



Case Study

Weather Index Insurance Pilot | Supreme Seed



Background

In 2015, the International Finance Corporation (IFC), supported by the Global Index Insurance Facility (GIIF), launched the Weather Index Insurance project with Green Delta Insurance Company (GDIC), to develop insurance products to address perils such as drought, excess rain, heat waves, and cold spells in Bangladesh. IFC has created and deployed a weather data grid providing a spatially smooth source of interpolated weather data (rainfall and temperature) for every 5sq. km of Bangladesh. The data grid archives such interpolated data for last 30 years, in addition to being updated every week based on Bangladesh Meteorological Division's (BMD) weather updates.



Implementation Model

Rather than selling Weather Index Insurance (WII) directly to the farmers, IFC and GDIC reach farmers through all potential organizations that provide support to the farmers during crop production, i.e. finance providers (Banks/MFIs), agriculture input companies, contract farming entities, farmer associations, and NGOs. The product and the delivery methodology are customized to each of the partners' business model.



Supreme Seed

Supreme Seed Company is a leading private seed manufacturer of Bangladesh. The company is specialized in breeding, production, import, processing, storage, and marketing of hybrid rice and vegetable seeds. 'Heera', a hybrid rice variety developed in-house by Supreme, is one of the most popular seed brands amongst the rice farmers in the country. The company produces the seeds through more than 1,000 acres of land in Muktagacha area of Mymensingh district of Bangladesh, through contract farming model. At the beginning of the season, the company communicates a minimum price at which they will purchase the seeds from the farmers growing the specified hybrid rice seed in their field. The production is entirely supervised by the company, which ensures adequate application of agronomic practices from field preparation to harvest. Once the final product is obtained, the purchase price is renegotiated. In case of lower yield, Supreme buys the seeds at a rate higher than the pre-negotiated rate. In the last 10 years, the companies' final purchase price has been 7% more than the pre-negotiated price. And in bad production years, the price has gone up by 14% to as high as 31%.



The Engagement

In October 2015, during the initial days of the project, GDIC and IFC approached Supreme Seed Company for index insurance partnership for their contract farming farmers. Since production loss in the contracted field directly escalates the cost of the company, a correlation between loss of the farmers and the company was strongly evident. Since they witnessed production loss due to heavy rainfall in the preceding year, management of Supreme has readily appreciated the prospect of insurance in their production areas, for which they were also willing to pay the premium. However, an immediate pilot could not begin owing to some awareness and business model challenges.

Initial Challenges

Despite evident interest of the partner, GDIC could not initiate the pilot due to the following factors:

- Given the novelty of WII products in Bangladesh, the management of Supreme could not appreciate the accuracy of the WII products hitherto designed. Though based more on heuristic intuition more than weather correlation data, the agronomists' team of the company felt that hailstorm and relative humidity play a crucial role in the quantity and quality of hybrid rice seed production. Hence, in absence of a comprehensive weather cover, they were reluctant to agree to the WII products designed based on rainfall and temperature only.
- WII is generally preferred by agri-value chain partners since it eliminates the moral hazard of losses due to manual negligence and agronomic malpractices by farmers. Supreme seed, however, preferred a production loss cover since they were convinced that any production loss would be a direct impact of weather perils only given the integrity of agronomic supervision in their production fields.
- Hybrid seed business is a competitive and low margin one. There is little bandwidth for the company to levy any additional cost over the existing costs of production. While the GDIC and IFC team has tried to convince them of the higher price they were paying in case of production loss, the management did not agree on a direct correlation between the loss and price escalation. Rather, they wanted to insure their production cost in the fields, which hovers around BDT55,000 per acre or BDT40 per kg of seed procured. Over the last 10 years, the company has incurred a cost of BDT2 more for every kg of Hybrid rice procured. Hence, the company said, any cost higher than BDT2 per kg would be unsustainable for them. WII product premiums were, however, costing close to BDT4-5 per kg.



The Solution- Area Yield Index

To address the concerns of the company, IFC and GDIC have designed an Area Yield Index (AYI) product instead of WII product for Supreme Seed. In this product, if the average production per acre is less than 800kg, the insurer will pay claim to the company at the rate of BDT1,333 for every kg less produced. The premium for the product was actuarially priced at 2.5% of Sum Insured (BDT80,000/acre), which is less than the intended threshold of the company.

To ensure the integrity of the production data and trigger a claim, the following process was developed:

- 1) After harvest, in each block, the seeds are dried and weighed before they are sent by a truck to the packaging plant. A document that specifies the weight and other details is sent along with the seeds.
- 2) After receiving seeds from a block, further grading tests are conducted at the packaging plant, and purity is measured using machines etc.



- 3) Once grading is complete, the final lot of seeds are weighed and packaged separately for each block.
- 4) The packaged seeds are separated by blocks in the storage room and the weights are labeled for each block.
- 5) All data including acreage, raw seeds' weight, purified seeds' weight for each block are recorded and sent to Supreme Seed's head office in Dhaka.
- 6) The Supreme seed data and the process is supervised at each of the above stages by the insurer for assessing the quantity produced.
- 7) Final production for each insured block will be deduced at the end of the period and a claim will be determined.



Dry Run

Despite customization, Supreme Seeds did not agree for a real pilot owing to awareness and overall trust issues with the insurance industry in Bangladesh. Hence in 2016, GDIC initiated a dry-run with 100 selected blocks of Supreme Seeds production areas. The production was covered for a Sum Insured of BDT80,000 per acre and the entire process chain was followed sans the premium payment and claim payment part. Due to heavy rainfall, the average production per acre in the season was only 740 kg, 60 kg less of the minimum trigger. In a real pilot, this could trigger a claim of more than BDT70,000, enough to cover the increased production cost and price escalation risk of due to the loss.



First Pilot

The result of the Dry-run in 2016 convinced Supreme Seed of the value of the AYI designed and customized for them. From 2017 onwards, they have opted to pay a premium for the real pilot and cover more than 200 acres of their production field.

However, they have selected a trigger of only 710 kg per acre to reduce to premium from 2.5% to 1.5%. Though there has been production loss in the last season, owing to such low trigger, no claim could be paid by the insurer.

About Global Index Insurance Facility

The Global Index Insurance Facility (GIIF) is a dedicated World Bank Group's program that facilitates access to finance for smallholder farmers, micro-entrepreneurs, and microfinance institutions through the provisions of catastrophic risk transfer solutions and index-based insurance in developing countries. Funded by the European Union, the governments of Germany, Japan, and the Netherlands, GIIF has facilitated more than 3 million contracts, covering approximately 15 million people, primarily in Sub-Saharan Africa, Asia, and Latin America and the Caribbean.

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