IBM Watson Decision Platform for Agriculture
Using A.I. to Aid in Decision Making from Farm to Fork
—

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IBM Watson Media & Weather

IBM

Why IBM?

Market-leading AI, Predictive Analytics, IoT and Cloud capabilities

By combining talent and technology, people are changing their businesses – and the world.

Technology has to be more than smart. Technologies like **AI, cloud, blockchain and the Internet of Things (IoT)** will change the world. But only if they can be effectively trained, trusted and applied.

Together with our clients, IBM is putting smart to work.

Vast IBM Research IP

At IBM Research, we invent things that matter to the world. Today, we are pioneering the most promising and disruptive technologies that will transform industries and society, including the future of **AI, blockchain and quantum computing**. We are driven to discover.

With more than 3,000 researchers in 12 labs located across six continents, IBM Research is one of the world's largest and most influential corporate research labs.

Unique breadth of data

Our Ag and Weather **Data APIs**, provide agribusiness with access to a variety of weather data feeds that inject a wealth of weather-based insights on a field-by-field or zone-by-zone basis.

Growers and their advisors can take advantage of these packages quickly and easily, accessing the weather data APIs via the cloud.

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IBM Watson Decision Platform in Action

It all starts on the field with the creation **Electronic Field Record (EFR)** using farm IoT, private and public data**.**

IBM Watson Decision Platform in Action

It all starts on the field with the creation **Electronic Field Record (EFR)** using farm IoT, private and public data
which is then…

Combined with **Watson artificial intelligence (AI)** and **advanced analytics**.

Where IBM is using Artificial Intelligence & Advanced Analytics for Ag Decision Support

Weather: IBM GRAF Weather Model
                                 Seasonal Probabilistic
                                 Alerts

Remote Imagery: Crop Stress

Soil: Soil Temp/ Moisture
                                 Soil Tests
                                 Auto Field Boundaries

Pest and Disease: Risk and Identification

Risk Management: Crop Type Identification

Farm Operations: Operations Dashboard

Geospatial Analytics: Geo-spatial Analytics

IBM GRAF Next Generation Weather Model

Model for Prediction Across Scales (MPAS)

13 km resolution

3 km resolution
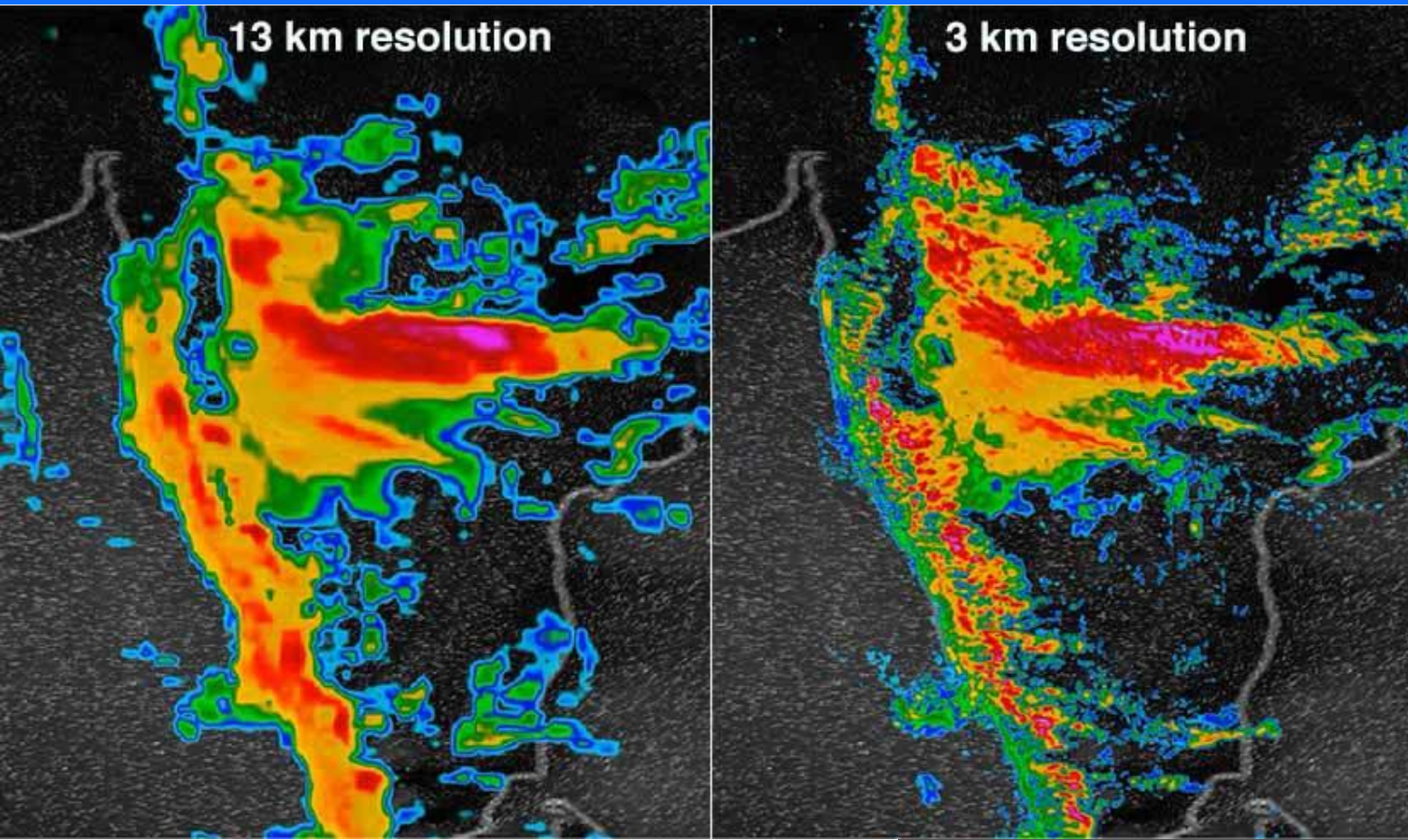
Driven by IoT data including:

- 20M barometric pressure sensors
- Temperature and wind data from commercial aircraft, radars, satellites, and ground observations
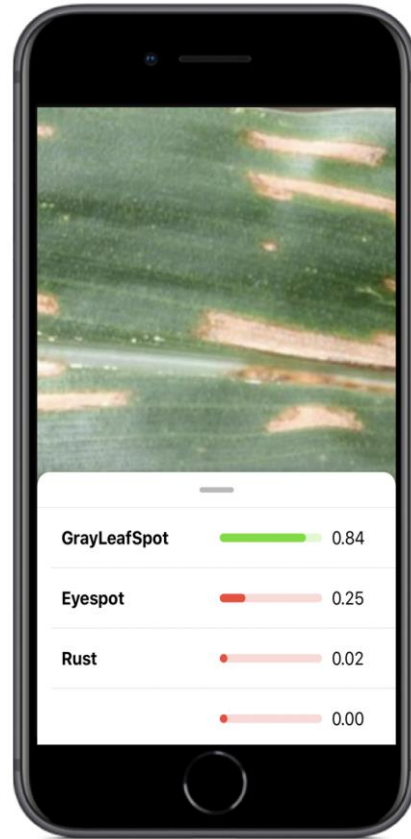
Powered by:

- Purpose-built IBM super computers utilizing parallel processing

Resulting in:

- 3X-5X resolution and frequency improvement in global forecasting
- Ability to resolve individual thunderstorms

Watson identified pests based on drone imagery

Watson smart phone app identifies crop disease

IBM applies market-leading Watson, AI and analytics

Crop Protection

- Crop stress
- Pest / disease likelihood
- Watson Visual Recognition of pest & disease

Planting & Fertilization

- Seeding recommendations
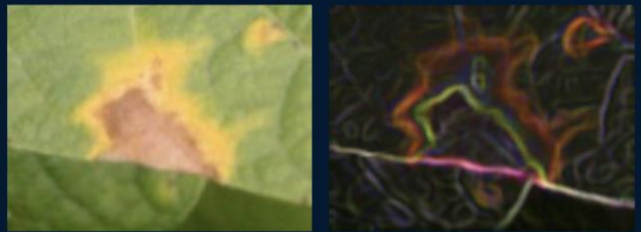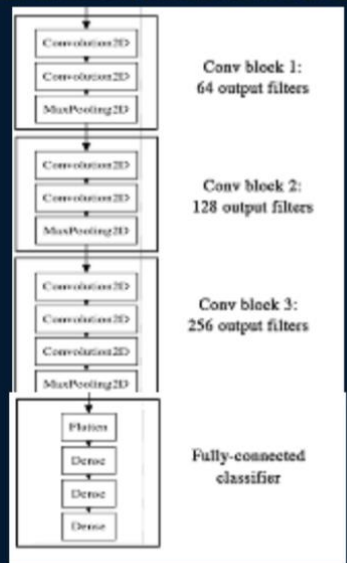- N, K, P, Lime recommendations

Potato: Yield, Pest & Disease

In addition to in-season Potato Yield Forecast, we have experience with Early & Late Potato Blight Disease and with Whitefly Pest.
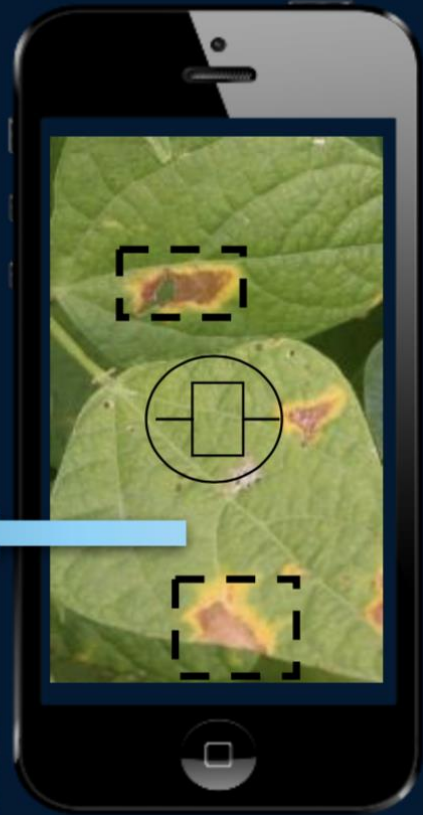
Counters: Fruit and Tree Counting

Cognitive machine vision techniques can process raw drone imagery. The species, estimated inventory (count), crop health and estimated yield can be determined.
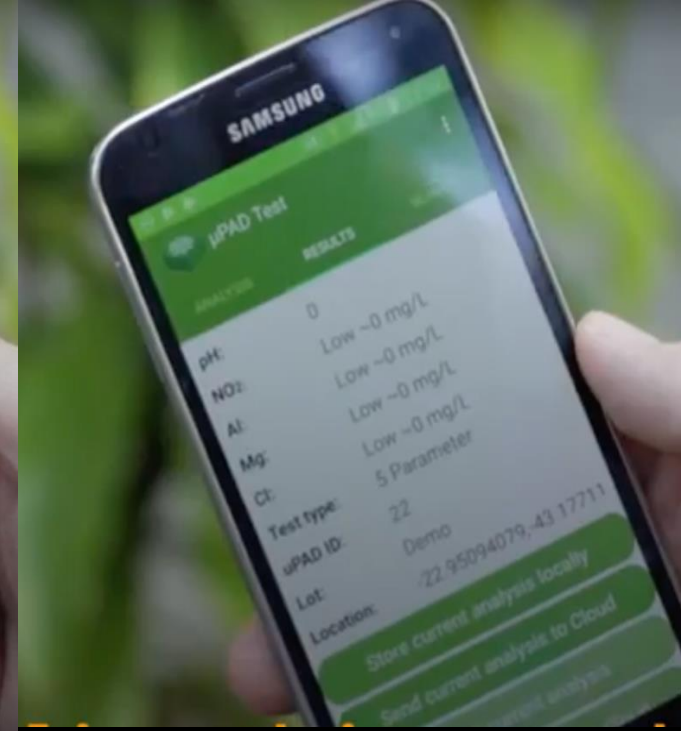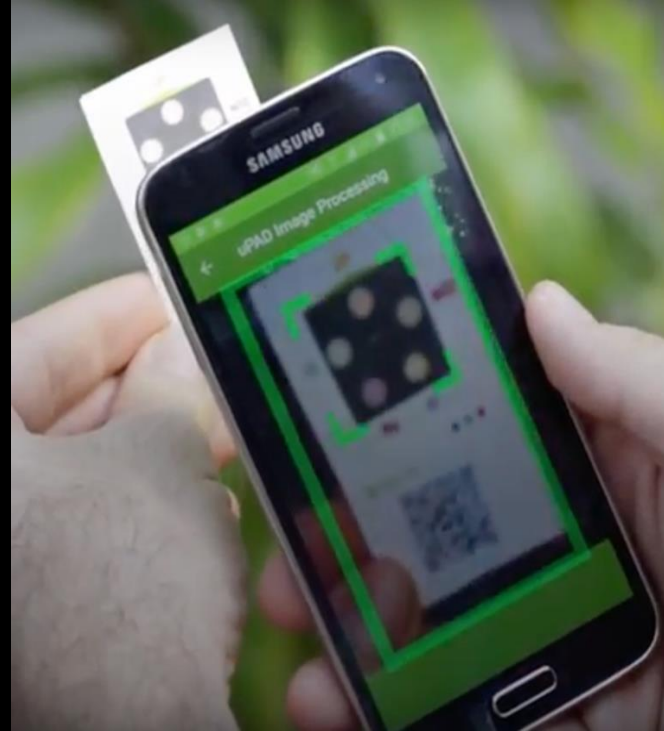
These models and experiences could potentially be leveraged with respect to potato tube counts and pre-season yield estimates.

Soil Management

Soil Management is critical to crop yield and quality. Yet traditional methods are complex and time consuming.

AgroPad is AI-powered technology to help farmers check soil and water health.

NDVI Crop Health

Soil Moisture & Temperature @ 5 depths

Precision 0.5km Weather + Alerts

Yield Forecast

Operations Dashboard – actionable insights that influence crop decisions

Soil moisture and temperature for irrigation and soil-based nutrients

Crop stress to identify geolocations requiring scouting
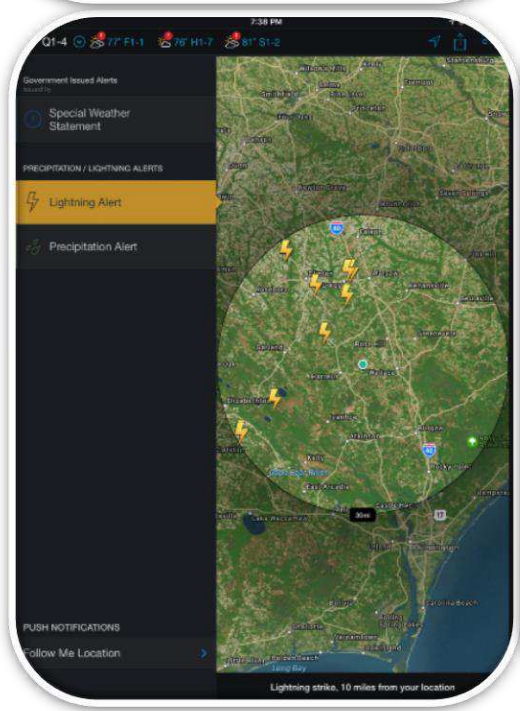
Weather alerts and forecast for spraying and harvest
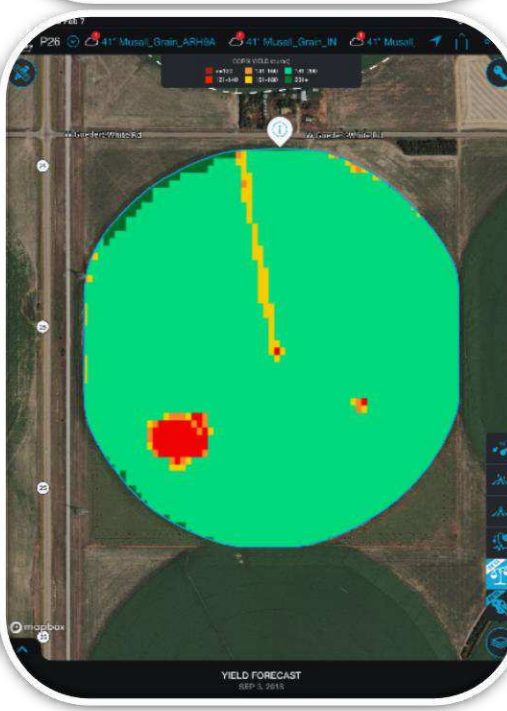
Pest & disease for eradication plan

Yield projection for trading timing

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Thank you

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The Weather Company, an IBM Business
https://www.ibm.com/weather/industries/agriculture