KWPF 10th Anniversary Conference

Toward a
New Decade
of Inspiration

Sherpa Space Inc
Clifton Cheung
Business Development, Head

10 YEAR KWPF ANNIVERSARY

KWPF Korea-World Bank Partnership Facility

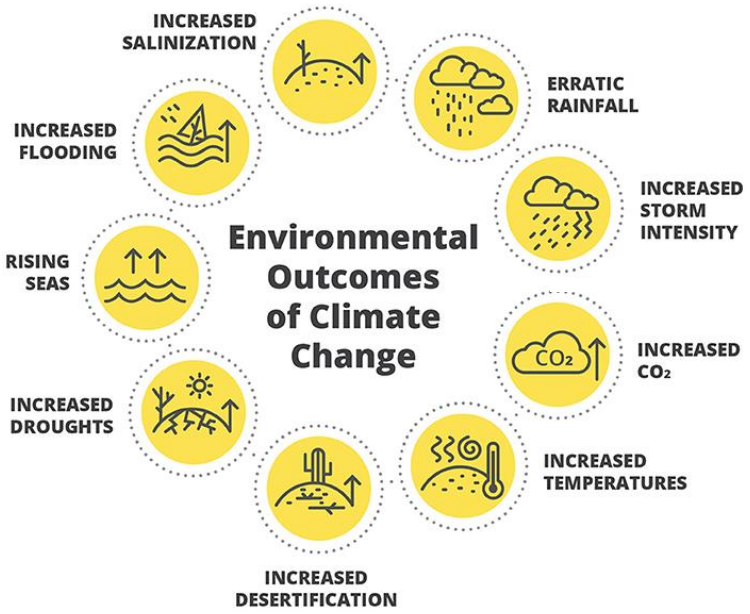
Sherpa Space Inc

Sherpa Space is a global innovation leader in the field of agriculture and smart farming, and with over 80 global patents we are driving innovative yet affordable solutions all over the world

In the field of open farming, we are helping farmers provide affordable, accessible AI based IoT solutions, to provide farmers with:

- Real time visibility into their farm
- Help to increase crop yields
- Early Pest detection
- Irrigation and Fertilization reduction through optimized scheduling, weather integration and automation
- Reduce environmental impact

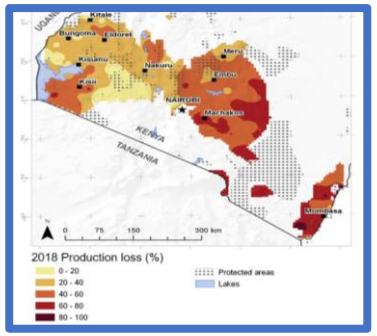
Climate change, labor shortage, crop damage and its impacts on the food system



1. Climate Change[1]

Youth's (Un)willingness to work in agriculture sector (Girdziute et al. 2022)

2. Skilled Labor Shortage/Issues



30-60% production loss in Maize due to pests (Groote et al. 2020)

3. Crop Damage due to pests

Impacts on Agriculture

KWPF ANNIVERSARY

Reference : 1N.G. Karavolias et. al., “Applicatin of gene editing for climate change in agriculture”, Systematic review, 2021

Field based smart farming through sensors and communication technology

Wind Direction

Wind Speed

Temp./Humidity

Rainfall

Soil Moisture

Solar Radiation

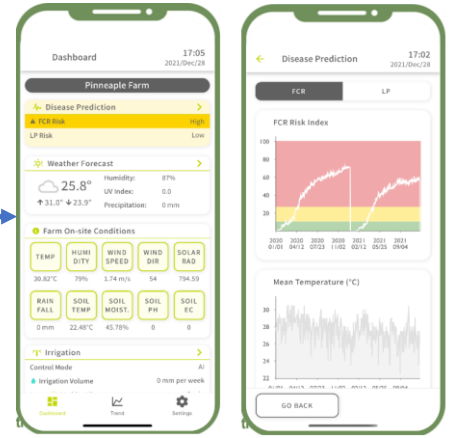
AI-based Weather forecasting model

Cloud-based AI algorithm

Mechanical Model

Irrigation Predictive model

Disease/Pest Predictive Model



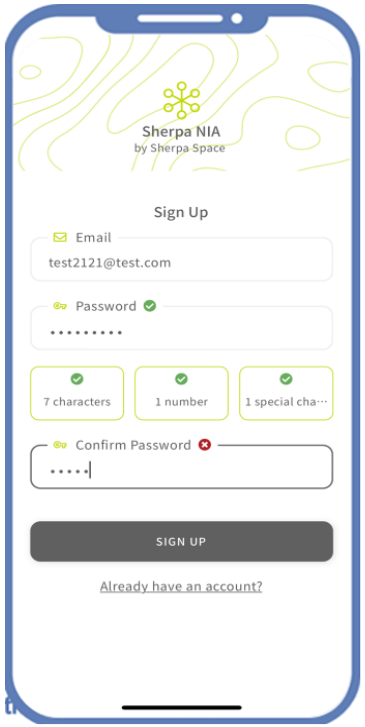
Alert of irrigation schedule

Disease/Pest risk warning

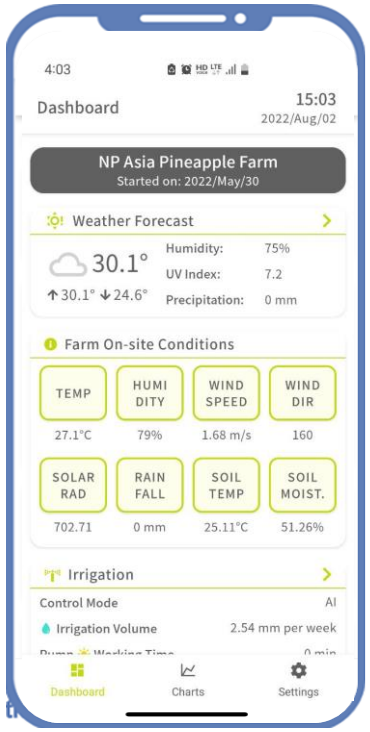
Action by farmer

10 YEAR KWPF ANNIVERSARY

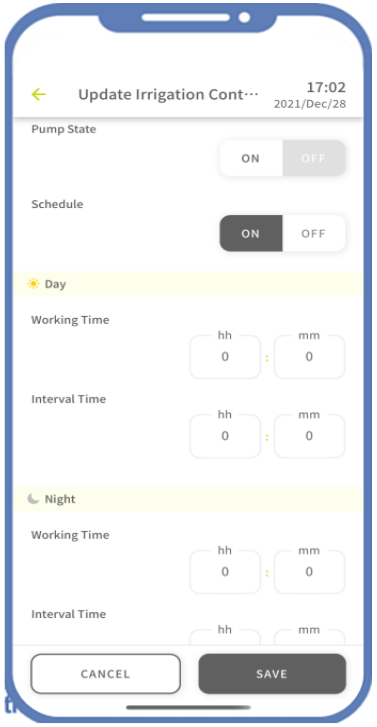
Real-time environment monitoring, prediction of irrigation and pest occurrence using mobile application service



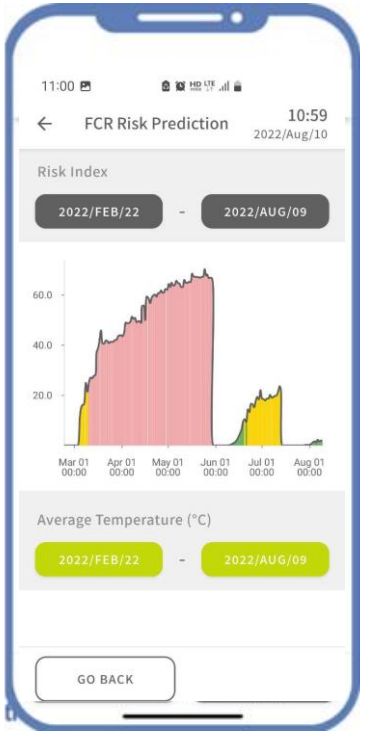
1. Login and Settings



2. Data Monitoring and Analysis



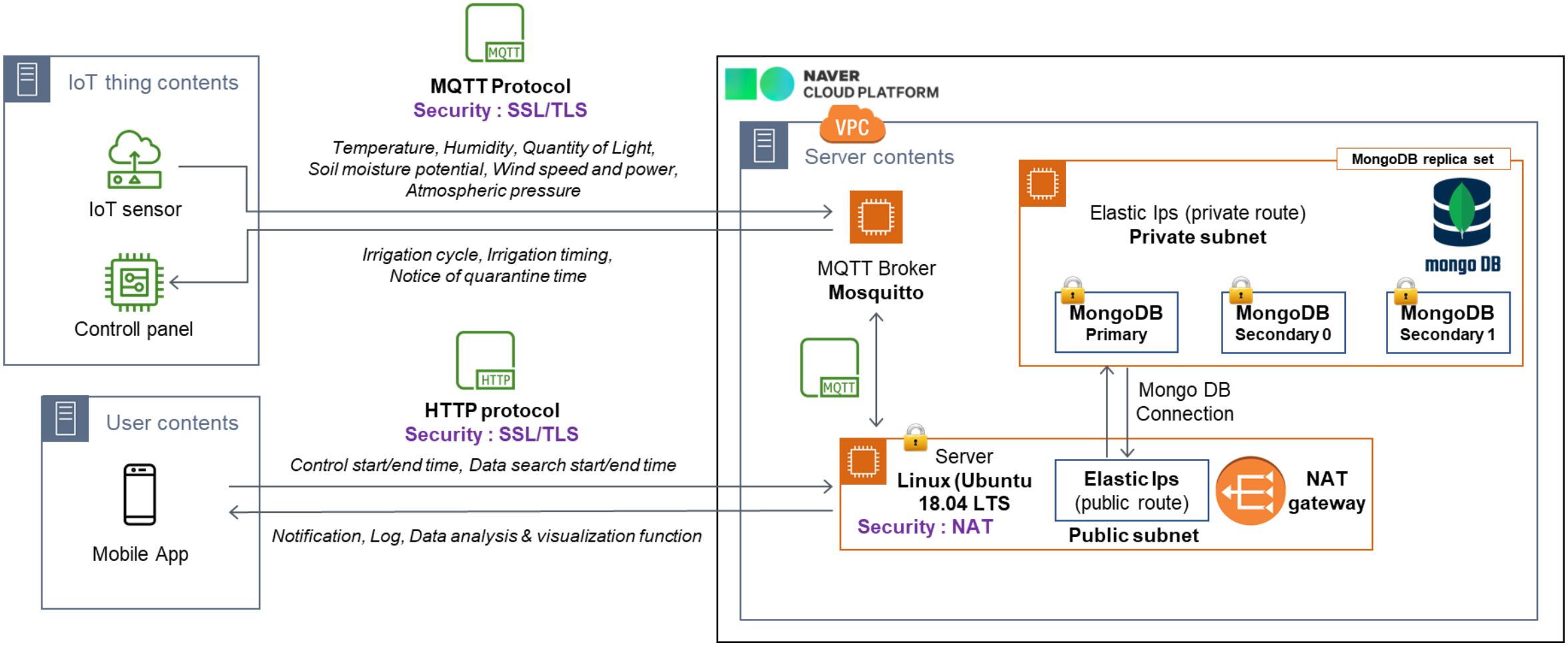
3. Watering/Irrigation Control



4. Disease/Pest Prediction Service

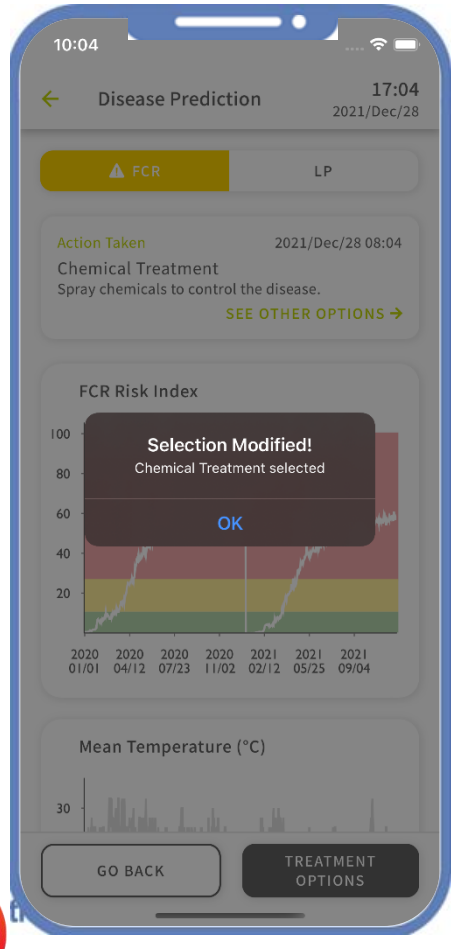
KWPF ANNIVERSARY

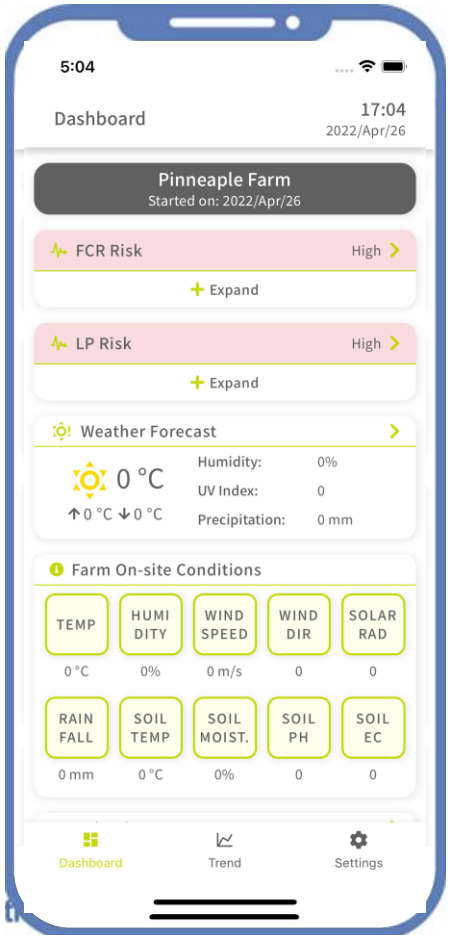
AI based Smart farm system platform configuration design and architecture construction

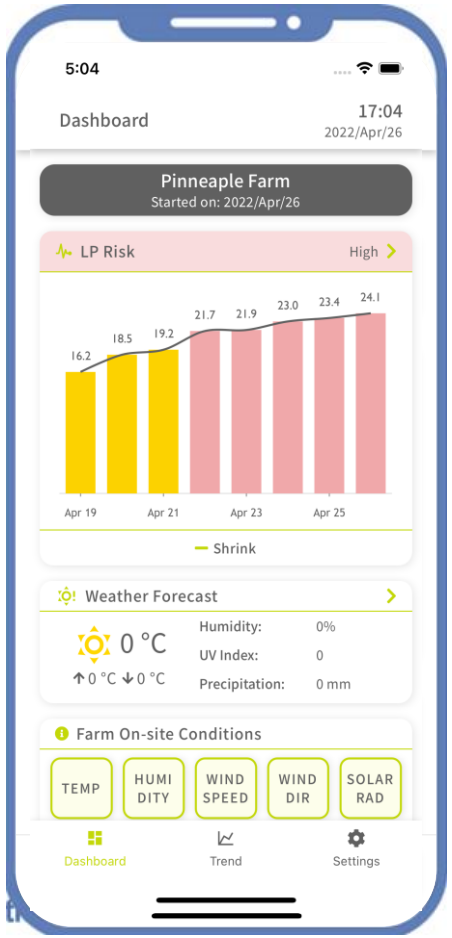


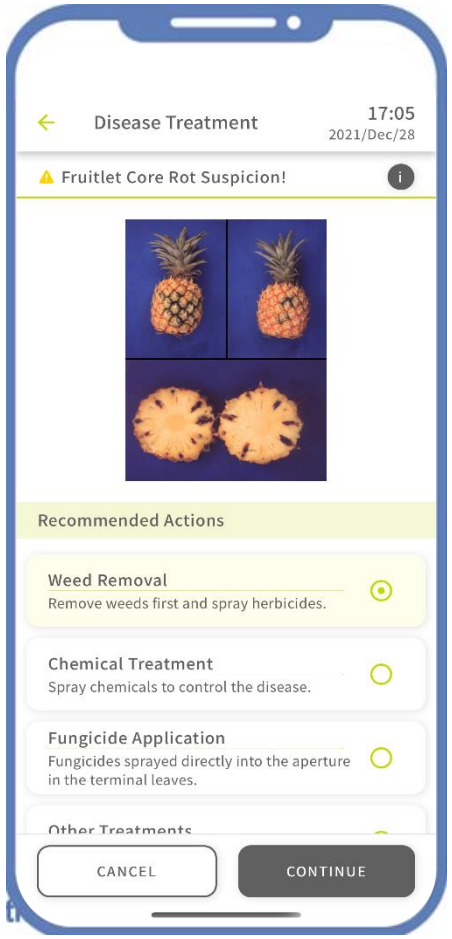
Disease Prediction/Action Service

Risk Prediction of deadly diseases for varying crops and suggested action for farmers.







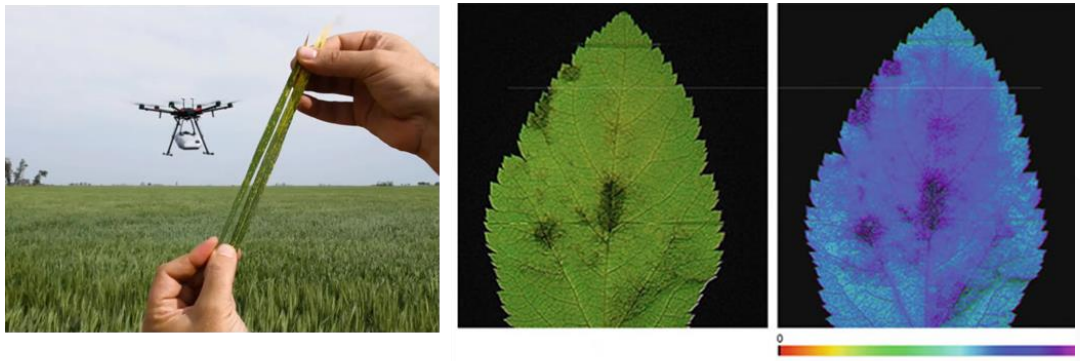


10 YEAR KWPF ANNIVERSARY

Technology Differentiation

Increased yield and less damaged crops through early prediction and prevention of disease/pest before occurrence

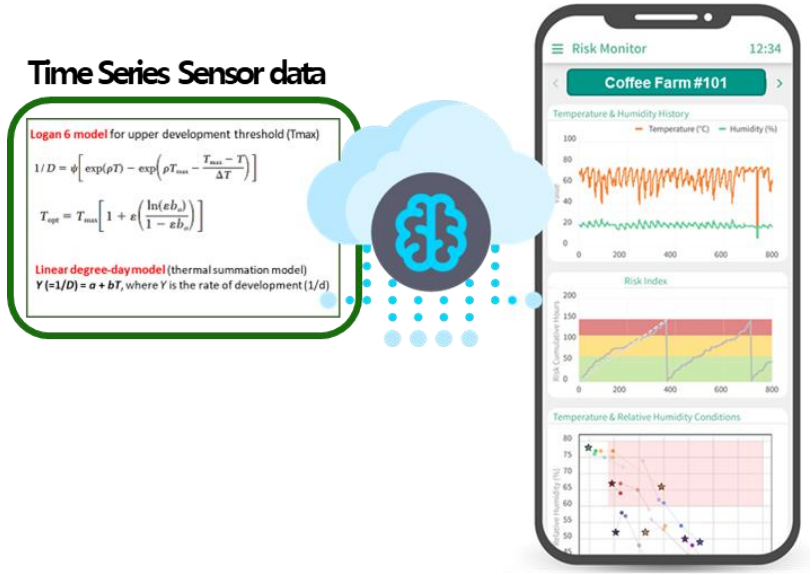
Existing AI based Diagnosis



Pathogen presence on leaf captured by fluorescence method

- Detection after disease has occurred
- Image analysis using expensive equipment such as drones or manual imaging
- High pesticide usage
- Damage can be prevented at later stage

Our AI based Solutions



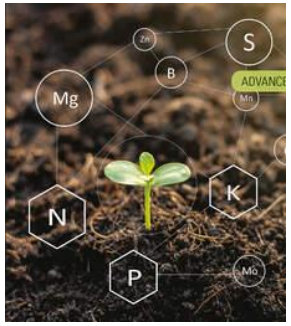
- Early prediction and prevention of disease/pest before occurrence
- Inexpensive sensor data
- Early alerts to farmer and pesticide use reduction
- Increased yield and less damaged crops

10 YEAR KWPF ANNIVERSARY

Overview of Economic and Environmental Costs Benefits from previous projects

30-35% reduction in carbon emissions

Reduction in Irrigation water use by 38-40 %
Savings on diesel/electrical consumption by optimizing the number of irrigation events



Versus previous fertilizer and pesticide schedule the farmer saw a 30-35% reduction in the total amount of fertilizers and pesticides given

Reduced labor by 50% through automation

10 YEAR
KWPF ANNIVERSARY

Africa-Korea: AgTech Innovation Summit Winner

10 YEAR
KWPF ANNIVERSARY

One Million Farmer Platform

Now as one of the companies on the one million farmer platform we feel fortunate to have the opportunity to expose our solution to millions of farmers in Kenya to help them transition in an affordable and accessible way into the digital age.

Thank you!