Cropin®

Cropin reduces time and cost of Crop Cutting Experiments for PMFBY, Government of India with its Agtech stack

REGION: India, South Asia

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How Agtech helped speed-up insurance settlements

Climate change has disrupted agricultural cycles and added to the risks faced by farmers globally. Floods, droughts, cyclones, wildfires and other natural disasters have become more frequent and intense and cause massive destruction and losses. The pandemic-led restricted movement added to farmers' problems.

Crop insurance protects farmers against loss from natural calamities and other risks. However, insurance companies need reliable and timely information on crop area, production and yield to insure farm operations, customize insurance products for crops and regions, and verify claims.

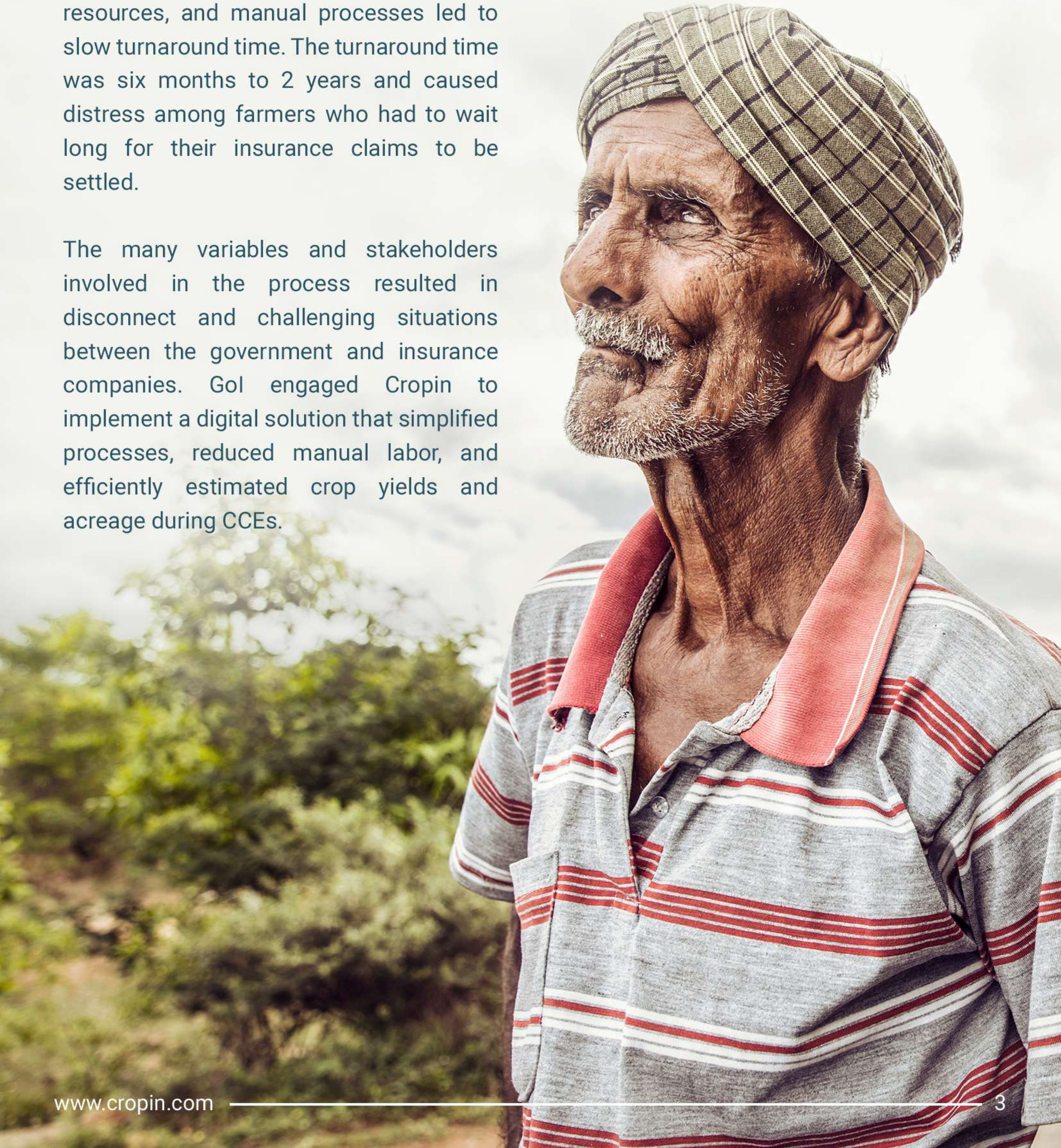
Planners and policymakers also require crop production and yield estimates to formulate policies and allocate resources for the agricultural sector. The Crop Cutting Experiment (CCE) is a technique that gives a reliable, cost-effective estimate of crop yields and other information based on sampling small subplots within cultivated fields.

The Government of India (GoI) partnered with Cropin to conduct CCEs with the support of technology in five states for Pradhan Mantri Fasal Bima Yojna (PMFBY). The project saw speedy resolution of insurance claims and impacted over 2 million farmers.

Why crop-cutting tests caused distress

The inconsistent processes followed in conducting crop-cutting tests for yield forecasting and claim settlements delayed and complicated matters. The large-scale projects with multiple CCEs to be performed within a short period, lack of resources, and manual processes led to slow turnaround time. The turnaround time was six months to 2 years and caused distress among farmers who had to wait long for their insurance claims to be settled.

The many variables and stakeholders involved in the process resulted in disconnect and challenging situations between the government and insurance companies. GoI engaged Cropin to implement a digital solution that simplified processes, reduced manual labor, and efficiently estimated crop yields and acreage during CCEs.



Why tech-enabled crop-cutting experiments are an intelligent choice

PMFBY is one of the world's most extensive agricultural insurance programs. The government-sponsored crop insurance scheme integrates multiple stakeholders on a single platform. GoI intended to conduct CCEs to enable quick disbursal of farmers' insurance claim settlements. Under PMFBY, the Government envisaged conducting CCEs across 250,000+ gram panchayats of India, all at once.

CCE helps to estimate crop yields for a specific cultivation cycle in a region. Sample locations are shortlisted by random sampling of the total area under assessment, and crops are harvested from plots of specified size and shape.

The harvest is studied based on various indicative parameters such as moisture, pod weight, dry weight, grain weight, biomass weight and so on to estimate the final yield per hectare. The data gathered is extrapolated to arrive at a reasonably reliable assessment of the average yield of the whole area.

GoI partnered with Cropin to use technology-backed, smart sampling methods to improve the efficiency and accuracy of CCEs. Piloting was initiated in September 2018 and concluded with the CCEs of rabi crops in February 2019 in Koppal and Bellary districts of Karnataka. It was further scaled to include rabi crops in 2018-2019 in Maharashtra, Karnataka, Bihar, Kerala and Madhya Pradesh. Cotton in Jalna district of Maharashtra, soybean and paddy in Sehore and Jabalpur districts of Madhya Pradesh, and cotton and paddy in Bellary and Koppal districts of Karnataka were some of the crops for which CCEs were conducted during the rabi season.

Sample plots were identified using AI, which helped in reducing the number of samples collected. The platform enabled live reporting of sampling results based on real-time data.

Satellite-based geospatial imaging and AI/ML-powered predictive modelling helped to identify plots that were most likely to be the best sample for the region. It also helped in estimating insurance unit-level crop yields.

The precise size and location of plots and the details of farmers and crops were documented through digital records. **Cropin monitored data collection to check activations and configured data organization and management on the platform for easy access and updates. Training programs were conducted for field officers to ensure that CCE processes were completed as per guidelines**. Product user manual and product feature update alerts were shared with field officers to keep them up-to-date on information.

Increased savings and reduced stress

The GoI-Cropin project started in 2017 and is ongoing. It has shown significant results. The use of AI/ML-powered predictive modeling in the CCE process has reduced CCEs by 48%. This, in turn, has led to several million dollars in savings for the Government of India.

Crop acreage and yield estimation using satellites have eased yield assessments for the Government and led to quick settlement of insurance claims. With harvest periods being short and multiple CCEs to be conducted for crops, the digital models also increased efficiency and the accuracy of results.

Over 2 million farmers in 25 districts across Maharashtra, Karnataka, Bihar, Kerala and Madhya Pradesh participated in CCEs for paddy, wheat, sorghum and cotton — with minimal labor and stress. The accurate, data-driven reports ensured that farmers could avail timely and fair settlements for their claims. It also eliminated the

Cropin Company Profile

Founded in 2010, Cropin is a global Agtech pioneer who has built the world's first purpose-built industry cloud for Agriculture - Cropin Cloud, an Intelligent Agriculture Cloud.

Cropin Cloud enables various stakeholders in the agri-ecosystem to leverage digitization and predictive intelligence to make effective decisions that increase farming efficiency, scale productivity, manage risk and environmental changes and enhance sustainability. Cropin has been instrumental in creating the global Agtech category and bringing advanced technologies together to transform farmers' lives worldwide through partnerships with agri-businesses, governments and development agencies across 56 countries. They helped the ecosystem to eliminate the uncertainties associated with farming and made it predictable, traceable, and sustainable.

Cropin Cloud combines cutting-edge technologies, including artificial intelligence, machine learning, data science, satellite imagery, and remote sensing. It helps derive real-time actionable insights to build a connected and sustainable agri-ecosystem that can benefit farmers, farming companies, agri-input providers, food processing companies, retailers, financial service providers, governments and development agencies.

Cropin has partnered with over **250 B2B customers** and **digitized 16 million acres of farmland, improving the livelihoods of more than 7 million farmers**. Our work over the last decade has enabled us to spearhead a global 'Ag-intelligence' movement with a crop knowledge graph of **488 crops and 10000 crop varieties in 56 countries** that powers the Cropin Cloud. Cropin Cloud's Intelligence platform has already computed and **provided predictive intelligence for over 0.2 billion acres of farmlands** across the globe.

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