



Citizen-Centered Approaches  
to State and Market



# Economic Tools Mapping

## CROP INSURANCE

Market Building Initiative: A Program with the Aspen Institute

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### Overview

The goals of crop insurance programs are to distribute risk and reduce income and supply volatility in the agricultural sector. This has benefits for export-led GDP growth and often assists the majority and most vulnerable portion of developing country populations. Farmers face the risk of low yields, prices, quality, and damage that can severely impact their ability to gain income. Insurance allows for a cost-appropriate accounting for risk allowing those engaged in this sector to smooth their consumption across time, providing benefits for interfacing sectors as well. Spillover benefits in employment, tax income, production, food security, and price stability are also seen with successful risk strategies for agricultural producers. Crop insurance is one piece of larger risk management strategy for agricultural producers, including plant and animal husbandry and breeding practices, diversification of income sources across agricultural goods or outside of agriculture, and precautionary farming techniques and strategies.

A growth in demand for crop insurance products globally is being seen as a result of agricultural commercialization and the demand for formal risk cushions in these investments, WTO restrictions allowing premiums subsidization as non-distorting transfer payments, product innovation in offerings like index or derivative products and crop revenue products, and globalization increasing concern over pest and disease introduction and food safety. The developing world is still substantially underrepresented in crop insurance coverage despite relatively large agricultural sectors in comparison to manufacturing and services. While there have been increasing attempts to create comprehensive risk management programs with insurance features in these countries, performance has been mixed, with most unsuccessful programs failing due to improper planning and unrealistic expectations.<sup>1</sup> Global insurance premiums are concentrated in North America, Western Europe, and Developed Oceania with a total of 87% coming from these regions while Latin America (4%), Asia (4%), Central and Eastern Europe (3%), and Africa (2%) lag behind.<sup>2</sup> Despite being the majority of insurance premiums, developed economies represent less than 20% of global agriculture.<sup>3</sup> Still, the demand for insurance in the developing world is growing and presents an enormous potential for stakeholders in stability, trade, industry, and development.

### Structure

Crop insurance does not remove risk, but rather, spreads risk across an industry or industries, crops geography, or time. What is required, therefore, is a critical mass of participants in the program (“threshold of insurability”) and good historical data on risk including yield, price, and disaster likelihood. Feasibility estimates for insurance schemes are sometimes conducted by IFIs or other multilaterals in the planning phases for developing countries. The structure generally functions so that farmers pay premiums on their policy that reflect the time-distributed likelihood of loss. If the policy is in force at the time of the event claim for compensation on a loss, and premiums have been paid on that policy at that time, the farmer is paid for all or a portion of that lost value dependent on the policy benefits agreement. There may be a deductible or a percentage of the amount lost that is borne by the insured. The cost calculation and premiums procedure is discussed in more detail within the section on financing.

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<sup>1</sup> FAO Insurance of Crops in Developing Countries, R.A.J. Roberts Bulletin 159, 2005-  
<http://www.fao.org/docrep/008/y5996e/y5996e00.htm>

<sup>2</sup> Ibid

<sup>3</sup> Calculated Using nominal Government Data

There are a variety of structures for crop insurance policies and program types, both public and private, often customized to the needs of the population, climate patterns, crops, and methods within a country. Insurance may be provided by the public or private sector and may operate competitively (which is preferable) or in a subsidized manner. Sometimes parastatal agencies or other less distinctly public or private provisional arrangements are present. In the case of the US Federal Crop Insurance selling and service through private insurance companies is subsidized by the federal government though reinsurance of these companies through absorption of loss when indemnities exceed premium stock, for example.<sup>4</sup> Participation in crop insurance may be voluntary or compulsory. Some participation occupies a middle ground, either linked to bank lending or marketing benefits or subsidized to the point of minimal cost.<sup>5</sup>

Policy types can work in a variety of ways but generally are oriented toward losses of yield or value. A variety of example policies can be found in Box 2.

### **Rules**

There are a variety of structures for insurance globally though some universal principles for crop insurance and international guidance still applies. WTO regulations are the major global framework in force governing the nature of crop insurance provisions, and this pertains to government involvement in insurance provision. Subsidization, information provision, costs of program research, and layers of reinsurance all fall into non-distortionary green box measures defined in Annex 2 of the Agriculture Agreement.<sup>6</sup> Rules of the insurers themselves vary by policy, insurer, and farm type. In general, producers must report acreage and required protection accurately, meet policy deadlines, pay premiums before due dates, and report loss immediately. Rules on what entities have authority for premium and indemnity payments vary, though often there are links with lenders to save on administration costs. Insurers may have industry standards, national laws or guidelines, or internal policies regarding the requirements for reserves and their usage.

### **Financing**

With the exception of government-subsidization, parastatals, and mandatory participation schemes in some countries, most private crop insurers cover their operating costs using demand-driven premiums from consumers. The uninsurability of some crops and political conditions may prevent competitive markets for crop insurance- rice in flood-prone Bangladesh, for example is difficult to insure without modified rice stock. In the setting of premium and indemnity standards, insurers rely on meteorological history, price and yield history and predictions, and often satellite data as well. Premiums must be higher than the product of likelihood and amount of payout as they must cover the overhead costs such as employee salary and benefits, equipment and office space, administrative costs, marketing and farmer outreach, and data and informational costs. Operating costs such as evaluation of claims and policy sales are also present. Cost claims themselves are harder to estimate than these fixed overhead costs as they involve the prediction of the likelihood of farmer losses to crop and prices based on trend data. Amounts to cover claims are set aside in funds which then must be invested or held with liquidity, risk, and inflation considerations calibrated to meet the potential requirements of pay out to impacted farmers.

### **Operations and Outcomes**

The outcomes of crop insurance are difficult to measure, particularly as they often are part of a larger risk reduction strategy for agricultural producers. That being said, experts find that farmers are more likely to grow profitable crops even though they are more risky and to adopt improved, though perhaps uncertain

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<sup>4</sup> USDA Risk Management Agency- <http://www.rma.usda.gov/policies/>

<sup>5</sup> Hazell, P. 1992. The Appropriate Role of Agricultural Insurance in Developing Countries, *Journal of International Development* 4.6.

<sup>6</sup> WTO Agricultural Agreement, Annex 2

technology.<sup>7</sup> This can mean an increase in value added, farm incomes, employment, and export potential. Experts also show a reduction of the risk of loan default for credit which allows for increased and cheaper lending for agriculture.<sup>8</sup> Certainly a variety of interfacing industries benefit from the predictability or production and smoothed consumption of agricultural producers. Generally speaking, crop insurance is one of many tools allowing farmers to practice the most profit-maximizing strategies possible.

### **Box 1- Successful National Crop Insurance Arrangements**

Argentina- Argentina's mild climate, increasingly commercial production, and export orientation have created a demand for agricultural insurance products to protect against profit loss. The agricultural insurance sector is competitive, with over 20 fairly sophisticated companies offering policies. Soybeans, wheat, sunflowers, corn, grapevines, and other fruits are the most insured, generally against hail, though there is a movement toward policies covering other perils. With increased profit, the companies have invested in technical expertise with specialists in agriculture, insurance management, and policy creation.

India- Indian agriculture constitutes over 18% of the total economy and over half of employment and, with population pressures and weather patterns, is one of the most sensitive issues in economic development. While there is a public program which operates at a large loss, India also has a burgeoning market of commercial products and companies. Generally, high priced fruit. Innovation in underwriting and product offerings, particularly by the General Insurance Company's Agricultural Insurance Corporation, has been seen in recent years, including products like policies covering failed wells for falling water tables which are a common threat to irrigation in the country. Many private companies, with technical assistance from the World Bank, are offering index insurance for inadequate rainfall through microfinance institutions.

Windward Islands- With mainly small producers concentrated in banana production, the Windward Islands, in consultation with the Caribbean Development Bank, created an industry-vested private solution for insurance. Windstorm and hurricane insurance is provided by WINCROP, which is owned by the Banana Growers' Associations in three of the participating islands, and underwrites its own policies for insurance and reinsurance on the international market. The organization has functioned well despite a decline in premiums from a shrinking population of growers and facing substantial storms resulting in large claims.

- For more information see: FAO Insurance of Crops in Developing Countries-  
<http://www.fao.org/docrep/008/y5996e/y5996e00.htm>

<sup>7</sup> Hazell, P. 2001. Potential Role for Insurance in Managing Catastrophic Risk in Developing Countries, IFPRI Occasional Paper.

<sup>8</sup> Ibid.

**Box 2- Sample Policy Types**

Actual Production History	Insures producers against yield losses from natural causes (draught, moisture, hail, wind, frost, insects, disease), producer selects amount of average yield to insure and percent of predicted price to insure and is paid indemnity based on difference
Actual Revenue History	Similar to Production History policy but insures revenues rather than yield
Adjusted Gross Revenue	Insures the farm rather than the crop by guaranteeing a percentage of the annual gross farm revenue using historical tax records and expected revenue
Currency Plans	Provides protection against decline of value due to damage causing yield shortfalls based on the cost of growing in a specific area, the loss occurs when the maximum amount of insurance exceeds annual crop value
Group Risk Plan	Used to insure against loss of production of the crop in a county, uses county yield index rather than individual producer, intended for counties with consistent yields across producers
Group Risk Income Protection	Like the Risk Plan but uses county revenue index and harvest prices rather than yields
Harvest Revenue Options	This is an option change on the Group Risk Income Protection that makes the payment trigger the greater of wither the harvest or expected price and uses producer-chosen level of revenues
Livestock Plans	These insure against declining market price rather than other peril and uses futures and options prices to determine coverage for swine, cattle, lamb, etc. with producers choosing the number of head and length of coverage peropd
Revenue Protection	Revenue Protection insures against yield losses due to natural causes and revenue losses caused by a change in harvest price from predicted price in accordance with commodity exchange futures
Harvest Price Exclusion	This exclusion to Revenue Protection makes the basis for insurance projected price only
Yield Protection	These insure producers in the same manner as Actual Production History policies except they use projected price to determine coverage
Catastrophic Risk Protection Endorsements	This pays a certain percent of the price of the commodity on crop losses over 50% of yield (often government policy)
Area-based Index Insurance	Index insurance contracts are written for losses against specific perils or events defined and recorded at a regional level and insurance is sold in units of a certain amount with a standard contract for each unit purchased which is not limited to purchase by producers only (for example a fruit processor may purchase rainfall index insurance)

- Sources: USDA Risk Management Agency- <http://www.rma.usda.gov/policies/>, Hazell, P. 2001. Potential Role for Insurance in Managing Catastrophic Risk in Developing Countries, IFPRI Occasional Paper.

**Further Resources**

- FAO Insurance of Crops in Developing Countries- <http://www.fao.org/docrep/008/y5996e/y5996e00.htm>
- Hazell, P. 2001. Potential Role for Insurance in Managing Catastrophic Risk in Developing Countries, IFPRI Occasional Paper.
- Hazell, P. 1992. The Appropriate Role of Agricultural Insurance in Developing Countries, Journal of International Development 4.6.
- USDA Global Crop Analysis- <http://www.pecad.fas.usda.gov/>
- WINCROP- Antigua and Barbados Ministry of Agriculture, Lands, Housing & The Environment, <http://agricultureantiguabarbuda.com/news/successful-experiences-of-small-farmer-insurance-in-the-caribbean-%E2%80%93-the-case-of-wincrop/>