

The management of risks is one of the great challenges for farmers in the 21st century, and it is crucial for the progression of agriculture across the world. Indeed, appropriate risk management tools are one of the fundamental ways to improve livelihoods in rural areas and help to deal with the variety of risks that farmers have to face.



WHY RISK MANAGEMENT IS IMPORTANT TO FARMERS

The necessity for risk management tools and strategies are nowadays greater than ever in a context of deteriorated climate conditions, the recent global food crisis, animal diseases outbreaks, higher price volatility and mounting consumers' concerns about food safety issues as well as increased international integration and inefficiencies of agricultural markets¹. Appropriate risk management strategies benefit not only farmers, but also the entire society by supporting programs and targets for food security, increased employment opportunities and poverty reduction. Sustaining farmers in managing their risks represents a global gain for both rural and urban populations.

Farmers have been striving for centuries with risks ranging from the uncertainties of the weather, diseases and pests or other natural factors beyond their control. The farmers' situation may also be exacerbated by economic, institutional and social risks which tend to impact farm income, hamper investment and, in certain cases, obstruct the application of innovative practices. Farmers' livelihoods, welfare and security are negatively affected as a consequence of this wide range of risks and, in particular, poor-resourced smallholder farmers have to have specific difficulties in managing their risks.

Farmers around the world minimize and cope with risks in different ways depending on varying environmental, economical and social situations. Throughout history, farmers have been implementing good farming practices such as the diversification of crops and farm activities, adaptation to new technologies and the application of safety measures to help them face risks.

Farmers in developed countries are relatively better provided with resources to manage risks, thanks to access to technologies and to a range of public and private systems and tools that protect them against unfavourable events. In developing countries and economies in transition, producers are more exposed to risks, having less means to manage farming risks and often operate in a social context characterized by weak institutional and technical capacities. In those countries, risk management instruments are either unavailable or can not be accessed by smallholders.

“RISK MANAGEMENT STRATEGIES BENEFIT NOT ONLY FARMERS, BUT ALSO THE ENTIRE SOCIETY BY SUPPORTING PROGRAMS AND TARGETS FOR FOOD SECURITY, INCREASED EMPLOYMENT OPPORTUNITIES AND POVERTY REDUCTION.”

NATURE AND TYPES OF RISKS IN AGRICULTURE

Risks associated with agriculture affect:

- **Agricultural output** through risks associated to production, disease, price and income fluctuations and other financial risks.
- **Farmers' assets** through risks involving damages to buildings, equipment, herds, labour or other capital.
- **Farmers and farm operators** as individuals through health and safety and liability risks.

Often, an adverse event has simultaneous negative consequences on more than one of these elements, impacting different aspects of the production system and the farm's viability, leading farmers into a downward spiral affecting output, assets and personal safety. For example, a health shock in the farm family disrupts farm production because of lost time working; this would reduce income, possibly depleting his/her savings, selling of the assets, losing property and consequently, descending into chronic poverty.

¹ Examples of agricultural market inefficiencies are lack of good governance and market organization, incomplete institutional and physical infrastructures, conditions of imperfect competition, lack of market information, limited contract enforceability, unfair outcomes for farmers and so on.

Risks in agriculture may originate from a variety of causes:

CLIMATE AND NATURAL DISASTER RISKS

This refers to weather-related and natural disasters risks such as drought, floods, windstorms, heavy snowfall, hailstones and fires. Production, yield, water quality, fodder availability and animal health are significantly affected by climatic variations as weather influences each phase of agricultural production processes. Evidence relating to climate change suggests that climate risks have been accentuated in the last years, affecting all farmers and in particular smallholders in developing countries, especially those located in tropical and arid zones.



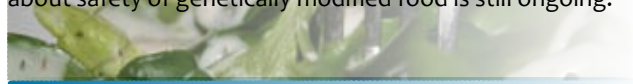
PLANT AND ANIMAL DISEASE AND PEST RISKS

This category of risks can create considerable uncertainty in the output for both the crop and the livestock sectors, causing loss for the domestic and export markets and increased costs for farmers (e.g. for vaccination). Damages can be of different nature and the losses depend on the extent and virulence of the attack. This has implications not only for the farmer affected by the outbreak, but also on his/her farmer neighbours who are often obliged to restrict their animal movements. Crop pests, insect infestations, wild animal incursions and, in the livestock sector, epizootic outbreaks such as BSE, foot-and-mouth bluetongue diseases or the avian influenza may provoke the complete or partial loss or the temporary suspension of production.



FOOD SAFETY RISKS

Food-borne diseases are the subject of mounting attention and the respect of food safety standards and procedures has become a major preoccupation for farmers. Numerous potential sources of contamination for agricultural products exist and due to increasingly globalized markets, faulty products can be traded all over the world. Food safety risks might derive from microbiological organisms, chemical contaminants, pesticides, and industrial pollution. Debate about safety of genetically modified food is still ongoing.



CREDIT LENDING RISKS

In certain countries, the agricultural sector is perceived by lenders as highly risky. Difficulties in accessing the credit for production, post-harvest, for balancing spending and saving and loan repayment risks make farmers vulnerable. Increased default risk and reduced availability of farm credit are reported in specific areas such as those affected by pandemic illnesses. Smallholder farmers particularly face a lack of suitable guarantee and high costs of intermediation which makes them even more vulnerable.



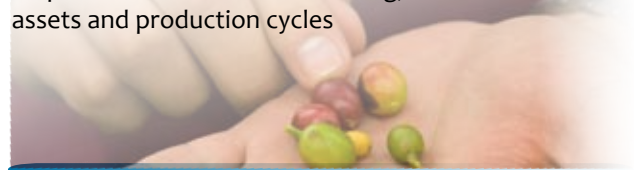
PRICE AND MARKET RELATED RISKS

Volatility in commodity prices and instability in farm gate prices create huge uncertainty for farmers who require some degree of predictability in their farming operations. The problems may be aggravated by macroeconomic instability, inflation, exchange rate, speculation, inconsistency of public policies, constraints in agricultural marketing systems and exploitation by powerful manufacturing or grocery chains. Market inefficiencies and imbalances are caused by poor infrastructures and by missing or weak institutional structure in certain countries. This makes it hard for farmers to obtain remunerative prices for their produce, ease the fluctuations in output prices, and it disrupts market access and farm planning.



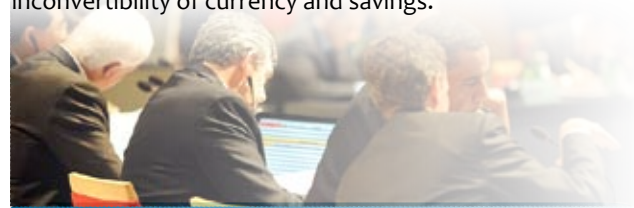
FARMERS' INDIVIDUAL RISKS

Agriculture is known as a very physically demanding sector with high risk for work-related injuries. Disease, disability and death are risks to the human resources that can severely impact farm households and create uncertainty for farm activities and therefore, impact family income. The consequences are clearly seen in those rural areas where the HIV/AIDS pandemic seriously undermines agricultural systems. The farmers' individual risks also include the legal responsibility of their products and activities, farm workers as well as succession planning risks, land rights and land tenure problems. Finally, external actors, such as extremist environmental groups and animal right activists, can put farmers' right to production at risk threatening, in certain countries, assets and production cycles



POLICY AND REGULATORY RISKS

Several risks for farmers derive from changes in agricultural related policies and regulations at both the national and international level. These policies impact a farmers' capacity to plan their business and make strategic decisions. Political instability may also affect negatively farmers' activities; for example, social unrest caused by insurrection, violence and war may lead to governmental expropriation of land, confiscation of assets, repudiation of contracts and inconvertibility of currency and savings.



FARMERS' RISK MANAGEMENT STRATEGIES

Against the background of different economic and social situations, a large number of strategies to deal with the risks faced by farmers can be distinguished. These range from individual strategies to policy tools facilitated by governments.

Individual risk management strategies², such as cautious agricultural practices or informal borrowing have always been used in agriculture and are still the most utilized by the majority of farmers across the world. Despite their undeniable value, these strategies are often characterized by a limited capacity to manage all the farming risks and often do not optimise productivity. These strategies, which are the only ones that can be adopted in the absence of or with incomplete alternative solutions, are often at the expense of more sustainable and effective investments and could lead to resource degradation.

It is not possible for farmers to manage all risks on an individual basis. Therefore, other risk management arrangements exist, including government programs and market-based management tools. These are mainly available to farmers in developed countries (e.g. private, cooperative or public insurance schemes) and need to be made accessible to farmers in developing countries. Finally, public arrangements such as provisions of welfare support and government-funded programmes compensate farmers for losses caused by variability in output, prices and disasters.

The strategies used by farmers can be addressed at different levels and in different ways. The approach used in this document focuses on three broad cross-cutting areas: **Minimising the risks, coping with the risks and, finally, receiving support after a crisis.**

STRATEGIES TO MINIMIZE THE RISKS IN AGRICULTURE

This category focuses on practices which are put in place in order to reduce the occurrence of risks and mitigate future consequences.

The individual risk management strategies that can be adopted by farmers are as follows:

- Diversification of farming activities, such as mixed farming, mixed cropping, crop rotation, labour reallocation; diversification of plot location and development of non-agricultural activities and sources of income outside agriculture.
- The use of appropriate farming practices according to valuable indigenous knowledge.
- Cultivating crops that are tolerant to stress and disease; using resilient livestock, as well as plant and animal disease prevention techniques.
- Collective groups of production and marketing of products to divide the risk between different farmers the use of share cropping arrangements to divide the risk between producers and landowners.

Risk management strategies offered to farmers by public or private institutions include:

- Long-term investment in infrastructure, such as in roads, warehouses, communication facilities, irrigation systems and improvement in marketing infrastructures.
- Pest management programmes, application of sanitary and phytosanitary measures and food safety and control policies.
- Timely and reliable market information systems and information based on early warning systems' results and implementation of communication and learning activities for farmers such as the agricultural extensions;
- Advisory services, codes of good practices, education programmes and extension services improving preparedness. Research programmes to develop, for example, adapted crop varieties and livestock breeds and to support food safety related objectives. Programmes are in some cases provided and funded by governments with farmers' organisations and, in certain cases, private sector and NGOs involved in the process.

STRATEGIES AND TOOLS USED BY FARMERS IN THEIR ACTIVITY TO COPE WITH THE RISKS

Several risk management strategies and tools are used by farmers in their activity to cope with the damage and survive their shocks and adverse consequences. Besides usual systems such as maintaining reserves of crops and livestock, financial savings, depleting assets and informal credit arrangements, farmers can also hedge risks through various insurances, funds and financial tools. These market-based risk management tools include:

- Crop and livestock **insurance**, used to compensate for loss in production and revenue or to restore assets. This type of insurance may be provided by private companies, co-operative schemes run by producer organisations, managed by public systems or relying on government funding. Governments may intervene subsidising premiums or through reinsurance and co-insurance.
- Farmer-owned **mutual funds** are established on private initiative and can be considered as a special case of insurance. It is a means of sharing risks among farmers, enabling the participants to be compensated in the event of loss according to specific and predefined rules.
- Organized markets offer another venue to protect producers from price drops and bad harvests through contracts for forward delivery and commodity exchange contracts such as **futures and options**. Exchange traded contracts require know-how, infrastructures, well-developed financial and legal framework and supportive government policies.
- **Contract farming** is carried out according to private contracts set between farmers and agri-business agents, such as firms or traders or according to farming arrangements between farmers. Contracts for the production or marketing of agricultural products are subject to specific conditions defined by agreed quantities, quality standards and time of supply. They allow producers to reduce the exposure to production and price risks, sharing them with the buyers.
- Governments' price **support programmes** provide safety-nets against price risks. To help farmers benefit from better market prices over the seasons, these programmes may be associated to publicly financed advance payments and, for market regulation purposes, intervention mechanisms and public or publicly subsidized private storage.

² Individual strategies are risk management actions and plans put in place by farmers without regulations made by government or controlled by private bodies. They are not market-based.

DEFINITIONS OF THE MOST COMMON MARKET BASED RISK MANAGEMENT TOOLS:

- AN **INSURANCE POLICY** is a contract between two parties (the insured and the insurer or insurance company) designed to compensate, in exchange for periodic payments (the premiums), for losses of the insured caused by unexpected negative events.
- **REINSURANCE** is a means by which the insurers protect themselves with other private insurance against risks. Governments may also provide public insurance to insurance companies. **Coinsurance** is a procedure to split or spread risks among multiple parties which can include governments.
- **FORWARD CONTRACTS** are private contracts between two parties to buy or sell commodities at a specified point of time in the future for a determined price (the "forward price"). Forward contracts can be made between various actors of the marketing chain.
- **FUTURES** are standardized contracts wherein commodities are bought or sold at a specified price for delivery at an agreed future date.
- » Both **FUTURES AND FORWARD CONTRACTS** deliver commodities (normally relative large quantities) on a future date at a predetermined price but differ in two main aspects: futures are exchange-traded (i.e. the Commodity Exchange acts as counterparty), while forwards are "traded over-the-counter" (i.e. directly between two parties). In addition, forwards are customized contracts (i.e. building a contract from scratch) while futures are standardized contracts (i.e. they include specific parameters set by the exchange such as expiration date, strike price, quantity, quality, delivery time and location). Futures have less credit risk as they are "marginized" (i.e. with collateral requirements) while forwards are not.
- **OPTIONS** are contracts written by a seller that gives the buyer the right — but not the obligation — to buy (in the case of a call option) or to sell (in the case of a put option) commodities. In return for granting the option, the seller collects a payment (the premium) from the buyer.



AFTER CRISIS SUPPORT TO FARMERS

After a natural disaster has struck a region, the economic activities and the farming cycle are disrupted. In certain cases, farmers default on repayments of seasonal loans. Destructive effects on physical infrastructure or herds are often associated to natural disasters and farms may be abandoned.

The usual response to dealing with a crisis is through humanitarian aid for emergency purposes followed by a reconstruction program. However, in certain countries,

farmers are supported for the impact and losses in assets or income through compensation or fiscal exemption. These are mainly provided through public assistance which includes policies, legal framework as well as technical and financial measures to reduce damages. In particular, rehabilitation and recovery schemes, support programmes provide compensation to farmers and rural communities through national calamity contingency funds which are generally established and maintained by governments. In developing countries and economies in transition, support after crisis to farmers is often non-existent or cannot be accessed by smallholders.

CONCLUSIONS

Farmers' access to tools to manage risk is one of the key elements in building the resilience of agriculture to withstand shocks and meet food security needs.

The impact of climate change and increasing market volatility will make agriculture even more exposed to risks in the future. As a result, access to farmer-friendly risk management tools needs to be a central part of any global food security strategy. Such tools exist, and have shown their effectiveness, especially in developed countries. Risk management tools that address the specific needs of developing countries should be further developed and scaled-up.

“PROACTIVE APPROACHES TO MANAGE RISKS IN AGRICULTURE AND PRODUCTIVE, COST-EFFECTIVE AND SUSTAINABLE STRATEGIES ARE MUCH MORE EFFICIENT THAN MERE ASSISTANCE ONLY WHEN A DISASTER OR CRISIS OCCURS.”

The need for information on risks and effective risk management strategies is now stronger than ever to face the challenges within the agricultural sector and to develop farmers' entrepreneurship. Proactive approaches to manage risks in agriculture through productive, cost-effective and sustainable strategies are much more efficient than mere assistance only when a disaster or a crisis occurs. Managing risks and uncertainties requires long-term investments. High level policy attention at the regional, national and international levels and also private-public partnerships are required to ensure farmers' viability and to attract much-needed investments.

Risk management has become a policy priority for IFAP and a Policy Brief has been released as a complementary reference to the present Issue Brief in order to highlight policy recommendations on behalf of world farmers. A collection of risk management case studies is also available. See www.ifap.org



FURTHER INFORMATION

- IFAP Policy Brief on risk management, 2009 to be adopted
- IFAP Existing practices – Risk management in agriculture, 2009 to be adopted
- Reports of the IFAP working group meetings - risk management September 2008 and April 2009;
- Commission of the European Communities, Staff working document on risk and crisis management in agriculture, SEC(2005)320, Brussels 2005
- Food and Agriculture Organisation, Disaster Risk management Analysis, 2008
- Onumah, G.E., Proctor F.J and R. Butterworth, Working document prepared for IFAP-ECART. - Natural Resources Institute, UK, 2008.
- World Bank, World Development Report 2008, Agriculture for Development.
- World Bank, Social risk management, the World Bank's approach to social protection in a globalizing world, 2003.