication should be improved as small-scale farmers have little trust in insurance companies and limited knowledge of insurance contracts; third, demand for insurance should be aggregated by farmers unions, also called “Consorzi” (currently not functioning well in the Southern regions).

**Take-home message**

Small-scale and non-specialised farms tend to operate at lower efficiency, and to not consider crop insurance as a valuable RM strategy: they are almost out of the insurance market. These peculiarities highlight the necessity of understanding how to design risk management strategies for small-scale and non-specialised farms, other than crop insurance contracts. Flexibility of contracts, communication, and aggregation of the demand for insurance are paths that should be followed to enhance participation.
3 Three Questions on Crop Insurance: Evidence from Selected Member States

3.1 Further evidence from EU Member States

In order to gain further insights on the topic, so as to conclude how to enhance participation of small and non-specialised farms in crop insurance schemes, several interviews have been conducted. More specifically, the three questions posed before have used again, as they proved to be essential in understanding the Italian case: 1) Are small and non-specialised farms insured in your Member State? If not, why not? 2) How do small and non-specialised farms cope with risks in agriculture? 3) How could participation in crop insurance schemes be enhanced for small and non-specialised farms? The answers provided by experts from different EU Member States allow us to draw conclusions about the general tendency of insurability of small and non-specialised farms.

3.1.1 Bulgaria

Since 1992, crop insurance has been voluntary in Bulgaria. Initially, crop policies provided coverage against two risks—hail and storms—but the list of perils was extended to include excessive rain, fire, frost, and floods. Coverage for winter crops also includes frost, slush, and water accumulation risks. The insurance market is competitive (and competition is mostly price-based). Premium rates are calculated by actuaries, but rates are subject to approval by the Financial Supervision Commission that revises the premium rates (Mahul and Stutley, 2010). Small-scale farms dominate in all regions in the Member State, and account for approximately 70% of the entire population of farms in Bulgaria, a percentage that has been slightly increasing over time (Mishev et al. 2010).

**Question 1: Are small and non-specialised farms insured in Bulgaria? If not, why not?**

Small farmers' interest in insurance is low. The main reason is the lack of more comprehensive insurance products on the market, and the consequential divergence of supply and demand. In particular, there is no multi-peril crop insurance (MPCI); price and income agricultural insurance is not offered, and index insurance products also do not exist. On the other hand, there is a large difference in the amount of collateral and debt between farms affecting demand for insurance (i.e. small farms with relatively low collaterals and/or debts are seen as bad clients by insurance companies and therefore are subject to pay higher premia). Also, risk perception based on losses experienced in the past is heterogeneous.

**Question 2: How do small and non-specialised farms cope with risks in agriculture?**

Small farms rely more on alternative on-farm risk management strategies. For instance, they prefer crop diversification rather than insurance.

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4 The Financial Supervision Commission is an institution that is independent from the executive authority and reports its activity to the National Assembly of the Republic of Bulgaria. The FSC is a specialised government body for regulation and control over different segments of the financial system—capital market, insurance market, health insurance market, pension insurance market.
Question 3: How could participation in crop insurance schemes be enhanced for small and non-specialised farms?

The government does not subsidize agricultural insurance premiums, but only public funds for compensating farmers’ losses caused by natural disasters. Small farms can be involved in insurance by bringing benefits closer to actual costs. In particular, the calculation of a fair premium is a major issue that needs to be addressed in order to enhance participation.

Take-home message

In Bulgaria there are almost 80 000 small-scale farms\(^5\). In order to enhance participation in crop insurance programmes it is advisable to (efficiently) compute premiums that are currently not actuarially fair. Agricultural insurance is not subsidized in Bulgaria.

3.1.2 Finland

The Finnish government aims at promoting the emergence of yield insurances programs rather than subsidize crop insurance premium (Myyra 2016). In fact, the government has shifted its attention towards assistance for catastrophic events. Despite this, it is worth exploring what the current status is of crop insurance for small-scale and non-specialised farms.

Question 1: Are small and non-specialised farms insured in Finland? If not, why not?

In Finland, there were a total of 50 388 agricultural and horticultural enterprises in 2016 - about 86% were family-owned farms and the average utilized agricultural area is 45 hectares per farm.

The Finnish government does not protect Finnish farmers against crop losses through ad-hoc disaster relief programmes, and risk management is left to the private market. Recently, the private sector has started several crop insurance schemes. These crop insurance schemes are not publically supported via subsidies, and are taxed at a rate of 24% (insurance tax). Farmer’s organizations consider it unnecessary to subsidize premiums under article 37, as these subsidies would be taxed. Farmers would still have a net gain from premium subsidies, but farmers’ representatives prefer the higher net support through direct payments. However, it seems some farmers are interested in buying commercial crop insurance. Yet demand has been discouraged so far by the high insurance tax rate which is a major obstacle for upscaling in Finland. If agricultural policy is moving (partly) away from direct support and favoring crop insurance support, Finnish farmers will be confronted with decreased net support.

Question 2: How do small and non-specialised farms cope with risks in agriculture?

In Finland there are several risk coping strategies that are adopted by farmers. In particular, most of farmers are working off-farm. In addition, farmers tend to rely on their own savings and on different income sources, such as the use of their land for forestry.

\(^5\) According to the Ministry of Agriculture, small farms in Bulgaria are those for which self-consumption accounts more than 50% of the total production and are not larger than 4 ESU (European Size Units) One ESU is defined as standard gross margin of € 1 200.
Question 3: How could participation in crop insurance schemes be enhanced for small and non-specialised farms?

The most important and effective way to enhance participation in crop insurance programmes is likely to reduce or abandon the insurance tax and, possibly, introduce premium subsidies. Small-scale farms would be interested in crop insurance if the insurance is simple enough. Maybe index-based insurances (which require a relatively lower level of details on information, while providing adequate coverage) could fill this gap.

Take-home message
The demand for crop insurance (for small-scale farmers) may be stimulated by reducing (or abolishing) insurance tax as well as through premium subsidies.

3.1.3 Poland

Starting in 1990, agricultural insurance became voluntary in Poland and the government provides ad hoc (e.g. ex-post) assistance in case of catastrophic weather events. Multi-peril crop insurance was introduced in 2005 and, from 2008 onwards, farmers are required to insure at least 50% of their acreage. The market consists of four companies, licensed to sell mandatory crop insurance. Insurance companies offer named-peril and multiple-peril insurance, greenhouse insurance, and livestock accident and mortality insurance. Within this set of insurance, subsidized insurance is offered by the authorized insurance companies. The government subsidizes 50% of the premium, directly paid to the insurance companies (Mahul and Stutley 2010). Details on crop insurance systems in Poland are provided by recent papers by Soliwoda (2016) and Sulewski (2017).

Question 1: Are small and non-specialised farms insured in Poland? If not, why not?
A vast majority of small farmers do not use crop insurance but there is no specific study that have addressed why this is the case. Uninsured farmers decided to take the risk of paying a fine of €2 per hectare. Conversely, insurance for agricultural buildings and other agricultural activities, or for machinery, is likely to be adopted (and in some cases they are mandatory).

Question 2: How do small and non-specialised farms cope with risks in agriculture?
Small-scale farmers hardly cope with production risks due to several reasons. First, there is a lack of a wide and satisfactory offer of crop insurance products. Second, there seem to be high transaction costs (including advisory costs paid by farmers). Third, the lack of trust toward the insurance companies and the high insurance premiums hamper the adoption of crop insurance.

Question 3: How could participation in crop insurance schemes be enhanced for small and non-specialised farms?
Small-scale farms tend to have additional sources of income and tend to diversify their production. Furthermore, the EU direct payments tend to significantly decrease income risk. As a result, participation in crop insurance schemes suffers.
**Take-home message**

Despite the fact that subsidies are provided, and provided increase in uptake is the objective, there is a need for further efforts. In particular, it would be a step forward to reduce transaction costs, which are relatively substantial for small-scale farms. This could be done through informative campaigns and simplification of the contractual procedures.

### 3.1.4 Slovakia

The agricultural situation in Slovakia is due to the history and collectivization after 1948, and the country is dominated by large farms with UAA (Utilised Agriculture Area) of more than 500 hectares per farm. Less than 7% of UAA is cultivated by farms with 50 hectares or less.

#### Table 3.1 UAA per farm as a percentage of total area

<table>
<thead>
<tr>
<th>Years</th>
<th>Category of Utilized Agricultural Area</th>
<th>0-5 ha</th>
<th>5-10 ha</th>
<th>10-50 ha</th>
<th>50-100 ha</th>
<th>100-250 ha</th>
<th>250-500 ha</th>
<th>over 500 ha</th>
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<td>2.91</td>
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<td>2.95</td>
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<td>76.75</td>
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<tr>
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<td>0.98</td>
<td>3.97</td>
<td>2.94</td>
<td>6.60</td>
<td>8.28</td>
<td>76.24</td>
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<tr>
<td>2013</td>
<td>1.01</td>
<td>1.04</td>
<td>4.23</td>
<td>2.97</td>
<td>7.04</td>
<td>8.21</td>
<td>75.49</td>
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<tr>
<td>2014</td>
<td>1.04</td>
<td>1.09</td>
<td>4.52</td>
<td>3.10</td>
<td>7.07</td>
<td>8.55</td>
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<td>1.19</td>
<td>4.63</td>
<td>3.31</td>
<td>7.38</td>
<td>9.75</td>
<td>72.67</td>
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Agricultural insurance in Slovakia is provided by three commercial insurance companies: Agra – a subsidiary of Austrian Hagelversicherung focusing only on agriculture; Allianz – a universal insurance company that dominates the insurance market in Slovakia; and Generali - another universal insurance company. The insurance is divided into three insurance lines, namely: property insurance, crop insurance, and livestock insurance.

Crop insurance provides protection against hail, fire, flood, frost, and drought. There are no specific products for small-scale farmers, and the majority of insurance contracts are signed by large agricultural holdings which dominate the agricultural system in Slovakia. Animal insurance covers losses due to theft or loss of animals, contagious disease, overheating of the organism, or damage resulting from acute illness, birth or injury. Again, there are no specific products for small-scale farmers, and the majority of insurance contracts are signed by large agricultural holdings.

#### Table 3.2 Agricultural insurance in Slovakia – 10 years history

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<td>5.94</td>
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<td>3.72</td>
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<tr>
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<td>23.3</td>
<td>27.2</td>
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<td>1.99</td>
<td>1.99</td>
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<td>0.22</td>
<td>0.23</td>
<td>0.58</td>
<td>0.4</td>
<td>0.33</td>
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<tr>
<td>Compensation/Premium (%)</td>
<td>28.6</td>
<td>8.8</td>
<td>12.9</td>
<td>18.6</td>
<td>20.1</td>
<td>10.5</td>
<td>10.2</td>
<td>207.2</td>
<td>14.9</td>
<td>10.9</td>
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<tr>
<td>Total</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Premium (mil. €)</td>
<td>20.56</td>
<td>21</td>
<td>22.03</td>
<td>22.31</td>
<td>20.88</td>
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<td>Compensation (mil. €)</td>
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<td>14.24</td>
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<td>5.84</td>
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<tr>
<td>Compensation/Premium (%)</td>
<td>39.6</td>
<td>34.2</td>
<td>30.4</td>
<td>43.3</td>
<td>51.1</td>
<td>56.1</td>
<td>42.9</td>
<td>66.3</td>
<td>38.7</td>
<td>31.5</td>
</tr>
</tbody>
</table>
Total includes crop insurance, animal insurance and property insurance (not shown in table)
Source: Ministry of Agriculture and Rural Development of the Slovak Republic

The total premium paid by farmers for crop and animal insurance in 2015 accounted for €7.86 million. The Ministry of Agriculture and Rural Development is currently not granting subsidies to enhance participation in crop insurance schemes, whereas premium subsidies (up to the level of 50 %) were applied before 2014.

**Question 1: Are small and non-specialised farms insured in Slovakia? If not, why not?**
Information on the structure of insured farms is not publicly available. Based on information from insurance providers, it can be concluded that some small-scale farmers are insured, but the majority of participation in crop insurance schemes is due to large farms. Currently, total participation in insurance programs is below 30 %, due to the lack of ad-hoc compensation(i.e. premium subsidies) granted by the Ministry of Agriculture and Rural Development. The lack of subsidies makes it difficult the development of a stable insurance market, partly due to some insurance companies requiring an high minimum premium payment (around €1000 per farm).

**Question 2: How do small and non-specialised farms cope with risks in agriculture?**
For example, a minority of small-scale farmers use insurance, whereas the largest portion of risks is coped with via diversification, or by relying on off-farm income. In addition, direct payments are a stable source of income.

**Question 3: How could participation in crop insurance schemes be enhanced for small and non-specialised farms?**
It would be advisable to provide specific products for small-scale farmers, so as to increase their demand for crop insurance. The three insurance companies are profit-oriented, and this undermines farmers’ trust in the contracts provided by these companies. A promising scheme may be mutual insurance, in the form of mutual funds with voluntary participation and coverage of risks among small-scale farmers.

**Take-home message**
The demand for crop insurance of small-scale farmers is currently low. It may be stimulated through flexible contracts, and through the implementation of mutual funds.

### 3.1.5 The Netherlands
The number of farms is declining quite rapidly in the Netherlands. In past decades the number of farms decreased by an average of 2.3 % per annum (Van der Heide, 2011). In 1950, there were 410,000 farms, while by 2016 the number had decreased to approximately 65,000 farms. As such, small-scale and non-specialised farms are a minority in The Netherlands.

**Question 1: Are small and non-specialised farms insured in the Netherlands? If not, why not?**
The multi-peril crop insurance(MPCI) adoption rate was approximately 7 % and 22 % in the arable sector and fruit sector respectively in 2015. Approximately one third of the insured arable farms cultivate 100 hectares or more (Figure 1). The average size of insured, fruit producing farms amounted to 20 hectares compared to 15 hectares on
farms without insurance (Berkhout et al., 2017). In general, MPCI adoption rates do not differ substantially between size classes.

| Size of farms with MPCI and without, arable farms (left) and fruit producers (right) |
|---|---|

**Question 2: How do small and non-specialised farms cope with risks in agriculture?**

Dutch arable crop farming is well diversified and a wide range of arable crops such as wheat, barley, seed potato, starch potato, ware potato, sugar beet, and seed onion are included in the production plan. Income volatility is mainly caused by large deviations in gross margin levels for ware potatoes between years (a crop not regulated by the CAP and with a strong business cycle), and to a lesser extent by other crops, e.g. seed onions which are, on average, tilled on a relatively small proportion of the total land available. To a lesser extent fruit producing farms have a mix of activities comprising apples, pears and other crops. Off-farm income is a strategy more often applied on small-scale farms.

**Question 3: How could participation in crop insurance schemes be enhanced for small and non-specialised farms?**

Since the introduction of MPCI in The Netherlands there has been no debate on targeting small-scale and non-specialised farms.

**Take-home message**

Targeting small-scale and non-specialised farms for crop insurance inclusion is not considered a main policy issue in The Netherlands. MPCI adoption rates do not differ substantially between size classes, and small-scale farms have other options to cope with yield risks. Thus, no specific policies for small scale farms are likely to be suggested/implemented.

### 3.2 Concluding remarks

The analyses presented above, and the specificity of the questions posed to deepen the understanding of the issue allow few general conclusions.

For some Member States (e.g. Italy and Slovakia), encouraging greater flexibility in contracts is perceived to be an effective strategy worth implementing. In other cases (e.g. Italy and Poland) the lack of culture of crop insurance is likely to be major obstacles for small-scale farmers: information campaigns and simplification of the contractual procedures are possible solutions. In other cases (e.g. Finland and Bulgaria) the economic incentive may play a key role: either subsidies or a reduction of taxes may play an effective role. Lastly, it is important to stress that crop insurance is not a priority
in all Member States; for instance, in the Netherlands as well as in Finland, crop insurance is not considered a main policy issue.
4 Conclusion: Implications of the Case Study in Terms of Public Policy

The situation of Italian crop insurance emphasizes critical points in the current policy scheme. *In primis*, the legislative framework for subsidized crop insurance is perceived as complicated by small-scale farmers and, particularly in Italy, it has been complicated even more by the transition to a centralized system (the PAI⁶). The historical data are difficult to be collected and the limitations imposed to receive the subsidy are rigid and in continuous evolution, factors that, by increasing implicit and hidden costs, tend to discourage the participation of small-scale farms and attracting the participation of new clients. A second conclusion that has to be made regards the insurability of small and non-specialised farms: insurance companies (representative of the supply) and farmers’ associations (representative of the demand) agree that an insurance market for small-scale farms should exist and should be promoted. Insurance companies need support to decrease premiums and to assess risk profiles of small-scale farms; small-scale farms should be attracted through flexible, simplified policies. The adoption of crop insurance by small-scale farms may be a catalyst for the entire market as a way to decrease adverse selection.

Based on the comparative analyses of selected case studies, some further conclusions may be derived. First, small-scale and non-specialised farms are not well represented in insurance markets (participation of small-scale and non-specialised farmers is rather low); subsidies, when provided by the government, are claimed to be not sufficient to attract small-scale farmers as they incur extra transaction costs due to limited knowledge of insurance contracts and the lack of collateral. Flexibility of contracts, communication, and aggregation of the demand for insurance are viable directions that may lead to a larger participation in crop insurance programmes, and cooperation may help in this regard. How crop insurance for small-scale and non-specialised farms should co-exist with other policy instruments such as direct payments is not clear. The present study cannot conclude on the appropriateness of mandatory participation in crop insurance programmes, or on the effectiveness of linking crop insurance to other payments (e.g. a “conditionality” principle). Indeed, it seems that the adoption of crop diversification and off-farm labour are existing strategies that need to be taken into account when designing flexible insurance schemes for small-scale and non-specialised farms.

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⁶ The PAI is a farm-level plan in that each farmer has to communicate information on farm to the Ministry which manage the information and pay subsidies for crop insurance premia. As a result the PAI is a centralized system that will function well when the information on farms will be entirely collected and correctly managed. Currently the PAI is still in its developing stage.
Annex I: References

Interviews
Dimitre Nikolov – Professor in Economics, The Institute of Agricultural Economics, Bulgaria
Fabio Santeramo – Professor in Economics, Università di Foggia, Italy
Simone Severini – Professor in Economics, Università della Tuscia, Italy
Myyrä Sam - Professor in Agricultural Economics, Natural Resources Institute, Finland
Marián Tóth – Professor in Economics, Slovenská Poľnohospodárska Univerzita Slovakia
Adam Wąs – Professor in Agricultural Economics, Warsaw University of Life Science, Poland
Piotr Sulewski - Professor in Agricultural Economics, Warsaw University of Life Science, Poland

References and further reading


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