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Annex 6: Risk Management

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1. CONTEXT

The numerous reforms of the CAP in the past two decades have increased the exposure of EU farmers to global markets. This was the intended objective of the reforms, which aimed at increasing market orientation of the sector and thereby contributing to enhancing its competitiveness. While the gradual reduction of intervention prices fostered the convergence of EU prices toward world market prices, direct payments were introduced to ensure a certain degree of income stability for producers.

However, the increased market orientation has also had the effect of exposing EU farmers to more (and occasionally excessively) volatile global agricultural markets. Excessive volatility of prices makes it more difficult for farmers to undertake long-term planning, particularly if market fundamentals are not reflected in prices, as insecure income expectations mean that farmers undertake less long-term investments. As a result, high uncertainty about the future implies that farmers' competitiveness in the long-run is compromised. Excessive income fluctuation also means that farmers that in normal years are competitive and efficient may be forced out of business due to one disastrous event, which is often outside of their control. In addition to the 'traditional' sources of uncertainties, such as animal and plant health related risks, the effects from climate change are a growing concern for farmers as the frequency and intensity of extreme weather events is likely to increase and changes to the seasonal variations in precipitation patterns take place.

The risks inherent in farming are numerous and so different policies (animal and plant health, crisis management, etc.) and approaches are necessary (prevention, response, planning). This document focuses on ways to provide compensation for producers to aid recovery following a crisis.

1.1. The current policy framework

Current CAP instruments play a role in attenuating the risks of agricultural production through market measures available under the single Common Market Organisation (sCMO), direct payments and certain rural development programmes.

Among market measures, intervention/reference prices provide a safety net in times of severe crisis for eligible sectors. When the price of a commodity eligible for intervention drops to the reference price level, intervention buying-in may be used to ensure a 'minimum' price level to producers. Private storage aid (PSA) is triggered, as a general rule, at a price level which is closer to market prices (above the intervention price level) and represents a first layer of market management. In addition, special intervention and other measures in case of market disturbance can be implemented at Member State or regional level under specific circumstances for certain sectors.¹

While direct payments do not have a risk management objective *per se*, as the payment ensures basic revenue for all farmers, it also ensures the inflow of capital in good years,

¹ A more detailed overview of available market instruments under the sCMO is presented in the Annex on Market Measures.

which may be saved and used during crisis years. In bad years, it is a payment that gives the farmer a minimum level of income. Thus, by ensuring a basic income payment, income decline will be limited, because part of the farmers' income is not affected by market developments and price variability.

In addition to market measures and direct payments, the following policy tools under rural development can be used to provide farmers with instruments for managing production risks:

- Globally, agricultural insurance is a widely used risk management tool. In the EU insurance has not been used frequently, but this trend has slowly been reversed over the last decade. With the Health Check in 2008 the possibility of subsidising insurance with EU funds was introduced. Member States may now choose to subsidise premia costs for farmers taking up crop, animal² and/or plant insurance, using up to 10% of the national direct payment envelopes. The insurance should cover the economic losses stemming from the above mentioned risks. Support is provided in case of a minimum loss of 30% of the average annual production of the preceding three years (or Olympic average of five years). Support paid through Article 68 and 70 of Regulation 73/2009 is compatible with the WTO Green Box rules. The insurance premia is subsidised at maximum 65% of the cost (with the subsidy shared between the Community budget and Member States budgets). Farmers pay the remaining 35% of the premia cost.
- Another way in which Member States may deal with production risks is through subsidising mutual funds for animal and plant diseases and environmental incidents by using up to 3.5% of the national direct payment envelopes. As with insurance, the mutual fund may compensate for the economic losses stemming from these risks. Mutual funds consist of contributions made by farmers, matched by public support. Support may also be used to pay the interest on loans taken out by the fund, if there are insufficient funds in the mutual fund itself.
- The Rural Development programmes offer some further possibilities for Member States to help farmers deal with risks. Under Axis 1 "Improving the competitiveness of agricultural and forestry sector" of the Rural Development regulation (2007-2013), there are measures aimed at mitigating natural disasters and climatic risks by providing support for restoring agricultural production potential and promoting innovation. Measures are also available for training farmers in risk-reduction strategies, as well as supporting diversification, which helps spread and hence reduce risks. These measures also include bio-security strategies (investment in infrastructure, advice and training) to reduce animal health risks. See Annex I for more details.

State aid granted at Member State level may also contribute to addressing adverse events, as the possibility exists for Member States to use national funds within an authorised limit and in respect of the existing legal framework for state aid. Aids are allowed which compensate farmers for i) damage caused by natural disasters or exceptional occurrences; ii) losses caused by adverse weather conditions; iii) prevention and combating animal and plant diseases and iv) insurance premia to cover production risks.

² animal diseases listed by OIE and/or the relevant EU legislation

A specific regulation on de minimis aid in the agricultural sector grants Member States flexibility to use state aids to respond to crises at regional or local level.³ This regulation specifies the limit of support which may be awarded to EU farms without being scrutinised and considered as a state aid by the Commission. This allows immediate granting of support to farmers. The money may be used for any purpose, subject to certain limitations.⁴ Some state aids are not compatible with the WTO Green Box rules, and are thus notified as Amber Box. However, it is noted that MS have sometimes used these state aids without due regard to prevention measures. MS sometimes pay compensation repeatedly when prevention would be more rational; for example in the case of production damage due to floods (weak flood prevention measures or production on floodplains, where it should not be the case), forest activities (re-afforestation after the storm, when the species diversification is insufficient, etc), droughts (and follow-up compensations for productivity, which is inappropriate for the land, etc.). MS should rather focus on prevention measures, to reduce the need to pay for compensation and restoration.

Finally, market instruments are available for producers to manage their risk, such as agricultural derivatives markets and forward contracts.

- Agricultural derivatives (both futures and options) markets provide a tool for producers and processors that facilitates price discovery and risk management. Although beneficial, the analytical documents accompanying the Communications on food prices and the food chain, which examined the issue of derivatives (among others), indicated that factors specific to financial markets might have amplified agricultural price changes. Accordingly, as outlined in the communication on '*A better functioning food supply chain in Europe*', it is necessary to improve the overall transparency and oversight in the EU for derivatives on agricultural commodities – including over-the-counter (OTC) markets. In particular, a better overview of the activity of different types of market participants is needed. Efforts are currently under way to enhance the safety and efficiency of derivatives.
- Forward contracts offer a guaranteed price to producers and lock in supply costs for processors and as such, remove the possibility to benefit (or lose) from future market developments. However, forward contracts can be used in combination with agricultural derivatives in order to hedge risks.

1.1.1. Provisions for specific sectors

The fruit and vegetable and wine sectors are dealing with perishable products and are to some extent different from other agricultural sectors in that the main risk for these sectors is over-production and therefore low output prices for the products. The risk and crisis management instruments in place for these sectors therefore aim to prevent crises where possible and to manage the crisis once it has occurred. The following instruments exist for fruit and vegetables: market withdrawal⁵, green harvesting or non-harvesting, promotion and

³ Commission Regulation (EC) No 1535/2007 of 20 December 2007 on the application of Articles 87 and 88 of the EC Treaty to de minimis aid in the sector of agricultural production (OJ L 3337 of 21.12.2007)

⁴ The aid may not be fixed on the basis of price or quantity of products put on the market, favour domestic over imported products, aid to export-related activities or be granted to the undertakings in difficulty.

⁵ Up to a quantitative threshold of 5% of each marketed produce, plus 5% of the total marketed volume for free distribution, per PO

communication, training measures, harvest insurance (adverse climatic events, plant diseases and pest infestations) and support for the administrative cost of setting up mutual funds⁶.

These measures are implemented by producer organisations (POs), so they are co-financed 50/50⁷ by the producers and the EU. EU support is capped at 4.1% of the value of marketed production of the PO.⁸

The current wine CMO foresees four specific intervention measures: preventive 'green harvesting' in the form of a flat rate payment per hectare, potable alcohol distillation in the form of a per-hectare aid and crisis distillation to reduce or eliminate the surplus and the use of concentrated grape must to increase the natural alcoholic strength. At a Community level only the 'green harvesting' measure will remain after July 2012. Crisis distillation will remain possible in justified cases, with national funds only and limited to 15 % of the respective value of the Member State's yearly budget for its national support programme. The wine CMO also foresees a by-product distillation instrument aimed at ensuring quality by avoiding over-pressing, while preserving the environment.

For animal sectors, the veterinary fund covers the economic losses caused by the disposal of animals as well as expenses for cleaning and disinfection on farms concerned by an outbreak or suspicion of animal disease. The expenditure is typically co-financed (Commission/Members States) at 50%.⁹ The Action plan on the Community Animal Health Policy has scheduled a review of the veterinary fund for Commission adoption in 2012. At this stage, it is too early to anticipate which measures will be covered by the new 'Veterinary Fund'.

In addition, the EU co-finances exceptional market support measures for all animal product sectors (meats and dairy).¹⁰ The measures allow compensation for economic losses in case of movement restrictions resulting from measures taken to combat the spread of animal diseases. Exceptional market support measures can only be taken if the Member State(s) concerned should request the introduction of such support measures and has quickly taken the necessary health and veterinary measures to stamp out the disease. EU exceptional market support measures can only operate to the extent and for the duration strictly necessary to support the market. Whenever such measures are applied the EU gives 50% co-financing.¹¹ Member States can also grant an aid financed from the state budget or through state resources for the

⁶ Article 103 c of Regulation (EC) 1234/2007

⁷ 40/60 in some cases

⁸ EU support may be increased to 4.6% if the additional 0.5% is used for crisis prevention and management measures. Crisis prevention and management measures, including any repayment of capital and interest, shall not comprise more than one-third of the expenditure under the operational programme. In order to finance such measures, producer organisations may take out loans on commercial terms. In this case, the repayment of the capital and interest on those loans may form part of the operational programme and so may be eligible for Community financial assistance. Any specific action under crisis prevention and management shall be financed either by such loans, or directly, but not both.

⁹ Managed by DG SANCO

¹⁰ Article 44 of Regulation (EC) No 1234/2007 (single CMO) is the legal basis

¹¹ 60% for measures in case of foot-and-mouth disease

prevention and eradication of animal diseases under the conditions laid down in the applicable state aid rules.¹²

Failure to prevent outbreaks of disease has serious financial consequences not only for the livestock sectors but also for plant production, underlining the importance of preventive action to stop such outbreaks from occurring in the first place. In terms of the whole food chain, the increased emphasis on food safety in EU law must be properly enforced and backed up by supporting measures including training (see Annex II on the costs of measures related to disease outbreaks and the benefits of preventative action).

1.1.2. Uptake of available instruments

With the Health Check in 2008, the Commission included a possibility of subsidising instruments that were directed specifically at the management of risks with the option of subsidising agricultural production insurances and mutual funds with a part of the direct payment envelope. This was a first step towards gearing the CAP in the direction of more risk management focus.

Three Member States have notified their intention of using insurance subsidies in the framework of Article 68 for 2010 (FR, NL, IT), and one Member States (FR) has notified its intention to subsidise mutual funds as from 2011. The total insurance subsidies notified for 2010 amount to 236 million euros (including co-financing), of which 177 million euros come from the Community budget, the rest from the national budgets. Thirteen Member States have notified state aids for insurance premia subsidies since 2002. By far the biggest user is ES, followed by FR and PL. About 700 million euros are notified to the WTO (state aid) as non-product specific Amber Box subsidies for insurances. Thus, total production insurance subsidies in the EU currently amount to slightly less than 1 billion euros.

From 2011, FR will allocate 53 million euros to subsidise mutual funds, of which 40 million euros will come from the Community budget.

1.2. Emerging factors

1.2.1. Increasing production uncertainties

Climatic changes will have complex effects on the bio-physical processes that underpin agricultural systems, with both negative and positive consequences in different EU regions. Rising atmospheric CO₂ concentration, higher temperatures, changes in annual and seasonal precipitation patterns as well as in the frequency of extreme events will affect the volume, quality and stability of food production and the natural environment in which agriculture takes place.

Climatic variations will have consequences for the availability of water resources, soil quality as well as the frequency of pests and diseases, leading to significant changes in the conditions for crop and livestock production. In extreme cases, the degradation of agricultural ecosystems could lead to desertification, resulting in a total loss of the productive capacity of the land in question Pests and diseases adapt continuously to resistant varieties and plant

¹² Points 131-137 of Community Guidelines for State aid in the agriculture and forestry sector ((2006/C 319/01); Regulation No 1857/2006 , in particular in Articles 10 and 16 (TSE)

protection products and will pose growing threats to plant resources for agriculture and forestry. Scientific studies show that this will be exacerbated by climate change. The financial case for investing in prevention of disease rather than paying for eradication is outlined in Annex II.

In the short term the frequency and intensity of extreme weather events and seasonal variations in precipitation patterns are the factors likely to have the most serious consequences for agriculture. Although climate change is a global process, its local impacts are diverse. Overall net effects on farm activities will vary across the EU and between farm types within the same region.

At EU level, no correlation has been established between the warming of the last decades and the evolution of crop yields, which have generally increased, driven by the effects of technology and farm management improvements as well as the continuous adaptation of farming practices, so far largely outweighing the impact of climate change. However, extreme climatic events such as the drought and summer heat of 2003 and the spring drought of 2007 have led to large variations in crop yields in recent years.

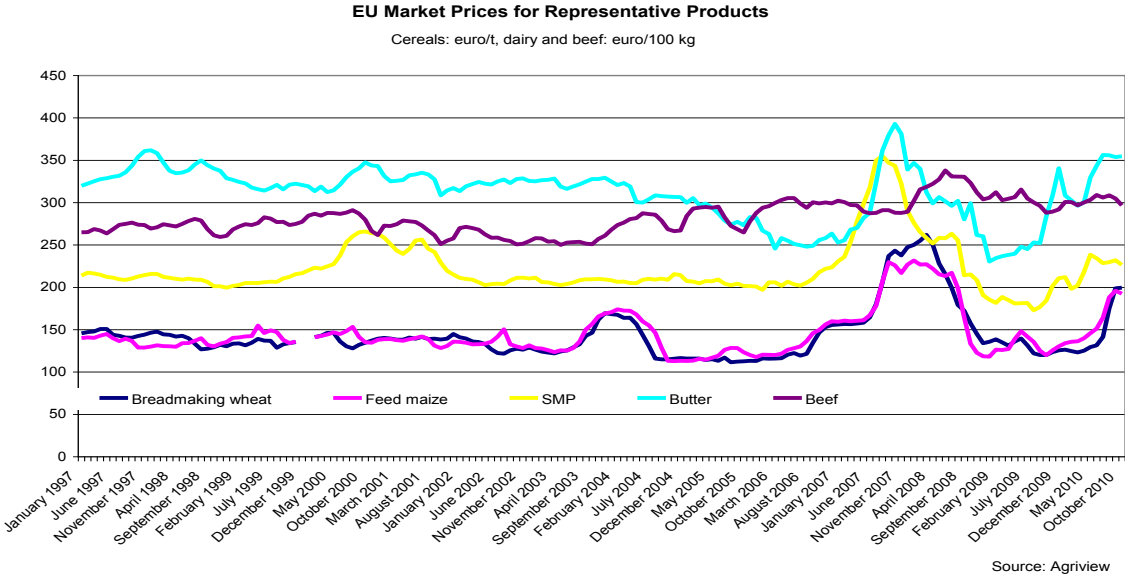
While current agricultural market projections are subject to many uncertainties, including the impact of climate change on agricultural productivity and prices, there is a higher probability of an increase in extreme events that will amplify the volatility of agricultural production because of weather-related supply shortfalls. Even though the ultimate impacts on farm income depend on the interplay of many factors such as the global market and policy support, the higher likelihood of failures in production may lead to increasing instability in the economic situation of farmers affected by extreme climate events. See Annex III for a detailed map with observed agro-climatological changes over 1975-2007.

1.2.2. Increasing exposure to volatile global markets

A certain degree of price variability is a normal feature of commodity markets. However, price volatility in the absence of risk management instruments can be damaging for producers, processors, and consumers.

Figure 1 displays price developments for representative products in the EU over 1997-2010. Actual increases in price volatility over most of the period on both EU and international markets were commodity specific, reflecting changes or expected changes in market fundamentals in addition to other factors. Price volatility measured in terms of coefficient of variation increased over the period 2004-2010 compared to 1997-2004. Although increases in the EU were more dramatic compared to the world markets, in absolute terms volatility remained higher on the world than on the EU markets during 2004 –2010.

Figure 1: EU market prices for representative products, 1997-2010



While continuously receiving attention especially following the "food crisis" of 2007–2008, and an increase of price in the second half of 2010, the issue of volatility of agricultural and food prices is on the agenda of the G-20. In their meeting in Seoul in November 2010, the G-20 leaders requested that Food and Agriculture Organisation, International Fund for Agricultural Development, International Monetary Fund, Organisation for Economic Cooperation and Development, United Nations Conference on Trade and Development, World Food Programme, the World Bank and World Trade Organisation work with key stakeholders to develop options for G20 consideration on how to better mitigate and manage the risks associated with the price volatility of food and other agriculture commodities without distorting market behavior, ultimately to protect the most vulnerable. In parallel, France, under their current G-20 presidency, seeks "specifically to address the issue of volatility in the price of agricultural commodities". Based on the report of international organisations, the G-20 Agriculture Ministers in Paris, on 22/23 June 2011, adopted the Action Plan on Food Price Volatility and Agriculture. The Action Plan is divided into five main sections: Agriculture production and productivity, Market information and transparency, International Policy Coordination, Risk Management and Financial Regulation.

Risk management instruments allow farmers to manage risk, by mitigating the impact of production uncertainties. By increasing stability for the agricultural sector, the instruments contribute to achieving the objective of maintaining agricultural production capacity throughout the EU, whereby there is a clear added value at EU level to support risk management instruments.

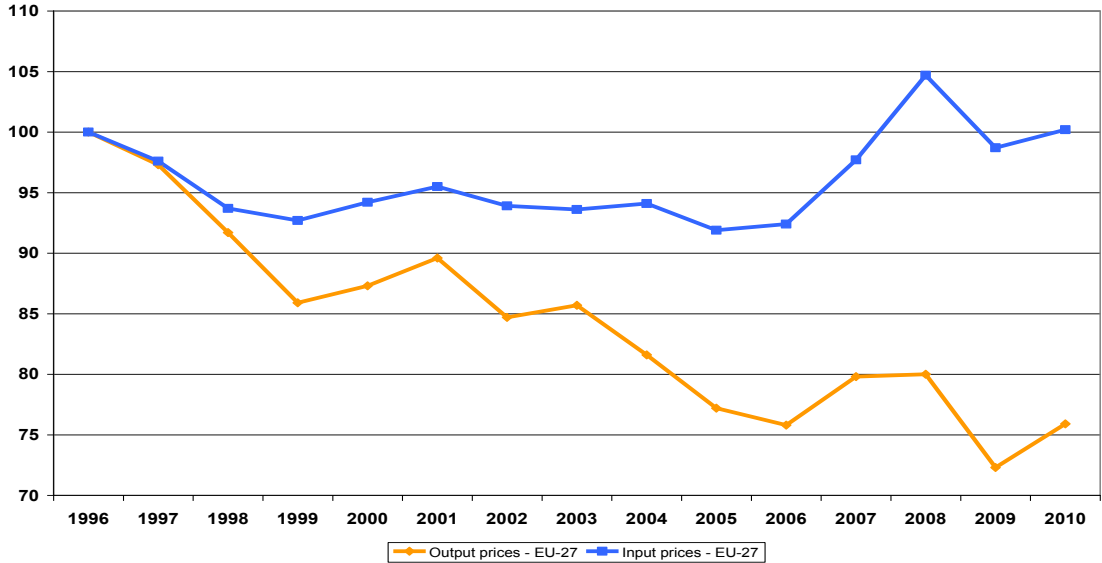
The type of insurances that may be subsidised cover physical production risks. Hence, yield is insured against specified risks such as hail, flooding, drought, frost etc. Current specific risk management instruments do not cover risks related to prices.

1.2.3. Increasing 'squeeze' on producers' margins

The widening gap between the dynamics of producer (output) prices and costs (input prices), partly as a consequence of the growing linkage between agricultural and non-agricultural

prices, is also of concern. Figure 2 displays the recent evolution of agricultural input and output prices for the EU-27.

Figure 2: Recent evolution of agricultural input and output prices for EU-27¹³



Source: Eurostat.

Figure 2 reveals that in the past, input costs (fertilizers, gas prices, etc.) were decreasing on average, albeit at a much slower rate than the decrease in output prices received by farmers. This widening gap between output and input prices was compensated by productivity gains.

This trend has been exacerbated during the 2007-2008 price boom and subsequent price drop, with input prices increasing at a higher rate during the boom and declining at a lower rate during the price drop, compared to output prices. As such, the gap between the two price indexes has widened significantly, causing a margin 'squeeze' for farmers.

1.3. The case for a review

The emerging factors outlined in the previous section, as well as the large number of uncertainties and risks surrounding agricultural market prospects (such as the pace of economic recovery, future changes in the policy environment, the path of technological change, etc.) highlight the need for an effective risk management toolkit, beyond the existing (and proposed¹⁴) safety-net measures.

While current instruments have provided solutions for risk prevention and crisis management alike, there is a strong case for improving the availability of such instruments and adapting measures to emerging factors that can increase the level of risk facing agricultural production and farm income.

¹³ Note that input and output prices are reflected in indexes, thus the actual prices are not comparable.

¹⁴ See the Annex on Market Measures for details.

2. OBJECTIVES

In order to help farmers develop viable risk management strategies with the objective of mitigating the effects of physical production risks (alongside improving farmers' awareness of, and encouraging compliance with, prevention and control strategies in the case of animal and plant diseases) and managing their income variation, the review of the policy framework for risk management should:

- improve the availability of risk management tools, especially prevention tools and those related to price risks,
- adapt the modalities of the current framework to the evolving diversity of needs.

At the same time, the measures proposed should not diminish the market orientation of the sector, be compatible with EU commitments in WTO and provide a cost-efficient and relatively stable budgetary perspective. The proposal should also ensure that risk management tools are used in a complementary way and in coherence with regard to other CAP instruments (market measures, direct payments, etc.) and without overlapping with other community policies (e.g. the Animal Health Strategy).

3. OPTIONS

3.1. Extending current framework for insurances and mutual funds

All sectors that are currently covered would be included under this option. The scope of risks that would be covered by insurance would be broadened. Instead of covering merely physical production risks, as is the situation today, subsidies for insurance covering also economic risks would be possible (for example revenue insurances) or for insurance dealing with physical production risks not linked to a specific yield output (such as index insurance).

In addition the technical requirements for subsidising insurance premia could be changed, for example by lowering the criteria: 30% loss of production and dropping the need for formal recognition of the occurrence of an event by the Member State (as is currently required for subsidies from the direct payment envelope)¹⁵.

The requirements for subsidising mutual funds would be maintained in their current form.

3.2. Income stabilisation tool (IST)

The IST would compensate farmers who experience a severe income drop, compared to the individual's average annual income of the three preceding years (or Olympic average of the previous five years). Income in this case refers to total revenue received from the market minus input costs. The income compensation would be paid regardless of the cause of the income variation, be it yield variation, price fluctuation, or higher input costs. Member States could opt for one or more risk management tools.

¹⁵ This requirement is not a problem for the animal sectors as the listed diseases shall be notified by law anyway, it is rather a problem for the crop sector.

In order to meet WTO Green Box criteria, the IST would have to be open to all producers. To be eligible for compensation, farmers must have an income drop of at least 30%, compared to the average income for the preceding three years (or five year Olympic average) and a maximum 70% of the income drop may be compensated.

Revenue stabilisation scheme:

As the objective is to help farmers manage income variation, then potentially other solutions could be considered. An alternative to the IST could include a revenue stabilisation scheme, which addresses variation in revenue but which takes no account of input costs, similar to the American ACRE-scheme.. The EU equivalent would be an EU revenue stabilization scheme introduced at Member State level, which incorporates national and farm level revenue. The scheme would be based on a revenue guarantee (by crop) at national level, incorporating EU/national prices and national and farm-level yields, to take account of local conditions. The revenue guarantee per crop would be calculated for each year based on a moving average of national yields and national/EU prices. Payments would be triggered within a Member State if there was a shortfall in actual national average revenue compared to the national benchmark. A second trigger would also operate at farm level. Producers suffering an actual revenue loss compared to their own benchmark revenue would be eligible for a stabilization payment equal to the shortfall in revenue at national level, adjusted by a coefficient that takes account of the producer's own yield compared to the national average. Thus the scheme would offer support payments if revenue falls below levels seen in the recent past. Producers would be required to enter all crops into the scheme.

3.3. Crisis fund

Similar to the existing EU Solidarity Fund, this option consists of the creation of a new "Global Agricultural Risk Management Fund". The Fund would allow rapid financial assistance in case of major adverse events occurring in one or very few Member States (e.g. comparable to the BSE-crisis in the UK in 1996). A ceiling on the annual amount available in the Fund would be defined. The portion of the annual amount not entered in the budget would not be rolled over to the following year. It would be necessary to determine the events for which Member States would be authorised to call on assistance from the Fund. Any support under such a fund should not conflict with possible state aid measures.

Table 1: Overview of options considered

	Tools	Changes
Strengthening current tools	Insurance subsidies, mutual funds	Expanding to include revenue and index insurance and reducing the limitations for payouts
IST	Income stabilisation tool	New tool
Crisis fund	Agricultural calamity fund	New tool

4. IMPACTS

4.1. Extending current framework for insurances and mutual funds

4.1.1. Economic advantages and disadvantages

A public/private partnership can help an insurance market start working through demand incentives, institutional arrangements and information sharing and pooling.¹⁶ The agricultural insurance market is bound to be very narrow without public subsidies as only few crops and risks can be profitably insured without any support.

Insurance and mutual funds are tools to manage the impact of catastrophic risks and as such are an alternative to disaster assistance. By linking the payment of *ex post* ad hoc catastrophic aid to the uptake of insurance or mutual funds (if available), the amount paid out as disaster assistance may be limited. Furthermore, by imposing such conditions on disaster payments and by requiring producers to contribute to the scheme, farmers are encouraged to actively manage their own risks, before turning to government. Less rigid requirements, for example lowering the 30% threshold for production losses, may create more interest among farmers to take up insurance. Some argue that the level of loss implied by the 30% threshold is too high for certain sectors.

However, less rigid requirements may make it too advantageous for the farmer to take up insurances, without creating the right incentives to manage the risks at the farm. The difficulty with setting the "right" threshold is that it varies from sector to sector, from region to region and from risk to risk. By involving insurance companies in the delivery of agricultural support there is a risk that not all support benefits the agricultural sector, but may leak out through other channels.

Mutual funds, compared to insurances, counter the risk of adverse selection or moral hazard behaviour.¹⁷ Subsidising mutual funds has benefits outside the scope of ensuring support to farmers when they experience a production problem, as it also encourages the organisation of producers within the food chain. They also have the possibility of compensating for consequential losses, something which is difficult to compensate for with insurances (because of the high premia cost it triggers).

¹⁶ OECD report, Thematic reviews on risk management: Spain, TAD/CA/APM/WP(2010)17/REV1

¹⁷ *Adverse selection*: It describes a situation where an individual's demand for insurance (either the propensity to buy insurance, or the quantity purchased, or both) is positively correlated with the individual's risk of loss (e.g. higher risks buy more insurance), and the insurer is unable to allow for this correlation in the price of insurance. This may be because of private information known only to the individual (information asymmetry), or because of regulations or social norms which prevent the insurer from using certain categories of known information to set prices (e.g. the insurer may be prohibited from using information such as gender or ethnic origin or genetic test results).

Moral hazard: occurs when a party insulated from risk behaves differently than it would behave if it were fully exposed to the risk. In particular, moral hazard may occur if a party that is insulated from risk has more information about its actions and intentions than the party paying for the negative consequences of the risk.

4.1.2. *WTO compliance*

Insurances

Three changes would be introduced concerning insurance subsidies compared to status quo:

- widening the scope to allow for the subsidisation of revenue insurance and index insurance (and potentially other types of insurance)
- lower thresholds for production losses in order to be covered by insurance
- abolishing the requirement of having a public authority declaring that a situation which triggers insurance payments has actually occurred

In principle, this would widen the scope of the insurance schemes beyond the limits of the Green Box criteria; however whether actual support would be notified as Green or Amber Box depends on the implementation of the scheme.

Mutual funds

A similar approach could be followed for mutual funds. The design could allow the administration of different support schemes, compliant with paragraph 7 and paragraph 8 of Annex II of the GATT Agreement on Agriculture (AoA). Even the setting up and running cost of the mutual fund itself could be considered to be compliant with paragraph 2 of Annex II of AoA, since this type of support would not involve payments to producers. All support that does not comply with any of these three categories would be Amber Box.

4.1.3. *Funding and budgetary implications*

Very ambitious scenario:

If all Member States were to subsidise insurance premia and 100% of agricultural production was to be insured, then the total amount of support for arable crops insurance premia is not likely to exceed 1.6-2.3 billion euros¹⁸. The maximum amount that could be expected to be spent on animal insurances is 1 billion euros¹⁹. Hence, the total maximum amount that could be expected to be spent on insurance premia subsidies would be 2.6-3.3 billion euros.

Moderately ambitious scenario:

In reality it is highly unlikely that there would be 100% insurance coverage in the EU after the reform of the CAP. A more realistic scenario, based on past uptake of available subsidies, would be 40% coverage for arable crops and even more limited for animal producers. Following the same logic as above, the costs for subsidising arable crops premia would then

¹⁸ Average value of production (2006-08) for cereals/industrial/forage crops is 78 billion euros (Eurostat). According to JRC study on Insurances, premia cost would be around 3.5-5% of value of production. For 100% coverage this would mean 2.7-3.9 billion in premia. If 65% of the value of the premia is subsidised this implies 1.6 to 2.3 billion in subsidies.

¹⁹ Evaluation of the Community Animal Health Policy 1995-2004 and alternatives for the future. DG SANCO study from 2006.

be 0.7-1 billion euros²⁰ and about 0.3 billion euros for the animal sector. Thus, in total the subsidies would amount to 1-1.3 billion euros²¹.

4.1.4. Administrative burden and simplification

This option would not add to the administrative burden, or complexity, as measures that are already in place in the CAP and are already controlled, could continue to be applied.

In terms of simplification, the impact of this option for farmers is rather similar to the status quo option.. However farmers will initially have to familiarise themselves with the new or adjusted rules, which is a one-off increase in the level of administrative burden. For national authorities too, this option may be associated with one-off costs, requirements to modify national rules, possible organisational changes and time needed to become acquainted with the new setting. Thereafter it is expected that the level of administrative burden for both farmers and national authorities may reduce somewhat over time.

4.2. Income stabilisation tool (IST)

4.2.1. Economic advantages and disadvantages

Subsidising insurance and putting an IST in place would substantially contribute to reducing farmers' income volatility. According to the OECD²², insurance indemnities reduce the income variance for 77% of farmers, while some form of IST²³ reduces variance for 80% of farmers. When the two measures are combined, then reduction occurs for 87% of farmers.

An IST is an alternative to either returning to the 'old CAP' with high intervention prices, or addressing concerns of income volatility with some form of Counter Cyclical Payment. Both solutions offer the advantage of dealing with farmers' income variation, but less effectively than an IST, as they influence farmers' production decisions. Therefore they are not compatible with WTO Green Box rules.

However, there is a risk that by offering a very comprehensive risk management package to EU farmers, there would be limited incentives for the farmer to undertake on-farm strategies and that private initiatives, for revenue insurances in particular, could be crowded out. As the IST would compensate for total farm income, it may also be a disincentive to diversify production. The more sectors a farmer is involved in, spreading risk through diversification, the lower the possibility that the farmer would be compensated from the scheme, as all agricultural production activities would be taken into account.

There is a risk that an IST could push farmers into taking more risky decisions. There is also a risk of delaying uncompetitive farmers from exiting the sector, which may slow down

²⁰ Average value of production (2006-08) for cereals/industrial/forage crops is 78 billion euros (Eurostat). According to JRC study on Insurances, premia cost would be around 3.5-5% of value of production. For 40% coverage this would mean 1.1-1.6 billion EUR in premia. If 65% of the value of premia is subsidised, this would imply 0,7 to 1 billion in subsidies.

²¹ Compared to today's situation of 0.6 billion euros.

²² OECD Report, Thematic review on Risk Management: Canada, TAD/CA/APM/WP(2010)29

²³ In this case CAIS, the previous Canadian IST, constructed much in the lines of what is being considered for the EU

structural adjustment. The scheme is designed so that if a farmer is uncompetitive and his/her income is decreasing over time, then the compensation he/she receives would also decrease over time, since the scheme does not support income at a target level, but only compensates a share of the income compared to the average level of previous years. Hence, in the long-run, the compensation payment could be set to zero. (See Annex IV for an illustration.)

In order for the IST to be 'fair' and functional, it would most likely be based on farmers' yearly income. Therefore the compensation payment for an income drop would always be paid after a delay compared to when the crisis actually occurred, as the income for the whole year would have to be taken into account, before the payment can be calculated. Hence payments may not reach the farmer when they are most needed.

Revenue stabilisation scheme: an alternative to the IST

The major advantage of the scheme is that it would offer a tool for producers to manage the risk of a decline in revenue that extends over a short number of years. Since benchmark revenue would be adjusted downwards in periods of declining revenue (as for an IST), the scheme would provide temporary adjustment assistance, giving producers time to respond to market signals.

The main disadvantage with such a scheme, compared to an IST, is that it would not take account of developments in the cost of inputs. Input cost volatility is one of the major concerns to EU farmers and this tool would not address this challenge. Furthermore, as with any stabilization scheme, including an IST, the budgetary costs are unpredictable and could be high if prices collapsed. The scheme would not provide a safety-net floor for revenue because if prices remained low, then payments would eventually be phased out. Because of the time lag for calculation of payments due, after the crop year, payments might not kick in when they would be needed most. From the producers' viewpoint, payments would not be directly linked to variability in farm-level revenue since they would be based on the shortfall calculated at national level. Hence, the compensation payment may not benefit those most in need.

4.2.2. WTO compliance

In order for the IST to meet the Green Box criteria, farmers that receive compensation must have an income drop of at least 30%, compared to his or her average income for the preceding three years (or Olympic average), and a maximum of 70% of the income drop may be compensated.

The income that may be compensated is defined as 'gross income or the equivalent in net income terms'. The WTO has not defined the term income, so this is left to the members themselves.²⁴ However, there can be no link to prices.

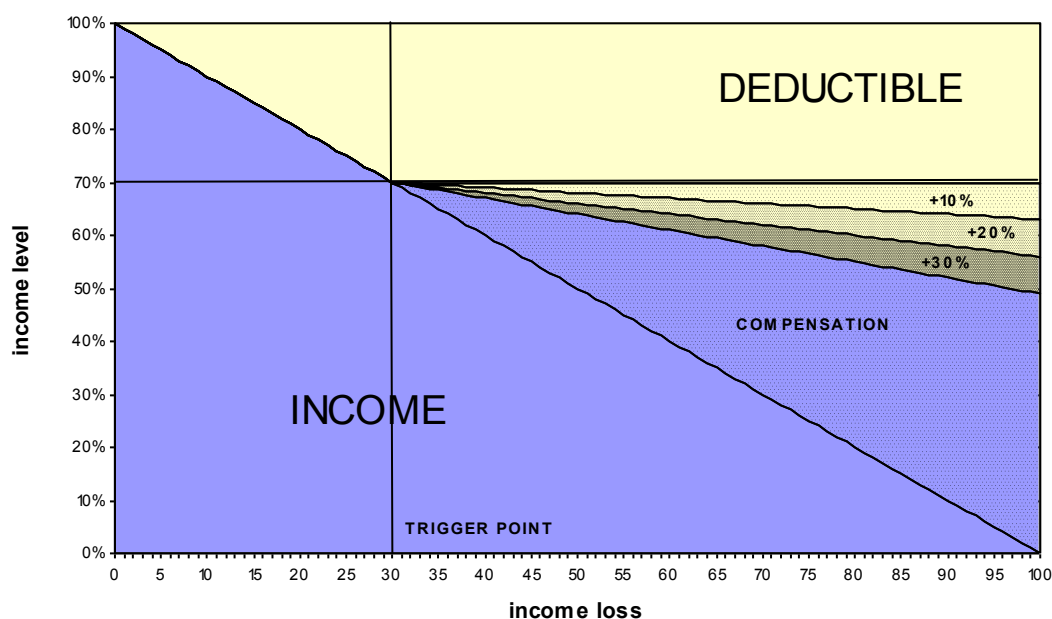
²⁴ DG AGRI's interpretation of the wording in the GATT Agreement, Annex II, para 7, is that the income compensated should exclude payments from the same or similar schemes (which means that payments coming from other schemes that are not explicitly excluded should be considered as being covered by the notion of income derived from agriculture). Furthermore, "income derived from agriculture" should be seen as independent from any particular agricultural production as such and include all the income that a farmer derives from the fact of being engaged in agriculture.

4.2.3. Funding and budgetary implications

Figure 3 below illustrates when the IST compensation payment would be triggered, and to what extent it would compensate for a drop in an individual farmer's income. If the decline in income is more than 30%, then compensation may be paid. However, the level of compensation can never go beyond the 30% drop, i.e. the farmer needs to find alternative means to cover the 30% income drop. Because the farmer's deductible is set to be at least 30% this avoids threshold effects and as a consequence moral hazard behaviour from farmers. This avoids a situation where farmers with a 29% drop do not get compensation, but in the case of 31% drop are compensated for 70% of the income loss, which creates a moral hazard.

The individual farmer's reference income would be adjusted downwards in periods of declining income, and could eventually reach zero. Thus, an IST is not a tool that guarantees a safety net level of revenue (as direct payments do), but rather the farmer's income development. (See Annex IV for an illustration of how the tool would compensate a farmer with declining income over time).

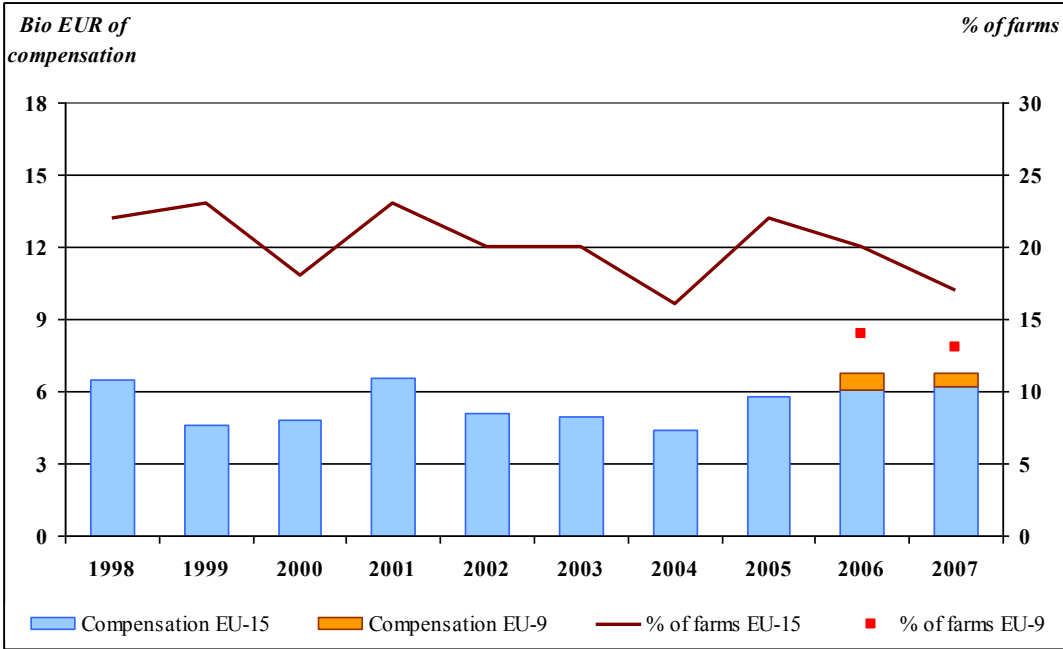
Figure 3: Income compensation limited to 70% of the reference income, with different levels of franchise



An estimation of spending on an IST is shown in Figure 4. This is based on a simulation of what would have happened in the past, had there been an IST in place in the EU and assuming that about 20% of all EU farmers would receive compensation payments each year, because their income drop would be more than 30% compared to their average income. Taking an extreme scenario, assuming that all Member States would implement an IST, and that all farmers would opt to participate in the scheme, the cost of compensation could amount to some 4-7 billion euros for the EU-25.²⁵

²⁵ EU-25 without Malta (no data). Income indicator is Gross Farm Income (total output + subsidies - taxes - total intermediate consumption) and the compensation formula is the one presented in figure 1. The estimate

Figure 4: Share of farms eligible for compensation, and compensation need over time



Note: Gross Farm Income used as income indicator; Average yearly compensation for EU-15 for 1998-2007, for EU-10 (without Malta) average 2006-07
 Source: DG AGRI EU FADN

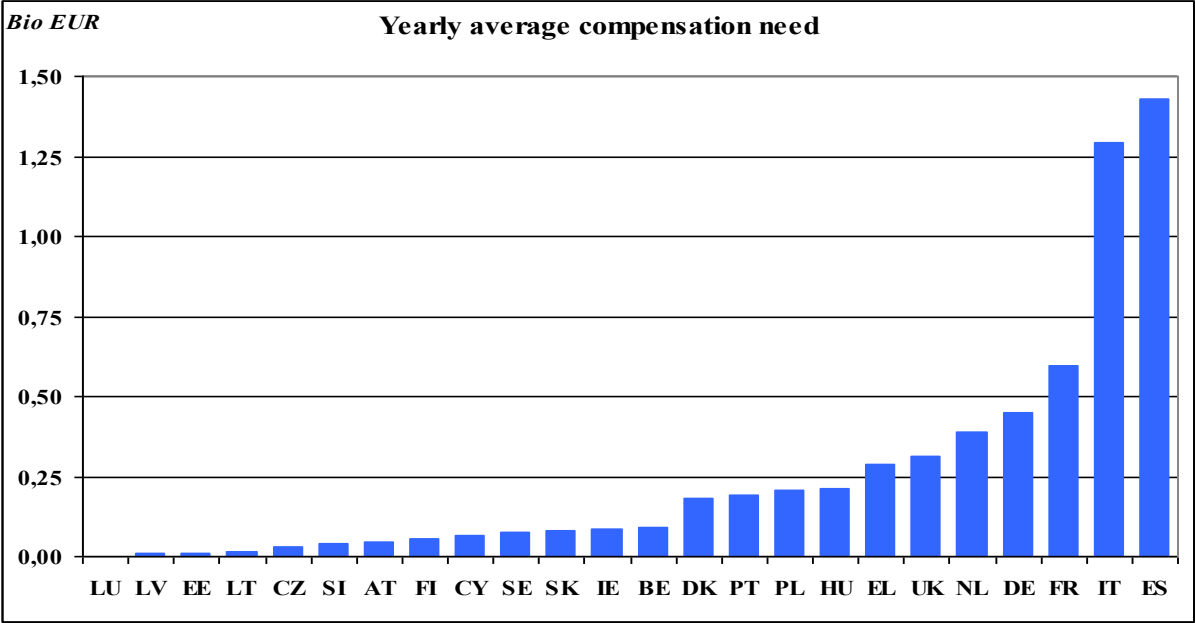
The following graphs illustrate potential budgetary costs by Member State from implementing an IST, based on estimated compensation costs, had the scheme applied in the past. Figure 5 gives an indication of the size of the envelopes that would be required in order to meet compensation needs.²⁶ The highest spending would be in Spain and Italy.

Figure 6 shows the share of farmers in each Member State that would receive compensation on an average basis (again, if future compensation was to reflect historical needs), with some 20% of all EU farmers eligible. Figure 7 shows how much compensation the average recipient would receive in every Member State per year, with producers in most Member States receiving under €10,000.

is based on DG-AGRI internal analysis, and shows what the compensation need would have been on average for preceding years.

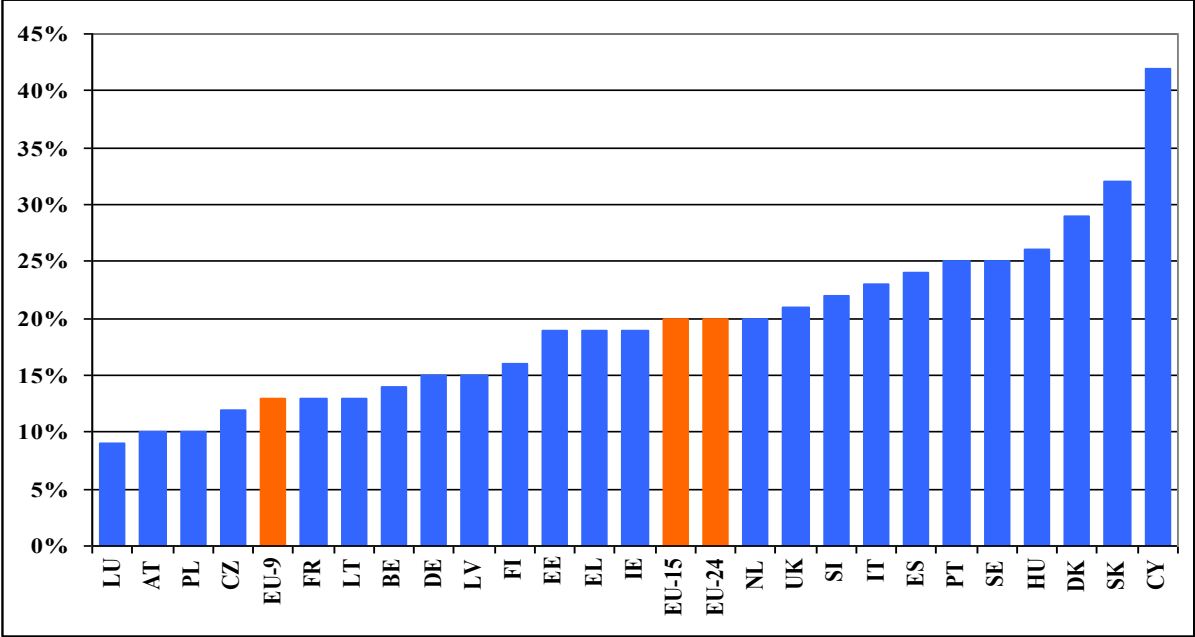
²⁶ The compensation is calculated according to the following: $[70\% * (\text{Average income year } N-3 \text{ to } N-1)] - \text{income year } N$.

Figure 5: Level of compensation required for different Member States (in current Euros)



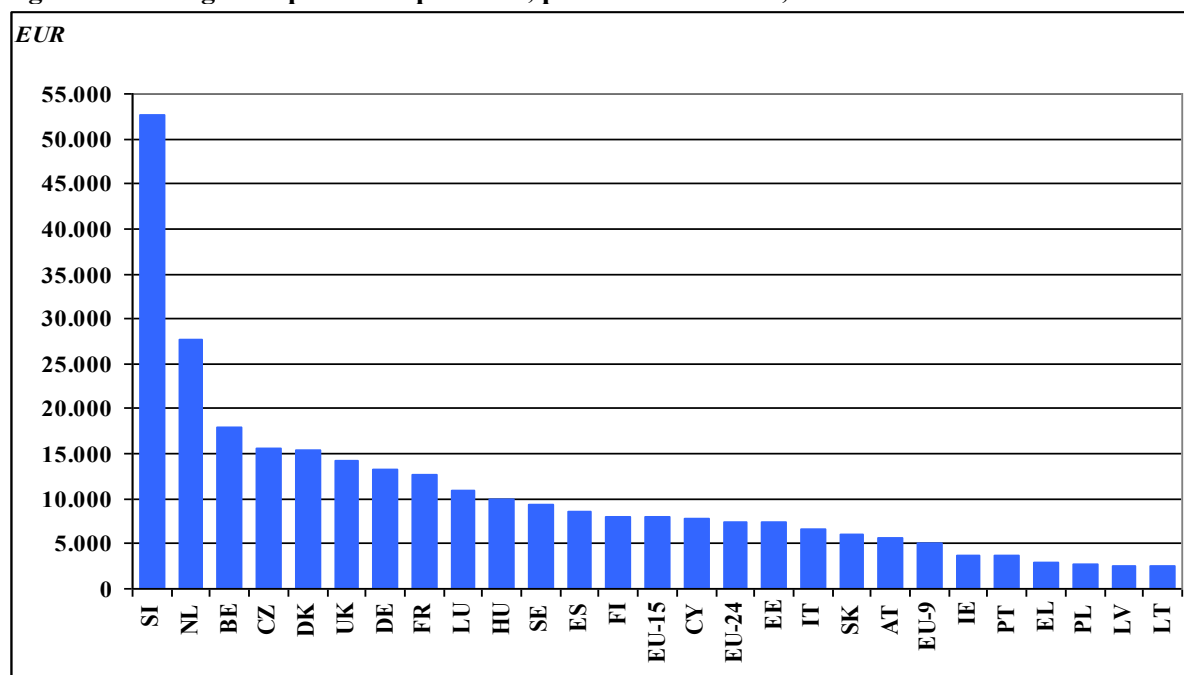
Note: Gross Farm Income used as income indicator; Average yearly compensation for EU-15 for 1998-2007, for EU-9 average 2006-07
 Source: DG AGRI L3 - EU FADN (no data for Malta, Bulgaria, Romania)

Figure 6: Share of farms, per Member States, eligible for compensation with IST



Note: Gross Farm Income used as income indicator; Average yearly compensation for EU-15 for 1998-2007, for EU-9 average 2006-07
 Source: DG AGRI L3 - EU FADN (no data for Malta, Bulgaria, Romania)

Figure 7: Average compensation per farm, per Member States, with IST



Note: Gross Farm Income used as income indicator; 2007 compared to average income 2004-06²⁷
 Source: DG AGRI L3 - EU FADN (no data for Malta, Bulgaria, Romania)

In the future, compensation needs may be greater however, as income levels may fluctuate more due particularly to climate change and increasing price volatility. The estimations for EU-9 are likely to be underestimates, as they reflect only the year 2006-07 when direct payments started to be phased in and prices are on the rise since then. Hence, the share of farms that were eligible for compensation during this period was unusually small.

In order to analyse potential compensation needs in the future, different scenarios were analysed. The objective was to assess the impact of increased price variability on the level of compensation payments required to compensate all farmers with an income drop of more than 30%. The method used was a comparison of the situation in 2007 with the average in 2004-2006, using Gross Farm Income²⁸ as the income indicator.

The scenarios illustrated are the following:

- Status quo (SQ) is the situation in 2007 (compared to average 2004-06)
- (S1) corresponds to a 30% price drop in 2007
- (S2) corresponds to a 10% price drop in 2007

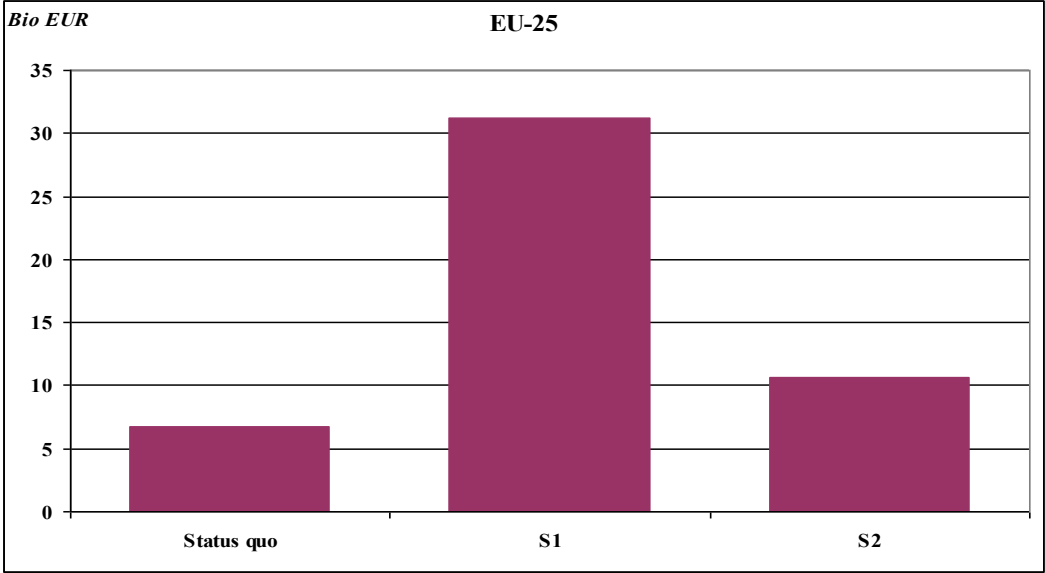
Results show (see figure 8) that price fluctuations have very big impacts on the level of compensation required. The cost of compensating SQ would be 6.8 billion euros, whereas (S2) would cost 10.7 billion euros. This means that if there is an average price drop for all agricultural sectors of 10% and all Member States choose to apply the income stabilisation

²⁷ The compensation is calculated according to the following: $[70\% * (\text{Average income year } N-3 \text{ to } N-1)] - \text{income year } N$.

²⁸ Gross Farm Income = total output + subsidies - taxes - total intermediate consumption.

scheme, then the compensation cost would increase by approximately 60% compared to the status quo. This gives an indication of how sensitive the scheme would be to price fluctuations.

Figure 8: IST – compensation required for three alternative scenarios



Note: Gross Farm Income used as income indicator
 Source: DG AGRI L3 - EU FADN (no data for Malta, Bulgaria, Romania)

Option S1 is an extreme example, as it is highly unlikely that the collective drop of all agricultural products would reach -30% in a given year. However, the other components used for the estimation are rather moderate in their assumptions, in that SQ and S2 are not extreme examples. Instead, these scenarios are based on a very restrictive compensation formula and income indicator. In other words, the cost of applying an IST would be highly sensitive to how income is defined, and to the price variation taking place. Furthermore, this cost only reflects the cost of the compensation itself, not the cost of administrating and/or controlling the scheme.

4.2.4. *Administrative burden and simplification*

Administrative burden: the proposed IST aims at compensating farmers for a substantial income loss. In order to determine what a substantial income loss is, detailed information must be collected and considerable time would be required for processing this information. Furthermore, the information required is not straightforward, as what is used as the income determinant could be very subjective. In the case of Canada (with its AgriStability scheme, which is a form of IST), tax declaration forms are used. However, this is not an alternative for the EU as a whole, as there are no common taxation rules at EU level.²⁹

Therefore an IST would be complex to manage and burdensome to administer. The complexity stems from the difficulty in finding an appropriate measure for income, collecting information verifying the income indicator and controlling the measure. Depending on how

²⁹ OECD report, Thematic review on risk management: Canada; TAD/CA/APM/WP(2010)29

the tool would be implemented, the administrative burden would impact differently upon different parts of the administration chain.

Simplification impact for farmers: in this option farmers are required to submit a substantial amount of information and documents when applying for support and to prove eligibility. Depending on the practicalities of the system this may mean that a farmer will have to spend considerable time collecting the information and preparing the application or, alternatively work with a consultant/accountant. A "light" solution would permit farmers to use already existing documents and information.

Simplification impact for national authorities: this option foresees a case by case processing of data and judging if an applicant is eligible for support as well as deciding upon the level of support. The level of administrative burden to Member States is estimated to be substantial. It is possible that by using existing data sources and flows, as well as finding ways to automate the process, the burden on national authorities may be somewhat reduced.

4.3. Crisis fund

4.3.1. Economic advantages and disadvantages

Limiting government involvement to prevention and crisis tools gives incentives for farmers to take maximum responsibility for managing their own risks at farm level. In the event of a natural disaster, resources could be transferred from other rural development measures, to restoration measures and also preventive measures in case of an anticipated event. This would allow a flexible response to crises.

The fund could be an attractive tool to address specific and extreme problems affecting one or a very limited number of Member States. However, it would need to be carefully designed, notably in terms of financing procedure in order (1) to address the concerns related to farm income volatility to avoid jeopardising the objective of ensuring agricultural production capacity throughout the EU at risk; (2) to guarantee a rapid and effective availability of funds.

There could be a risk of overlapping with many measures already available in the sCMO, therefore its triggering mechanisms should be clearly defined and its benefits should be weighed against the benefits already provided by these measures. Achieving the right design and mechanism would allow avoiding that Member States regularly call for assistance from the fund (thus decreasing farmers' incentives for risk prevention). This would also enable to enhance the effectiveness and efficiency of *ex-post* ad hoc support to farmers versus *ex ante* support for preventive insurance schemes.

A 'Global Agricultural Risk Management Fund' would ensure solidarity between Member States in cases of outbreaks of major adverse events. The main difficulty would be to clarify which criteria should be used to determine "adverse events" for which resources of the fund could be mobilised, in order to ensure that the Fund is applied equitably and effectively.

4.3.2. WTO compliance

The measures are in compliance with WTO Green Box rules, as public involvement would be limited to preventive and response measures and a fund for disasters.

4.3.3. *Budgetary issues, administrative burden and simplification*

The budgetary needs of the 'Global Agricultural Risk Management Fund' would vary substantially between years, depending on the number and severity of events occurring.

For national authorities: the establishment, management and control of such a Fund could give rise to an increase in the burden for the national authorities as the latter are required to set up and maintain an infrastructure, ready to start its operations in case of urgency. Then when an emergency occurs, important resources are required to process demands, grant support as well as verifying the correct spending of the funds.

For farmers: The level of administrative burden for farmers would be dependent on the occurrence of an adverse situation and if they decide to apply for support. The level of burden would then be determined by the modalities of the application procedure as well as the (ex-post) control arrangements.

5. CONCLUSIONS

In terms of economic effects and the functionalities of the tools, enhanced insurance subsidies and the income stabilisation tool contribute to both increasing the stability of income and mitigating the effects of production risks. Care should be taken however, that such tools do not compensate production choices which are not in line with market orientation and discard environmental concerns. The heterogeneity of risks and agricultural structures throughout the EU favours a more decentralised approach to using those instruments best suited to the specificities of particular regions and sectors. Demand for risk management products depends on what type of agricultural production the farmer is involved in and where the farm is located in the EU. Rather than trying to impose a "one size fits all" solution, it is preferable to allow Member States flexibility in addressing risks facing farmers, so that the most appropriate solution may be found.

Therefore, creation of a toolkit within the second pillar would give farmers a possibility of using appropriate instruments in the context of a wider strategic approach favoured in the Rural Development policy. The creation of an ad-hoc fund at EU level could weaken the development of prevention measures if it is not carefully designed and its financial procedures appropriately defined.

Annex I

Risk – management related Measures in Rural Development

On top of the fund, preventive measures would be supported, as is already the case today. Currently, Council Regulation (EC) 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development provides for possibilities for farmers to deal with risks. Even though "risk management" is not mentioned as such in the Community strategic guidelines for rural development, a number of measures can be used for this purpose.

- a) Measures specifically designed for the purpose of prevention and restoration
- Restoring agricultural production potential damaged by natural disasters and introducing appropriate prevention measures.

The objective is to invest in preventive actions to counter the possible consequences of natural disasters, e.g. restoration of physical capital after floods. (The loss of income resulting from natural disasters is not covered). Eligible expenses can include investments; for example for restoration of agricultural land and soil quality; re-establishment or restoration of dikes, drainage systems; flood prevention and management measures (e.g. projects related to coastal and interior flood protection). This measure is often linked to substantial state aids support, but the result is very often not achieved; prevention tools are less used than restoration tools (especially in floodplain areas and forests); this situation should be improved in CAP post 2013, for example by requiring that prevention measures are put in place at the same time as restoration measures.

- b) Other measures which include risk management / prevention-related actions
- Knowledge Transfer and Information Actions and Use of advice and setting up of management, relief and advisory services

Support could be given to actions related to training/information on risks and risk management for farmers. This can help improve awareness of current risks, improve risk management strategies and provide know how, for instance on the use of futures and options, which could also lead to a wider use of contracts between the food industry, traders, and farmers. Other operations that could be supported include identification of vulnerable areas and sectors and assessment of needs and opportunities for changing crops and varieties in response to climate trends; building adaptive capacity by awareness raising and provision of salient information and advice on farm management and bio-security strategies to reduce animal health risks.

- Investment in physical assets

Investments aimed at mitigating natural disasters and climatic risks by supporting restructuring and modernisation of physical assets and by promoting innovation could be supported, together with e.g. investments in improved efficiency of irrigation infrastructure and water use technologies; seeds production and storage and preventive mechanisms against adverse effects of climate-related extreme events (e.g. setting up of hail nets).

- Business development, investments and infrastructure

Farmers may diversify in order to reduce their production and price risk. Favourable results in one activity may help to offset losses in another activity. Diversification may include farm-related activities, but also off-farm employment (other gainful activities) which reduces the household's dependency on a fluctuating income from agriculture.

Infrastructure projects related to the development and adaptation of agriculture and forestry and carried out in a collective way could be supported.

- Agri-environment payments

Actions related to environmental services and adaptation to climate change can contribute to preventing risks by protecting and improving the environment in agricultural and forest areas. The reinforcement of the quality of management of these areas offers better prevention against floods, droughts, erosion, landslides, forest fires, storms, climate change, etc. The following operations can be taken as examples of risk management tools: integrated crop and pest management; conservation agriculture and soil management practices (e.g. no or reduced-tillage methods, catch crops, diversified crop rotations); water management and use, including establishment of buffer zones and terraces to target water erosion.

- Animal welfare

The measure shall contribute to encouraging farmers to provide a high standard of animal welfare in animal husbandry which goes beyond mandatory standards. Support can be provided, inter alia, for prevention of pathologies by actions improving stock management practices and by regular monitoring of the welfare conditions.

- Greening of the 1st Pillar

This will also help to ensure more resilient ecosystems, with reduced risk of problems from extreme events and consequently less need for remedial measures.

Annex II

Estimated cost of measures related to outbreaks of livestock and plant diseases and the benefits of preventative action

Costs of Disease outbreak is high

In the area of **Animal Health**, EU measures related to outbreaks of epidemic livestock diseases exist which are now funded by the 'Veterinary Fund'. These include co-financing of veterinary emergency measures for the slaughter of animals (direct losses). Exceptional market support measures provide support under a different legal framework, to farmers/breeders affected by restrictions imposed by the veterinary authorities (consequential losses).

Failure to prevent outbreaks of disease has serious financial consequences. EU expenditure to Member States from the emergency fund ranged from €1.7Mio in 2006 to €424Mio in 2002, the year after the major FMD outbreak in UK. The costs borne by Member States (non-EU compensated part of direct losses) differ between EU Member States. The total costs for the period 1997-2009 are approximately €1.1 Billion, of which 86% are related to the major livestock diseases FMD, CSF (Classical Swine Fever) and Avian Influenza (AI).

The costs of dealing with the Foot and Mouth disease (FMD) outbreak in 2001 in the EU are illustrative. In total some 4 million animals were culled. The total cost of the outbreak in the UK was £3 billion to the public sector and £5 billion to the private sector. In total, the direct economic cost to the UK economy of FMD amounted to over 1% of its GDP. The cost for maintaining the vaccination bank at the EU level is roughly €1,400,000 per year. The total value for antigen stored in the vaccine bank is €10,600,000 from 2012 onwards. These antigens last for 5 years.³⁰ Animal movements were mainly responsible for spreading the disease across the UK before it was detected. The same factors also led to the spread of FMD in the Netherlands and France.

Regarding the **Community Plant Health Regime** (CPHR), the recent evaluation³¹ demonstrates that the entry and spread in the EU of quarantine pests of plants has major impacts on agriculture, forestry, natural environment and landscape. The costs of future non-action have been estimated to be up to billions of euros annually, depending on the quarantine pest involved. In addition, the establishment of quarantine pests in the EU may result in very significant disruption in exports to third countries.

The cost-benefit of rapid preventive action against quarantine, including the necessary financial EU expenditures, is illustrated by the example of *Western corn rootworm* (*WCR/Diabrotica*). This is the most important insect pest of maize in the world (causing US\$1Bio losses annually in the USA) and induces the highest insecticide use in the

³⁰ Anderson, Ian 2008: '*Foot and Mouth Disease 2007 - A Review and Lessons Learned*', 2008

³¹ Food Chain Evaluation Consortium, 2010. *Evaluation of the Community plant health regime*. Final report.

world. Up to 1992, the pest was absent from Europe. Since its introduction, it has spread across most of eastern and central Europe. The damage caused by this new pest for the EU-27 is estimated to amount to €5.6-6.3B over the next 25 years³². Costs associated to the eradication of isolated new WCR outbreaks in Member States that are WCR-free vary from €240.000 to €3,610.000. The WCR case shows that effective prevention of the entry of the quarantine pest into Europe would have been by far the most cost-effective measure (billions of euros savings).

Prevention of disease is more cost-effective than cure

The development of resilient systems in plant and animal production and along the food chain embraces the principle that prevention is better than cure. In animal production, the principle of prevention covers measures to decrease occurrence and transmission of animal diseases by farming and food chain practices and animal transport in order to ensure a high level of animal health, public health and food safety including limiting the incidence of Zoonoses in humans and other biological risks. It is enshrined in the Animal Health Strategy, calling for concrete measures to be integrated into the policy and funding framework, thus providing for active surveillance of bio-security and penalties and incentives for all actors along the food chain.

The main tools and instruments of prevention are:

- Monitoring and surveillance (Member States),
- Bio-security measures (disinfection, segregation, cleaning)
- Containment and eradication measures (Veterinary Fund).

In the case of animal disease outbreak (such as FMD), possible prevention and control strategies include import movement restrictions legislation (in line with the OIE International Animal Health Code), control of animal movement across national borders, ban of swill feeding (leftovers of human consumption), international travel facilities (aircraft or ships) and containment of herds to avoid the contact with animals at risk. At the same time, contingency plans should include among other elements training programmes for veterinarians and animal health staff (including stakeholders and traders), strengthening laboratory capacity for a rapid and certain diagnosis, establishing contact with Reference Laboratories and surveillance.

For plant health, the principle 'prevention is better than cure' applies notably to keeping quarantine pests from other continents out of the EU as European plants are generally very susceptible to them. Worldwide, countries make considerable efforts in terms of legislation and financial resources to keep foreign pests out. With regard to common pests, healthy seeds and propagating material is critical to avoid crop losses from and excessive use of plant protection products. The cost-effectiveness of these measures covered by the EU plant reproductive material regime is high. In addition, crop rotation may be applied to suppress soil-borne pests. It is effective against common pests but also helps to prevent the establishment of some quarantine pests. However, the general susceptibility of European agriculture to new invading pests is to a significant degree dependent on the availability and use of pesticides in crop protection that create a barrier to invasion

³² Food Chain Evaluation Consortium (FCEC), 2009. *Analysis of the economic, social and environmental impacts of options for the long-term EU strategy against Western Corn Rootworm*, IA report, Annex

Investment in prevention is highly cost-effective for the EU at longer term. EU co-financing for surveillance for such pests, outbreak eradication and compensation for losses of private operators will generate far bigger savings in the long run. An improvement of the plant health regime is critical for sustainable and competitive agriculture, mitigation of climate change and its impacts, ensuring food security and food safety (less use of pesticides) and for forest and landscape protection. Plant health problems can be damaging to important economic sectors (such as citrus or potatoes) causing enormous economic losses. An eradication strategy requires almost always the availability of authorized pesticides with a high efficacy on the pest to be eradicated. Both the type of pesticide and its use may be different from normal use; Article 53 in the pesticide Regulation 1107/2009 provide for this need.

In plant health, risk mitigation requires reinforced quarantine pest surveillance by Member States, early eradication and effective containment of quarantine pest outbreaks. Establishing a Plant Health Fund (like the EU animal health regime) to introduce EU co-financing for surveillance of priority pests and for compensating losses of private operators as well as costs for Competent Authorities would aim at encouraging private operators to notify outbreaks of quarantine pests, which is essential for early action and eradication.

In addition, incentives could be considered to reduce the probability of quarantine pest outbreaks (e.g. by crop rotation) and prevent subsequent economic and environmental damage. For European pests, specific farming methods (Integrated Crop Management ICM) could be further encouraged.

Food safety underpins EU law

Food safety has emerged as an important concern of EU citizens, largely due to food emergencies, increased consumer awareness, globalisation of food trade and a lack of fully harmonised implementation of food law and official controls. These factors, allied to the need to support the development of the Internal Market, led the EU to overhaul its food law so that Member States' food and feed law, animal health and welfare rules and plant health rules are now almost entirely based on EU-level legislation.

It is necessary to apply this body of law effectively and in a harmonised way across the EU to ensure the same level of protection for all consumers and a level playing field for businesses, thereby allowing the Internal Market to function properly. Training and information exchange of relevant national-level control staff plays a key role in achieving the aim of consistent enforcement and compliance.

As traceability along the food chain becomes more important also in a global market, the EU Food Law fosters the '*one step backwards – one step forwards*' approach that requires operators to identify from whom and to whom a product has been supplied. To ensure that these rules do not distort integration and competitiveness of the agro-food sector, the Commission has launched the 'Better Training for Safer Food' initiative.

The training is aimed primarily at Member States and third country officials involved in verifying compliance with EU food and feed law, animal health and welfare rules and plant health rules. It aims to make controls more efficient and harmonised and ensure that the food industry respects EU regulations safeguarding public, animal and plant health. This will contribute to providing safer food and feed and raising levels of consumer and

animal protection. Also, it provides global partners with the necessary skills and capacities to use EU and international standards not as barriers but as catalysts for development.

The training covers such issues as: Hazard Analysis and Critical Control Point principles (HACCP); Food hygiene and controls for meat, milk and fishery products; Plant health controls; Veterinary and food safety control checks in border inspection posts (BIP); Microbiological criteria and control of zoonoses and eradication; Animal welfare at slaughterhouses, disease control and for religious slaughter and animal welfare during transport; Plant protection products; Feed law; Quality schemes; RASFF, TRACES and other EU-related IT systems.

Annex III

Observed agro-climatological changes based on the MARS meteorological database 1975 - 2007

Lengthening of growing season

As a whole, in Europe a lengthening of growing season (defined as frost-free period) was observed. Even if over the continent the magnitude of increase varied, on average the lengthening is estimable in 0.8-1 day per year during the last 30 years. However, in a few and localized areas, due to particular microclimatic conditions, reductions were recorded instead.

In general a longer growing season is related to an increased crop productivity and allowing for a larger number of options as rotations and cultivable crops.

Increased plant heat stress

In parallel to the increase of annual mean temperatures, maximum daily values were shifted upward and more frequent heat stress events occurred.

Worse conditions were recorded in Spain (mainly southern areas), Italy and Black Sea area (mainly Turkey).

However, it must also be highlighted that locally along the Atlantic coast line and in Greece a reduction of frequency of heat stress was recorded

Increased winter and summer rainfall

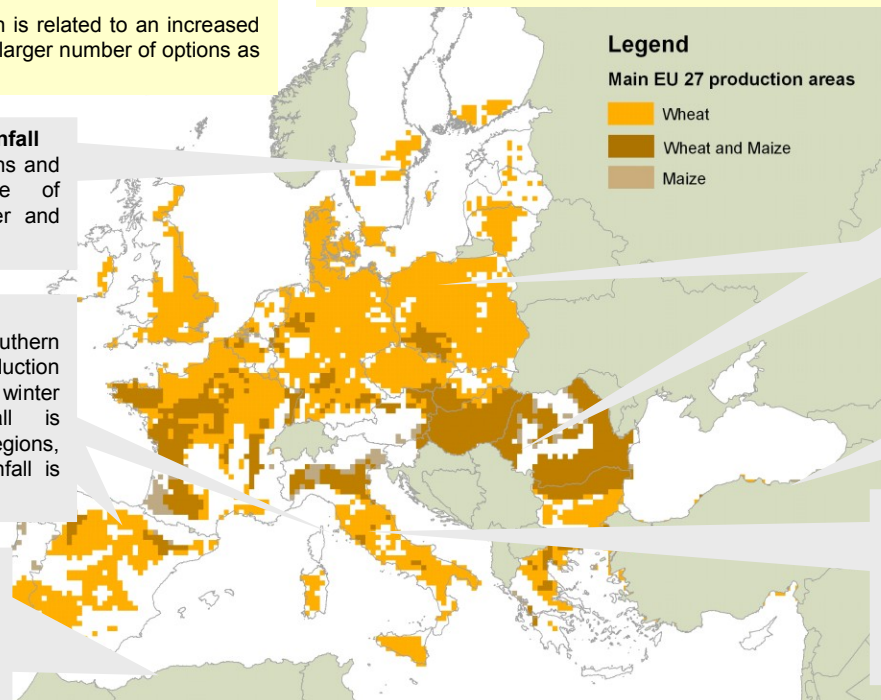
In Scandinavia, eastern EU, Balkans and Austria a significant increase of cumulated rain both during winter and summer was recorded.

Reduction of winter rainfall

In Italy, Portugal, Greece, southern France and Ireland a significant reduction of cumulated values of rain during winter was recorded. Winter rainfall is particularly relevant in southern regions, where the majority of annual rainfall is concentrated in winter time

Increased irrigation demand

Increase of water deficit (rain-evapotranspiration), mainly due to the reduction of rain during the growing season and partially due to the increase of crops water consumption has been simulated for large parts of southern Europe. Italy, central Spain and southern France presented the largest increases.



Reduction of irrigation demand

In Balkans, Austria, Czech Republic, The Netherlands, Denmark, southern Sweden and northern Poland a reduction of water deficit (rain-evapotranspiration) was recorded, mainly due to the increase of rain during the growing season.

Increased risk of late frosts

The frequency of late frosts has increased westwards of the dotted line bringing a greater vulnerability to this regions.

Reduction of summer rainfall

Italy and southern France show a significant reduction of cumulated rain. In spite of the small contribution of summer rain to the whole year cumulated value the reduced summer rain increased the water deficit noticeably.

Shortening of crop growth cycle (agrophenology)

The speed of crop development is mainly influenced by the thermal conditions. Therefore, increase of crops development speed did lead to a shortening of crops cycle over the last decades.

In general short crop cycles are related to a reduced crops productivity, especially if it occurs during the reproductive stages of development (grains/fruits formation). Winter crops were influenced more than summer crops.

Annex IV

Illustrative example, Income Stabilisation Tool, example of an individual farmer

Decreasing income

