→ **Advanced Precision Farming Solution** for the emerging world to help farmers get the most out of every acre of farm land.

→ Actionable insights derived from an integrated system of path breaking technology, pioneering analytics and industry leading risk management practices in use for over a decade.
our vision is to **secure smiles**® for all of us using pioneering new **analysis, technology and innovation** to provide security against climate change
accufarm® is a whole farm management approach optimizing returns on inputs while preserving scarce and valuable resources. It is about doing the right thing in the right place at the right time.

1 Whole Farm Management

→ Leverage field observations and respond to inter and intra field variations in crop/soil characteristics.
→ Enable the farmer to use inputs such as fertilizers, pesticides, tillage and irrigation water more effectively transforming outcomes per acre.

2 Robust Risk Management

→ accufarm® leverages industry leading risk management solutions for comprehensive risk management against disease and weather catastrophe
→ Protect the farmer against price fluctuation.

3 Value for Institutional Stakeholders

→ accufarm® is not only a solution for yield mapping and variable rate fertilizer but a window to the entire production function and the management function of the farm.
→ accufarm® allows for improved economic analyses.
<table>
<thead>
<tr>
<th>accufarm® Enterprise</th>
<th>1. Whole Farm Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site Feasibility &amp; Project Planning</strong></td>
<td>Soil and PH Testing / Variability Analysis / Pathogen Load / Crop Modeling using local climate, ground water, soil information / How prone to disasters? Remedial measures / Value Maximization by price and quality matrix / Credit and Project Finance / Risk Mitigation through Insurance</td>
</tr>
<tr>
<td><strong>Social Impact Assessment and Management</strong></td>
<td>Women Participation / Opportunities for Livelihood enhancement / Labour engagement and relationships / Agro-forestry practices</td>
</tr>
<tr>
<td><strong>Technical Assistance in Commercial Production</strong></td>
<td>Soil Testing and Nutrient Recommendations in a Precision Farming framework Pre-yield Assessment through GIS, Field Surveys and Agro-meteorological models <strong>Input Output optimization:</strong> Crop Scheduling by weather and climate / Soil Reclamation / Water Reclamation / Auto-Fertigation / Remote Irrigation Assistance via Agri-Allied Industry / Forecasts and Pest Management support Weather and Seasonal Forecasts for farm/farmers Capacity Building and Program Implementation</td>
</tr>
<tr>
<td><strong>ICT Integration</strong></td>
<td>Real time Farm Monitoring and Management through web platforms Outreach to farmers through Mobile Platforms (Voice, text, Videos)</td>
</tr>
<tr>
<td><strong>Output Management</strong></td>
<td>Food Safety / Crop Output assurance / Facilitation of Primary and Secondary Market Linkage Post Harvest Management and Packaging Interventions</td>
</tr>
</tbody>
</table>
Carefully designed products for small, medium and large Farms/Farmer Groups/ Individual Farmers/ Agri Corporations

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Product Definition</th>
<th>Services</th>
<th>Benefits</th>
<th>Service Charge*</th>
<th>Best Suitable</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIT</td>
<td>Forecast, Information and Technology</td>
<td>weather forecasts and agro-advisory on mobile</td>
<td>Decision Support System</td>
<td>2%</td>
<td>Farmer Groups</td>
</tr>
<tr>
<td>WINGS</td>
<td>Weather Insurance and Group Services</td>
<td>weather forecasts, rainfall insurance, customized agro-advisory on mobile and On-farm assistance</td>
<td>Decision Support System</td>
<td>4%</td>
<td>Small and Medium Farms/ Individual Farmers/ Farmer Groups</td>
</tr>
<tr>
<td>YIP</td>
<td>Yield Insurance and Protection</td>
<td>weather forecasts, rainfall insurance, agro-advisory on mobile, On-farm assistance and yield guarantee</td>
<td>Commercial Production, Decision Support System</td>
<td>8%</td>
<td>Small Farms/ Individual Farmers</td>
</tr>
<tr>
<td>CLASS</td>
<td>Climate Smart Agriculture</td>
<td>Technical support to respond to drought, floods, pests and changes in growing season - multi-peril insurance, agro-advisory on mobile, On-farm assistance</td>
<td>Commercial Production</td>
<td>10%</td>
<td>Agri-Corporations/ Farmer Groups</td>
</tr>
<tr>
<td>accuFarm</td>
<td>Precision Farming, Risk Management</td>
<td>Crop Production, Social Impact Assessment, ICT Integration, Output Management (Complete Package)</td>
<td>Commercial Projects, Crop planning, Management and Monitoring</td>
<td>10%</td>
<td>Large Farms/ Agri-Corporations/ Contract Farming/ Supply Chain companies</td>
</tr>
</tbody>
</table>

*Service Charge based on mutually agreed cost of production per hectare, Taxes as applicable, Product types are internally designed and classified
Horticulture Risk
Sheikpura Polyhouse / Karnal Haryana

In a live project underway we are engaged with a farmers group in Haryana invested in Poly-Houses covering multiple acres of land to help recover investments against pests and disease.

→ The **accufarm® methodology** involved detailed profiling of the ecosystem – the polyhouse structure, weather, soil and PoP as well as a plan for soil treatment and pest metering across the farm supported by constant vigilance using pheromone traps and mobile cameras.

→ We used disease forecasting models along with WRF generated forecasts at 9 km² providing for immediate control in case of disease forecasts or observation.

→ **We could guarantee compensation** for yield loss  
  **example:** < 30 tons / acre for Cucumber

→ **Price = Expected Cost of Pest & Disease control + Weather Insurance**
The enterprise incurred heavy losses in the previous season of Capsicum due to White Flies - a vector of leaf curl disease.
An automatic weather station to measure optimum weather conditions

Pheromone & Sticky Traps to watch economic threshold level for pests
Observation of sucking pests through Sticky yellow traps

Immediate measures to check the infestation.
Observation of sucking pests through Sticky yellow traps

Weekly Crop Checkup for pest & disease and nutrient deficiency

Immediate measures to check the infestation.

Advice on Polyhouse Maintenance
accufarm®

For Insurers and Reinsurers --

WeatherSecure® is a transformational solution for pricing, analyzing risks in crop insurance products and monitor claims

→ Weather Index based Insurance
→ Yield Index Based Insurance
  • Yields collected from sample crop cutting experiments
  • Yield through satellite observations
→ Farm level products
Multiple Peril Crop Insurance (MPCI)
→ Hybrid Products that combine weather, satellite based Indices and actual yields

For Agri Businesses --

WeatherSecure® is a robust risk analysis and decision making platform.

→ Risk Analysis
  • Weather Events causing losses – frequency, severity – on yield, quality
  • Impact of weather forecasts on yield
  • Disease forecasting, probability and severity
  • Impact of Climate Change
→ Production Management Decisions e.g.
  • What is the right sowing window?
  • Analysis of water requirement for the crop period using past historical data and seasonal forecasts

2. Supported by advanced Risk assessment and management platform
The WeatherSecure platform is a hyper innovative solution for all stakeholders in agriculture insurance. Right from the farmer to a global reinsurer, we have everything in place for unlimited possibilities.

→ **30x30 Km²** weekly weather forecasts
→ Regional **Monthly** and **Seasonal** weather forecasts
→ **Yield Data** at 30x30 Km²
→ Satellite based **vegetative indices** at 50 Km²
→ Comprehensive **Disease, Flood** and **Drought** alerts.
2. Supported by advanced Risk assessment and management platform

India’s 1st real time plant disease diagnosis service

Whatsapp a photo of your plant to receive an instant disease diagnosis from our experts

99924 22669

24/7 Free Service for Indian Farmers

www.weather-risk.com
2. Supported by advanced Risk assessment and management platform

India’s 1st ON DEMAND national soil testing service

Courier soil sample to get a quick soil report within 24 hrs of receiving your sample

99924 22669

24/7 Free Service for Indian Farmers
www.weather-risk.com
advanced disease management module stacked on an industry leading precision farming solution to help farmers intervene more effectively to manage his disease management index.

- accufarm® disEASE uses District Grid Mapping to measure disease contiguity and predict its controllability.
- Grid Size is inversely proportional to disease contiguity. More contagious the disease, smaller the grid.
- This module is available for vegetables, gherkins, tomatoes and other commodities grown in greenhouses.

- A pioneering GRID DISEASE PROPAGATION MODEL monitors and forecasts weather and pest level using a dense network of weather stations and pest traps.
- Capability to map pre-season pathogen evaluation to grid points to monitor vulnerable zones based on priority and threat levels.
For Banks:

→ Improve probability of recovery
→ Increase in Loan penetration & coverage

For Out-growers

→ Lower rejection ratio: quality parameters like dry matter, size, shape, color, sugar content etc. are controlled scientifically
→ More sustainable out-grower programs

For Agri-Input Co.s

→ More revenue through increased consumption of appropriate seeds and pesticides
→ A platform to test new varieties

3. Value for Institutional Stakeholders
<table>
<thead>
<tr>
<th>S.No</th>
<th>Rejection point</th>
<th>Rej. % of total Rejection</th>
<th>Reason</th>
<th>Intervention Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sugar</td>
<td>10</td>
<td>Improper seed selection or seeds which are cold stored at incorrect temperature for a long time; improper post harvest practice</td>
<td>Seed testing, storing potato at the right temperature (10-11 deg) along with CIPC treatment; proper post harvest practices</td>
</tr>
<tr>
<td>2</td>
<td>Under Size</td>
<td>70</td>
<td>Spacing, earthing-up, fertilizers etc.</td>
<td>Use proper spacing according to tuber weight, proper earthing-up and fertigation</td>
</tr>
<tr>
<td>3</td>
<td>Greenage</td>
<td>10-15</td>
<td>Effect of sun light on tuber</td>
<td>Proper earthing-up</td>
</tr>
<tr>
<td>4</td>
<td>Dry matter</td>
<td>10</td>
<td>Imbalanced fertigation,</td>
<td>Fertilizers and micronutrient management according to soil test report</td>
</tr>
<tr>
<td>5</td>
<td>Others</td>
<td>5</td>
<td>Improper intercultural practices</td>
<td>Proper inter-cultural practices</td>
</tr>
</tbody>
</table>

• Ukraine (Proposed)
  – Short range Weather Forecasts for frost; automated irrigation systems for frost injury control
  – Monitor Fertilizer application through remote sensing and drones
  – Onsite experts for farm management
Risk Management for small growers

Small farmers grow Gherkin – a highly susceptible crop. While SAFAL procures the crop and assists farmers with Disease Management it remains worried if production is enough to cover investments.

- The accufarm® methodology involved Soil treatment and Pest Metering around the farm enhanced by sustained vigil using mobile cameras.
- DM quantification at the latency stage using colorometry & spectroscopy. We used disease forecasting models along with WRF generated forecasts at 9 km² providing for immediate control in case of observation.
- Assessing the capabilities of individual farmers - deploying experts to assist those who are less informed.
- Phase 1: Profiling, Disease Forecasts, Disease Management
Phase 2: Production Assurance for SAFAL
Phase 3: Reinsurance line to support this Insurance
Carefully designed interventions cover drought / flood / disease / soil degradation and at the other end market and liquidity.

<table>
<thead>
<tr>
<th>Risks</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought</td>
<td>→ Better implementation of WBCIS</td>
</tr>
<tr>
<td></td>
<td>Seasonal Forecasts and Advisory Historical Analysis</td>
</tr>
<tr>
<td></td>
<td>→ Canal Repair</td>
</tr>
<tr>
<td></td>
<td>→ Increased stations to remove basis risk</td>
</tr>
<tr>
<td>Flood</td>
<td>→ Better implementation of WBCIS with SAR</td>
</tr>
<tr>
<td></td>
<td>→ Seasonal Forecasts and Advisory</td>
</tr>
<tr>
<td></td>
<td>→ Drainage</td>
</tr>
<tr>
<td>Diseases/Weed</td>
<td>Appropriate Interventions</td>
</tr>
<tr>
<td>Soil Degradation</td>
<td>→ Soil Analysis and treatment</td>
</tr>
<tr>
<td></td>
<td>→ Financial support</td>
</tr>
<tr>
<td>Market</td>
<td>Linkages + Farm Income Insurance</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Guarantees to raise working capital</td>
</tr>
</tbody>
</table>
accufarm® uses object based hierarchical image analysis to classify plot imagery from UAVs and Satellites measured concurrently on the ground using standard rangeland monitoring procedures.

accufarm® is an integrated Decision Support System [DSS] leveraging smart devices: GPS enabled Soil Profiler / Programmable Seed Implanter / Automatic Weather Station / Onsite Pheromone Sensor Technology

accufarm® is a hybrid solution integrating a comprehensive set of parameters leveraging our capabilities in analytics, devices and technology to transform precision farming.
accufarm® disEASE

accufarm® disEASE also leverages a robust weed protection program to ensure efficient and thorough removal of weeds. Digitized farm details are fed to the weed sprayer through an artificial intelligence system.

The intelligent system can sense unsprayed field areas and alert or redirect the weed sprayer. The system can also detect if the weed removal chemical solution is appropriate or not.