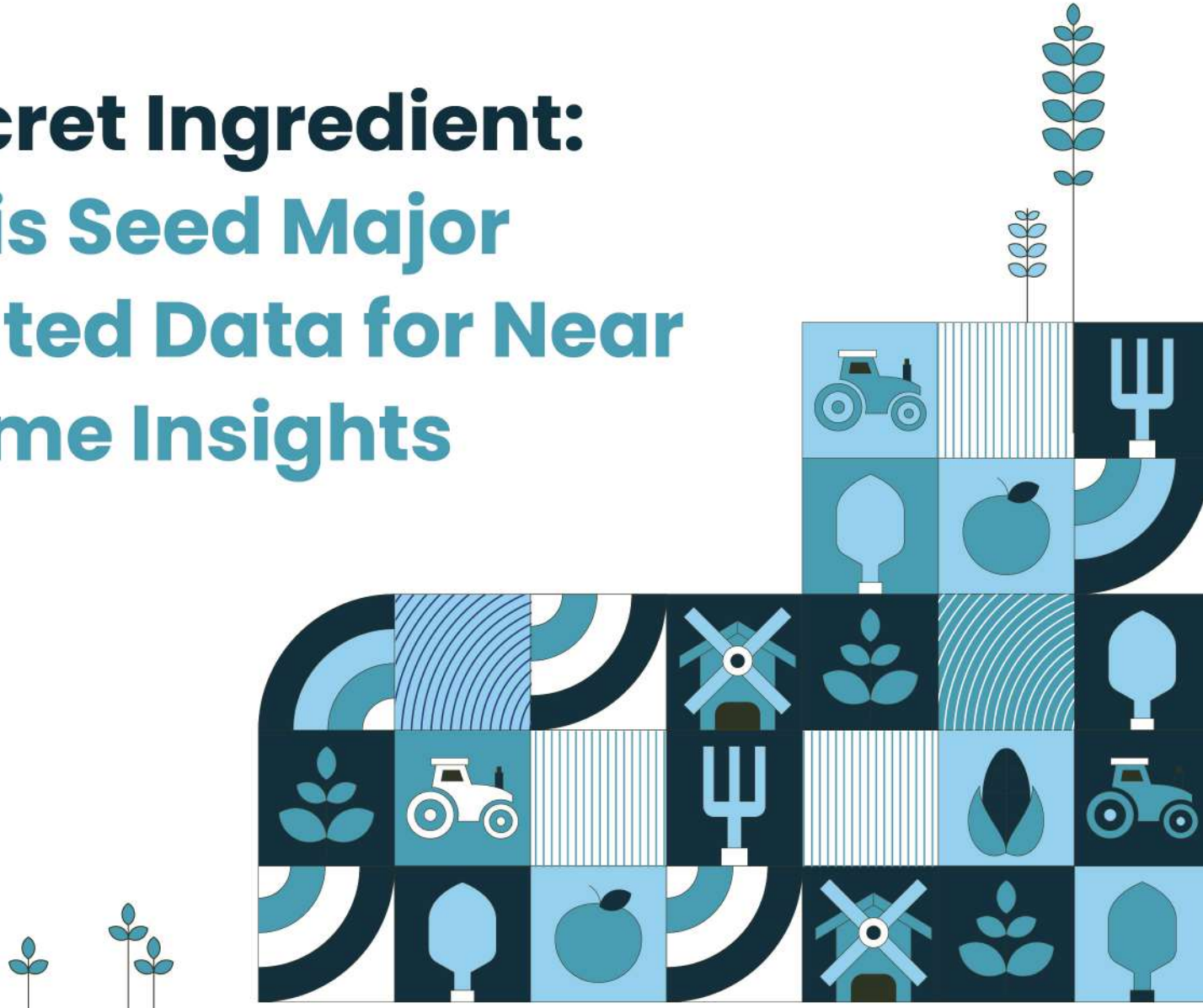# The Secret Ingredient:
How this Seed Major Integrated Data for Near Real-time Insights

Resilient Seeds, Global Impact: Cultivating a Brighter Future

Seed is the sustenance of life itself, and this seed major is all about growing a secure future! Their 24 meticulously developed vegetable seed varieties boast disease resistance and herbicide tolerance traits, empowering farmers to harvest maximum yields free from disease. That's the impact they create with production spanning over 23 countries.

Beyond the seed lies innovation. They manage the entire vegetable seed lifecycle, from initial research to after-sales support, ensuring consistent quality for every delicious harvest. Take their tearless onion variety; it is a glimpse of their innovations that improve lives, one seed at a time.

Industry: Seed Company

Location: Seed production across 23 countries globally

Crops: Vegetable seeds like Tomato, Onion, Sunflower seeds. Oilseeds Rape, Soyabean, Cotton, etc

Solution Area: Digitization; Data Integration; Single-Platform View; Standardization of Global Operations

Product Used: Cropin Cloud 🖥 Cropin Data Hub

Features	Before Cropin	After Cropin
Standardization of Global Operations	Manual Data collection using Excel Sheets	Standardized digitization of operations, allowing for regional nuances.
Single Platform View of Production	Data siloes & fragmented views of production hindered decision-making.	Holistic single platform view of data from across all regions for informed decision-making.
Near Real-time Monitoring	Delayed visibility of data impacted strategic decision-making.	Near real-time intelligence for data-driven decisions.
Data Integration	Siloed data across multiple platforms.	Effortless data integration and seamless interoperability for better decision-making.

Lost in Spreadsheets: A Seed Giant Seeks Clarity

Imagine managing a global seed operation – 23 countries, countless data points with manual data collection, trapped in Excel Sheets. Delays plagued information flow, hindering strategic decisions. This was further accentuated by the huge challenge of regional diversity. The company's manual data collection process was standardized, but digitalization challenged this standardization. Multiple data sets collated across operations were scattered and had to be integrated for strategic decision-making. There was limited visibility on yield re-estimations. The leaders needed a clear, holistic view of global operations.

The hunt was on for a user-friendly solution to streamline data capture and unlock intelligence for making better decisions. The company required a platform that could address the following challenges while being simple to use for the field team:

- Digitize the cumbersome process of data capture by production supervisors
- Standardize global seed production operations across regions
- A platform that is easy to integrate with their internal systems
- Single platform view of production activities
- Provide near real-time insights
- Improve planning and efficiency for production supervisors' day-to-day activities
- Monitor, record, and actively manage plant growth and development throughout the lifecycle
- Track sowing, germination, harvest details, and more to optimize operations
- Gain insights into flowering, release of bees, and pollination success rates

- Ensure adherence to the Package of Practices (PoP)

- Monitor crop health alerts raised by production supervisors and timely risk mitigation

- Seamless updates of re-estimated harvest data to the central server

It explored various digital solutions, seeking user-friendly solutions, and discovered Cropin. Could this platform be the key to unlocking valuable insights and transforming their data chaos into clarity?

Yes, that is precisely what the Cropin Cloud platform was meant to do. Our secret weapon? Cropin Grow is a comprehensive farm data app designed to streamline processes from seed sowing to harvest. Cropin's high level of intuitiveness was a critical differentiator that made it most suitable for accelerated adoption within our client's diverse workforce.

From Siloed Spreadsheets to Single Dashboard: How Cropin Helped a Seed Giant Cultivate Efficiency

Today, digitization with Cropin Grow seamlessly integrates the company's seed production business, comprising about 1200 varieties in 24 vegetable crops. Cropin transformed the seed major's operations across four key areas:

Standardization with Localization: Cropin ensured consistency in digitizing processes globally while allowing for regional customization, fostering efficiency that respects local practices.

Real-Time Insights for Smarter Decisions: With Cropin, the days of waiting for data were history. Real-time insights empowering data-driven decisions for optimized production and faster risk mitigation have become the new reality.

Data Integration for Unified View: Cropin Grow eliminated data silos by seamlessly integrating with the client's existing systems and created a single source of truth for all seed production activities

Global Visibility on a Single Dashboard: Users gained a near real-time view of seed production activities across all regions on a single platform, facilitating informed decision-making.

This data-driven approach empowered the seed giant to cultivate a future of efficiency and success. And now, we'll explore each aspect further.

Standardization of Global Operations with a Local Touch

Running seed production operations across 23 countries means global reach, but along came a hurdle - managing diverse operations across continents. Each region functioned with different digital tools, resulting in data silos, which made it impossible to gain a holistic view of global seed production. Operations had to be standardized for improved efficiency, but regional nuances could not be compromised.

Having evolved and iterated with years of experience the Cropin Cloud platform facilitated standardizing processes across geographically dispersed locations. The platform also recognized the importance of regional nuances and allowed for customizations. The high level of configurability ensured efficient workflows that respected regional differences.

Cropin Grow enabled:

Standardizing processes from controlled greenhouses to vast fields.

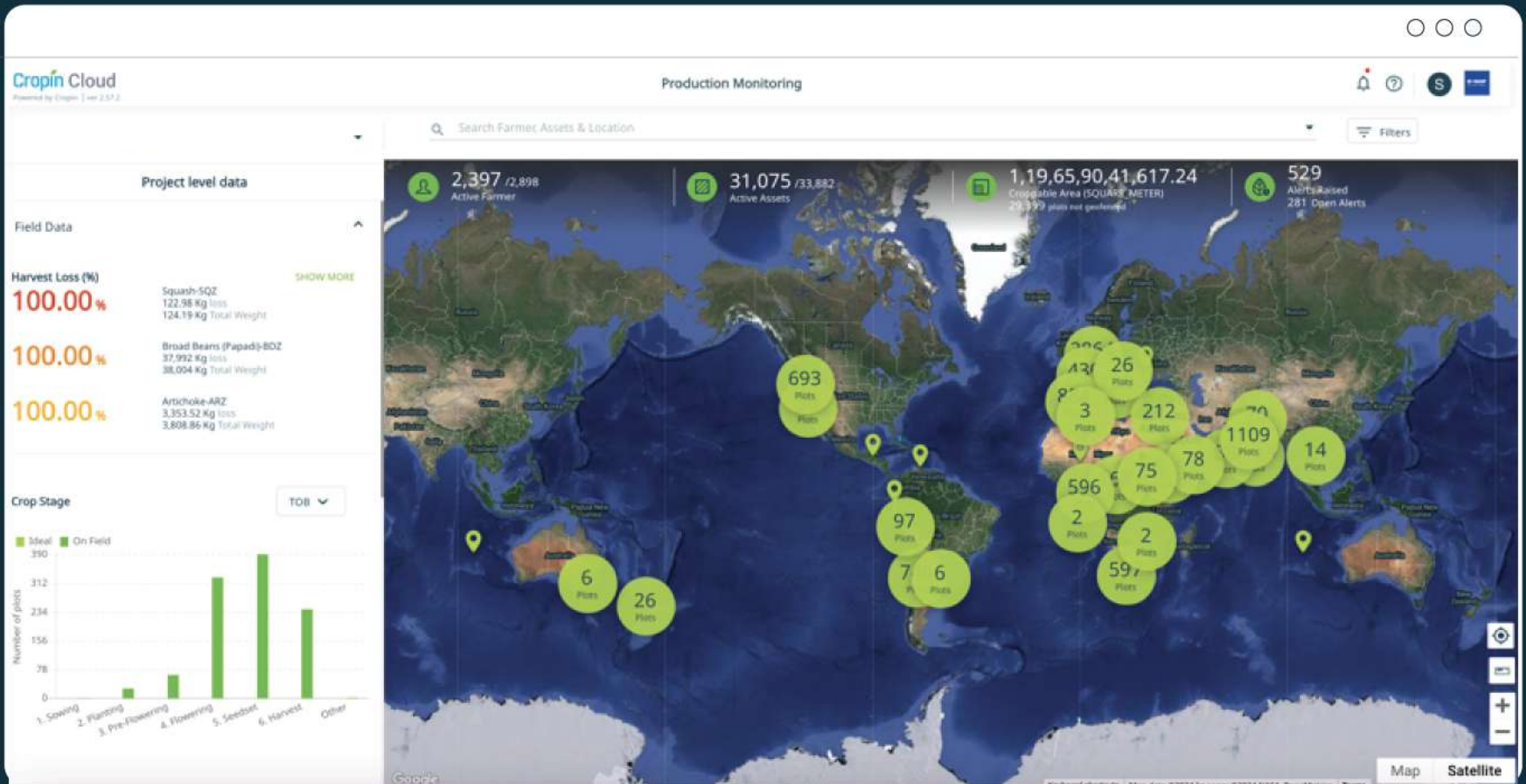Granular visibility across every aspect of their multi-country seed production operations.

Figure 1: Cropin dashboard showing the company's global operations

Near Real-time Monitoring for Improved Efficiency

In the past, a custom Excel-based solution with tabs of predefined data columns was provided to agronomists. Field teams diligently recorded data manually, only to transfer it to spreadsheets. Result? Inherent errors and delays plagued information flow between teams, hindering strategic decision-making. Timeliness was crucial, but outdated processes left valuable data "timed out"—unusable for real-time insights. Another essential aspect is that the digitization in the Cropin Cloud platform has improved the work-life balance for production supervisors.

With Cropin Grow, field officers directly captured farm-level data in the mobile app. It provided field team managers with precise information and leaders with actionable insights, all within a significantly reduced timeframe.

In seed production, simple things like what crop is planted in the next farm or what crop was cultivated in the previous season could challenge the genetic purity of seeds. All these nuances had to be seamlessly captured and made completely visible to the team.

Beyond the Familiar: While Cropin offers user-friendly UI and Excel sheet upload options for creating farmer and plot databases, it also goes beyond. Our advanced APIs seamlessly integrate with your central data repository or data lake, allowing you to seamlessly ingest farmer and plot databases directly to Cropin Cloud. The result? Production supervisors gain immediate access to this critical information through the Cropin Grow app on their mobile devices. Our comprehensive approach ensured meticulous tracking of crucial data points, including:

Plot & Farmer Details: Easy access to vital information like farmer name, location, socio-economic information, and plot details captured on the mobile app or ingested by APIs.

Crop Variety: Maintain a database of all the cultivated and tested seed varieties.

Area Management: Monitor declared and audited areas.

Planting & Completion Dates: Record sowing and completion dates for accurate tracking.

Crop Growth Stages & Plant Health: Monitor and record different crop stages and plant health.

Field Context: Capture data on surrounding fields, irrigation methods, soil type, presence of plastic in the field, etc.

Crop History & Isolation Distance: Track previous crops grown in the field for the past three years and monitor maintenance of isolation distance.

Planting Population: Record details on male & female plant populations, sowing rates, and plant density.

Flowering & Pollination: Track flowering dates, pollination events, and bee release.

Harvest & Sampling: Record harvest details and sample collection data.

Costing & Rates: Track agreed-upon purchase rates and costing details.

The field team could seamlessly capture both planned and unplanned tasks and streamline the previously laborious manual data collection process.

Cropin Grow facilitated:

Near Real-Time Data:

Digitization on Cropin Grow remarkably reduced the time lag in data visibility. Data captured was visible in near real-time in the web UI to managers, while earlier, the flow of data was delayed by days, which impacted decision-making.

Enhanced Process Transparency for Interventions:

Capturing real-time data, from germination to pest sightings, directly on the app eliminated delays and inaccuracies. It allowed timely intervention for course correction when needed.

Improved Visibility of Production-supervisor Activities:

Real-time tracking provided insights into production supervisors' activities and facilitated proactive management and resource allocation, improving operational efficiency.

Integrating Diverse Data from Multiple Platforms

The company aimed to centralize and integrate complete seed operations, from planning and farm/farmer data collection to arrive at the cost of seed production. The existing system struggled to efficiently collect daily crop production data from end users and transfer it back to the central data repository. Cropin's power lies not just in data collection but also in its ability to bridge data gaps.

Cropin Data Hub, our secure data integration platform, seamlessly connected the dots. It allowed data ingestion from the company's ERP system, integrated it with field data collected in Cropin Grow, and transferred it back to the client's ERP system. This "agri-object model" structured and organized agricultural data for seed production activities. With this integration, the company could effectively combine and manage both on-field and off-field data.

Cropin Grow facilitated:

Seamless Integration: Cropin's API allowed seamless integration of the customer's middleware to easily derive data-driven insights.

Single source of truth: Data integration created a single source of truth for their seed production operations.

Eliminate data silos and democratize data: Cropin Data Hub could bridge data silos for seamless information flow.

Single Platform View for Strategic Decision-making

The client's multi-country operations meant scattered data from multiple regions on multiple platforms. The result? Limited visibility hindered strategic decision-making. Cropin empowered managers and leaders at their headquarters with a single-platform view of the entire seed production activities.

Data from various regions and crops were compiled into customized reports and dashboards for a single platform view with more granular actionable insights to improve decision-making. This holistic view, combined with meticulous tracking of data points from germination to harvest, minimized disease risk and optimized processes.
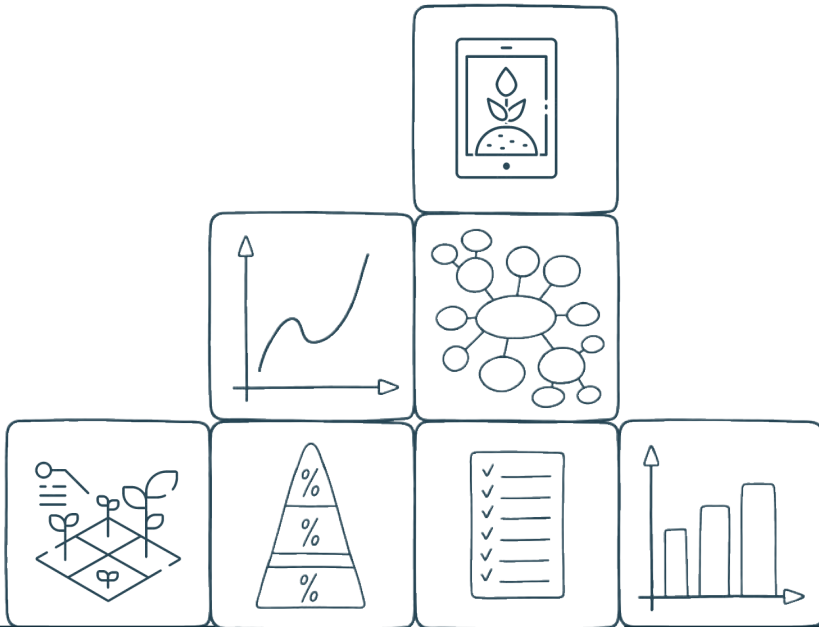
Harvest Re-estimation: A Newfound Precision Planning

Cropin Grow seamlessly integrated with the company's central platform, allowing for real-time updates of harvest re-estimates. This enabled adjustments as conditions changed to plan additional sowing when required in suitable regions to meet the targeted production. The newfound precision with Cropin's re-estimation module translated into accurate production planning.

But that's not all! Cropin Grow also facilitated efficient **crop health inspections**. Production supervisors could easily record data directly on the app, providing valuable insights for proactive management and preventing potential issues before they impact harvest.

Other Benefits of the Cropin Cloud Platform

As the company addressed the above challenges, they also enjoyed the below benefits, which were beyond what they expected.

- Multi-lingual support in regional languages and multi-locale settings eased communication and adoption.
- Ease of capturing multi-format data inputs including text, alpha-numeric, images, geo-coordinates, etc.
- Offline mode guaranteed data collection even in remote locations without internet access.
- Data security and privacy are ensured with enterprise-grade encryption.

The Impact

Digitization powered by the Cropin Cloud platform has led to **standardization of operations across 23 countries**

The **time lag in data visibility is drastically reduced**, as data is readily available in near-real-time to stakeholders

Reports, dashboard customization, and a single platform view have empowered strategic decision-making

Real-time monitoring has resulted in **new levels of transparency in field operations**, leading to optimization across operations.

The simple-to-use platform has eased the entire process of **harvest re-estimation, resulting in accurate production planning.**

The Way Forward

Going forward, the seed major plans to leverage the remote-sensing-based intelligence solution offered by the Cropin Cloud platform for some crops, such as onion in the USA, corn salad in France, and leek in Italy. Additionally, Cropin's Smart Sampling feature will be utilized to improve the accuracy of yield estimation, taking them to the next level of digital transformation.

Cropin ®

Founded in 2010, Cropin is the world's most advanced AI Platform for Food and Agriculture. Cropin Cloud, the world's first industry cloud for agriculture, has computed 10% of the world's cultivable lands. Implemented by over 250+ enterprises, Cropin empowers stakeholders to make informed decisions that enhance farming efficiency, productivity, and sustainability. Our teams are spread across India, The United States, Italy, The Netherlands, and Brazil. We have digitized 30 million acres of farmlands and positively impacted over 7 million farmers worldwide. Our crop knowledge graph, spanning 350 crops and 10,000 varieties in 103 countries, powers the Cropin Cloud. We are at the forefront of uniting agribusinesses, development agencies, international organizations, and governments to leverage Agtech systems to transform global food systems and attain climate goals. Cropin is backed by Google, Bill & Melinda Gates Foundation, ABC Impact, and Chiratae Ventures, among other notable investors.