



Weather-based index insurance for climate risk management in agriculture



Photo credit: Neil Palmer

Agriculture in South Asia depends heavily on rainfall which in recent years has become increasingly uncertain in onset, duration and intensity. Crop production in the region fluctuates significantly with changes in rainfall patterns and the occurrence of extreme weather events such as droughts, storms and after storm floods.

Under these conditions, weather-based index insurance can provide farmers with a safety net in the event of crop failure. This insurance scheme not only protects smallholder farmers from extreme climatic events but also enables them to continue to invest in climate-smart agriculture practices and technologies without fearing debt or loss of income.

In India, crop insurance has been implemented on a large scale since 1985. Today, almost 30 million farmers are insured under a variety of government-supported schemes. Nearly 12 million of these are covered annually under weather-based index insurance program.

Despite government subsidies, many farmers remain uninsured and dissatisfied with current insurance products. In the case of weather-based index insurance, spatial variability of weather, lack of historical data to develop appropriate insurance triggers at local level, and poor insurance delivery systems are the major constraints.

CCAFS South Asia is working with the Agriculture Insurance Company of India to help them design insurance schemes that are better suited to farmers' need in different locations.

Objective

- To identify triggers for weather-based index insurance schemes, that can cover a large number of farmers.

Locations

India

Partners

The Agriculture Insurance Company (India) and International Food Policy Research Institute (IFPRI)

Approach

- Develop and evaluate spatial databases of soils, crop varieties, management practices and weather for the target region.
- Evaluate existing crop and statistical models for their suitability in explaining yield losses due to deviations in temperature and/or rainfall at different stages of crop growth.
- Select appropriate models and the spatial databases to estimate the critical rainfall/temperature thresholds that trigger yield loss in different areas and at different stages of crop growth.

- A group of experts examine the triggers for their physiological validity, local relevance and applicability.
- The insurance company use these triggers to develop region-specific insurance products.
- The insurance products are sold to farmers and other stakeholders.

Initial Results

- Improved rainfall indices were developed for major crops (paddy, maize, groundnut, cotton and redgram) using InfoCrop model and regional databases of soils, varieties and weather.
- The Agriculture Insurance Company of India used them in developing weather-based insurance products.
- In 2013, more than 55,000 farmers were insured against weather losses in Nawada district in Bihar and Karimnagar and Mehboobnagar in Andhra Pradesh using these refined triggers.
- In CCAFS Climate-Smart Villages in Bihar and Haryana, more than 200 farmers signed up for index-based insurance schemes under the IFFOCO-TOKIO insurance company.
- Some problems of product basis risk, although reduced, still persist in the final triggers. More work needs to be done on the models and databases to iron out these issues.

ABOUT CCAFS

The CGIAR Research programme on Climate Change, Agriculture and Food Security (CCAFS) is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT).

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