



Advancing the Digital Transformation



**Capital Markets Day
London, December 5, 2018**

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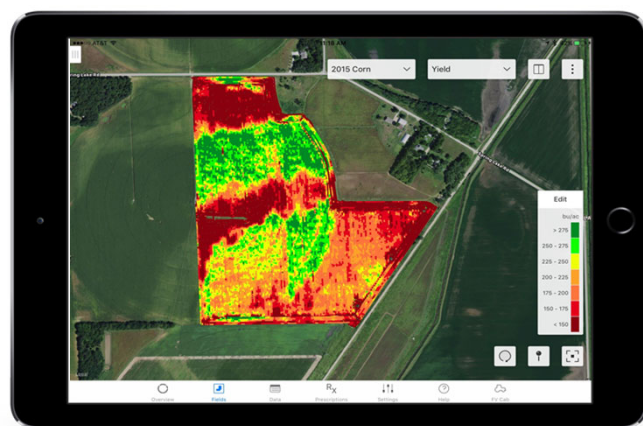


The Digital Farming Opportunity

Providing Farmers with Timely Insights to Make More Informed Decisions and Increase Yield

$$\text{Yield} = f(g, e, p)$$

Yield is a function of
genetics, environment
and farming practices



FieldView yield
map of a field in
Illinois in the
United States

// **+75 bu/ac yield
difference** between
red and green areas

*Complex in-field interactions
cause significant variability*

Opportunity from optimized yield equation

**2017 NCGA Corn
Yield Contest Winner**



542 bu/ac vs. 175 bu/ac
national average¹

**2017 Soy Yield
Contest Winner**



138 bu/ac vs. 49 bu/ac
national average¹

¹ USDA crop production summary report



FieldView Platform Leads the Digital Transformation in Agriculture

Provides Multiple Ways to Create Value for **Farmers**, the **Industry** and the **Enterprise**

Today: Agronomic services

- // Applications that visualize, analyze and recommend
- // Driven by data



\$1,000 subscription + \$300 hardware

- // Data Visualization and Storage
- // Yield Analysis
- // Manual Fertility Scripting
- // Manual Seed Scripting
- // Field Health Imagery

Per-Acre Offerings

Advanced Seed Scripting

Seed Placement Advisor

Today: FieldView platform¹

50+ partners leverage FieldView platform to bring their digital Ag innovations to farmers, and pay for access to platform



Tomorrow: Enterprise benefit

Driving value across our internal operations and businesses by reducing production costs and enabling outcome-based pricing models to drive incremental sales

- // Commercial sales
- // Supply chain
- // Technology
- // Business analytics

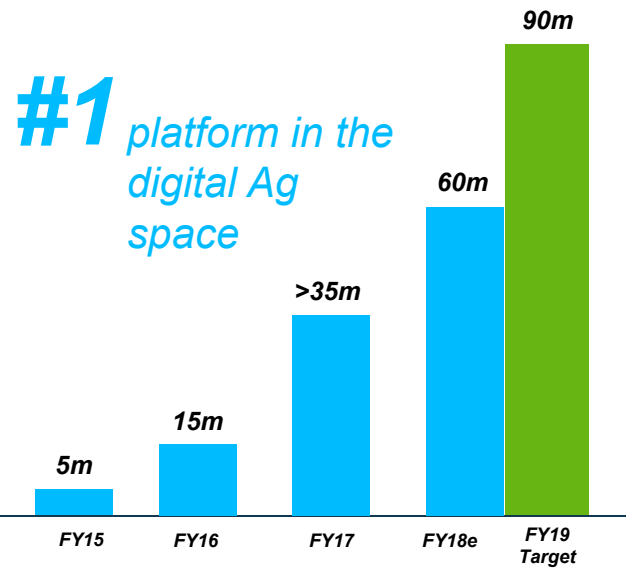
¹ All trademarks are the property of their respective owners



FieldView: The Leading Brand and Platform for Growers

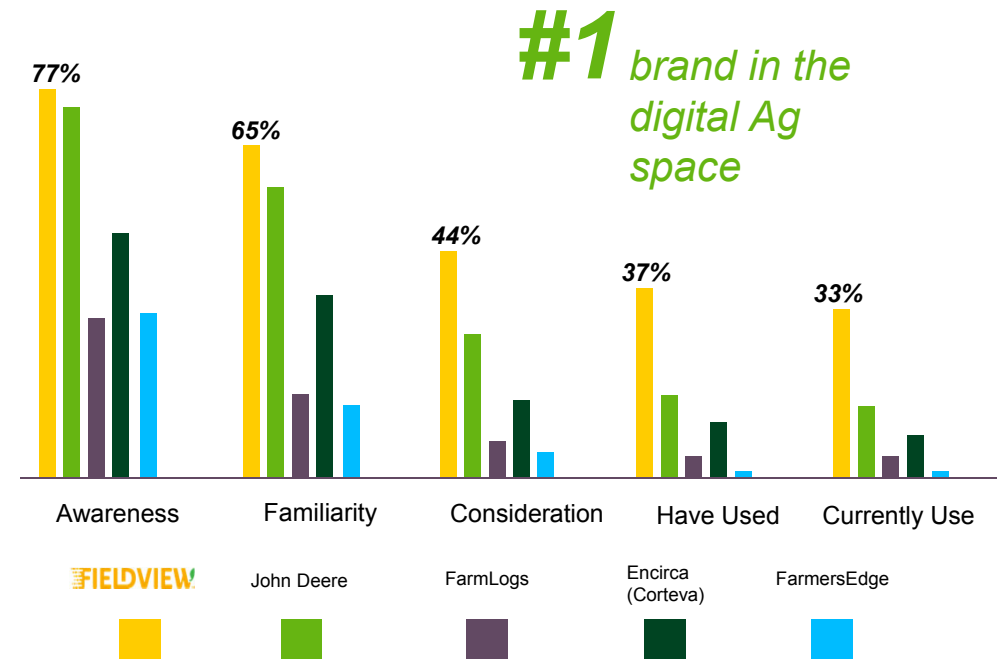
Our Value Creation is Supported by our Performance Trends; Paid Acres >7x Closest Competitor

Global Paid Acres¹



> On >3m in Brazil, >2m acres in Canada and launched in Germany, France & Ukraine in 2018

Brand Health² (U.S.)



¹ Internal estimates

² 2018 Brand Health Monitor

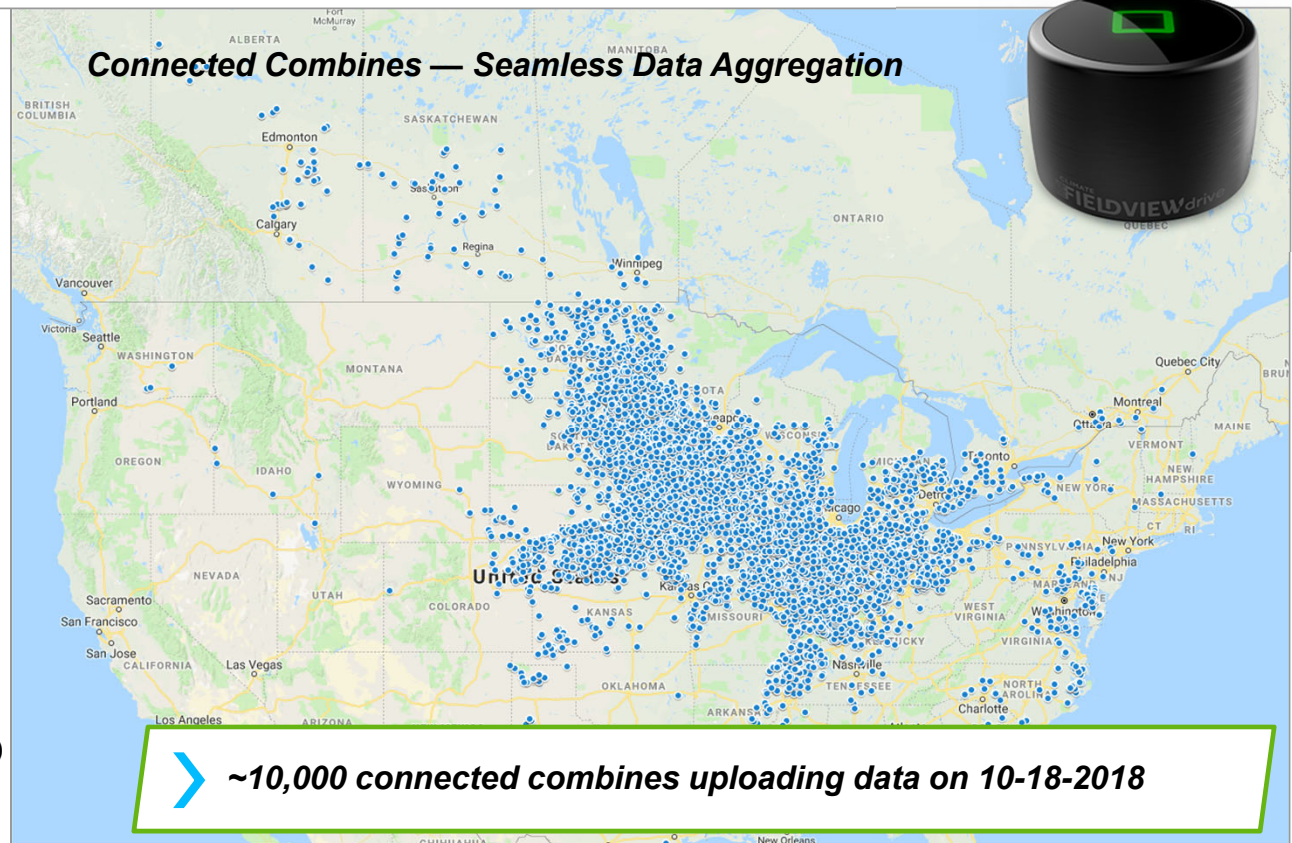
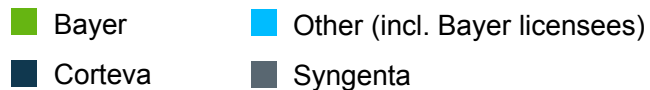
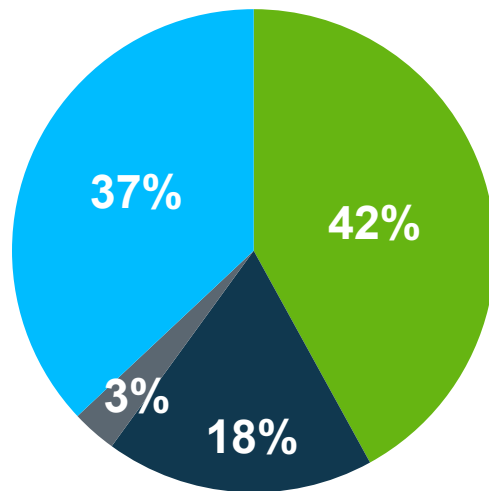


Extensive and Unique Data Collection Capability

FieldView Drive Device Collects, Connects and Digitizes Farmer Activity Informing and Improving our Models and the Digital Tools Farmers are Deploying in their Fields



Hybrid Brand Performance Data in FieldView





Vast, Diverse Data and Technical Infrastructure Drive Machine Learning Capabilities and Competitive Advantage

Smarter Digital Tools Enable Significantly Improved Decision-Making and Productivity for Growers

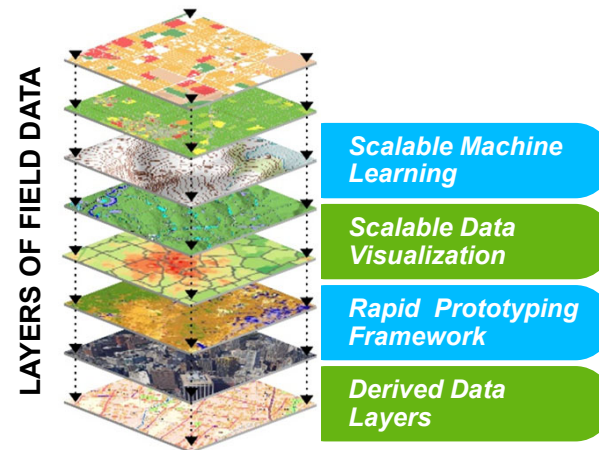
Data Sources

- // Bayer Research Trials
- // Climate Research Farms
- // Climate Research Partners
- // FieldView Data
- // Environmental Data
- // Platform Partner Data

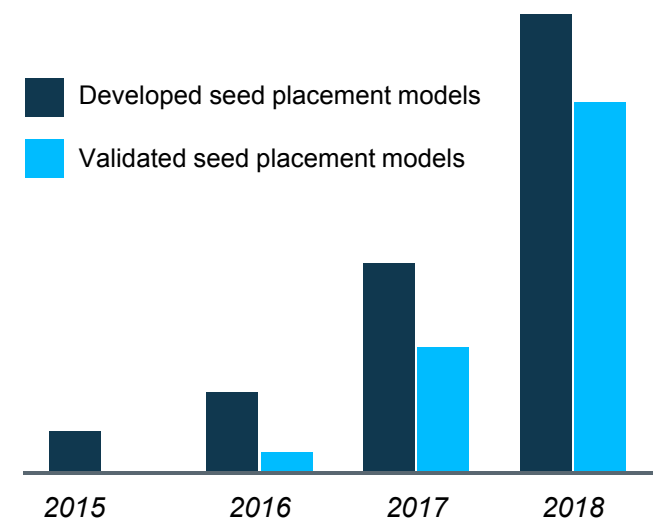
Proprietary Data Science Warehouse



- // Ingest
- // Clean
- // Standardize
- // Grid
- // Integrate



Machine Learning Algorithm Development



Climate Corporation internal algorithm development tracking

> Our data science warehouse and machine learning platform dramatically improves predictive models



Building a Global, Integrated Platform for Farmers and Our Enterprise

Benefits to Farmers from FieldView Create a Virtuous Circle of Value Creation from Richer Data Sets, Leading to Smarter Digital Tools that Inform Farmer and Enterprise Decision-Making

Gather and organize data

Visualize and tabulate



Drives customer satisfaction and loyalty, attracting more data

Diagnose, recommend and prescribe

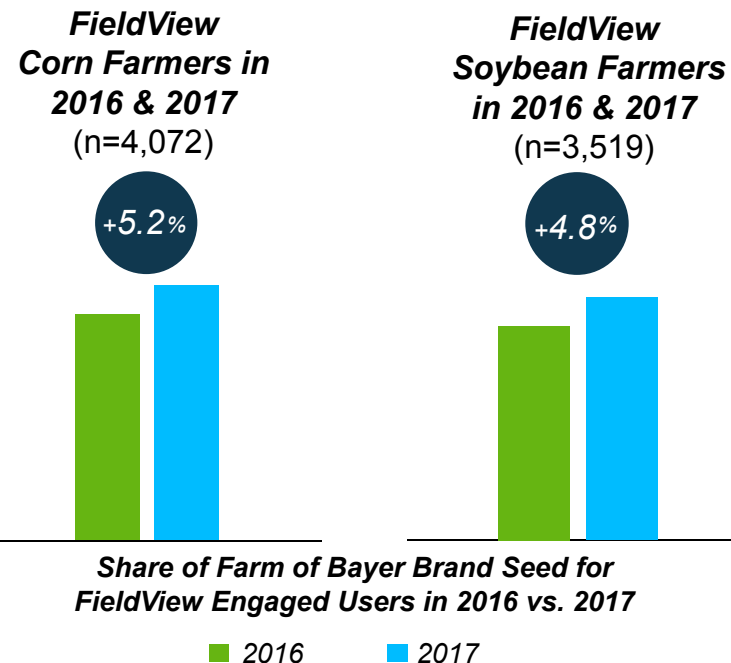
Compare and benchmark



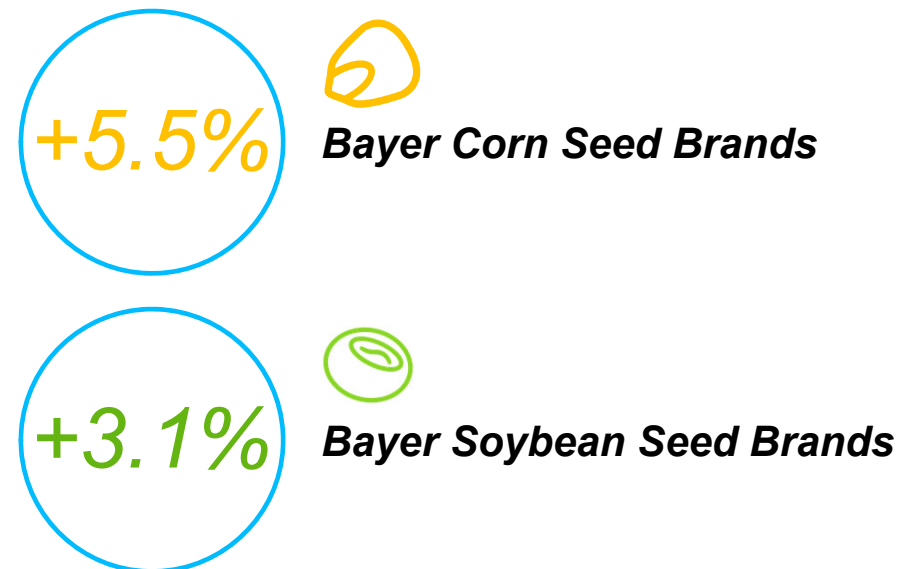
FieldView Platform Creates Value for Our Seed Business

FieldView Use Correlates to Share of Farm Growth and Customer Retention Gains by Allowing Growers to Easily See Product Performance on Their Farms

Increased share-of-farm^{1,2,3}



Higher customer retention^{1,2,3}



¹ Data set consists of farmers with planting and yield data in FieldView in 2016 and 2017

² Share of Farm: Percentage of Bayer corn/soybean seed brand on total acres of farm, based upon FieldView data ingest

³ Farmers using FieldView Yield Analysis vs. those not using Yield Analysis



The Critical Seed Purchase and Placement Decision

Launching FieldView Seed Placement Advisor to Help Farmers Place the Right Seeds in the Right Fields

Products



Which products should I purchase?

Portfolio



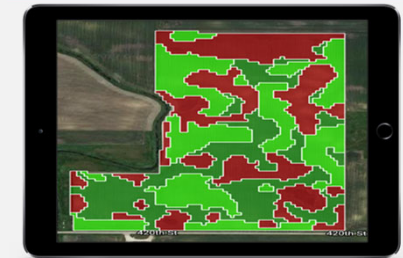
How much of each product should I purchase?

Assignment



Which fields do I optimally place each hybrid?

Density



What density do I use for the hybrid in this field?

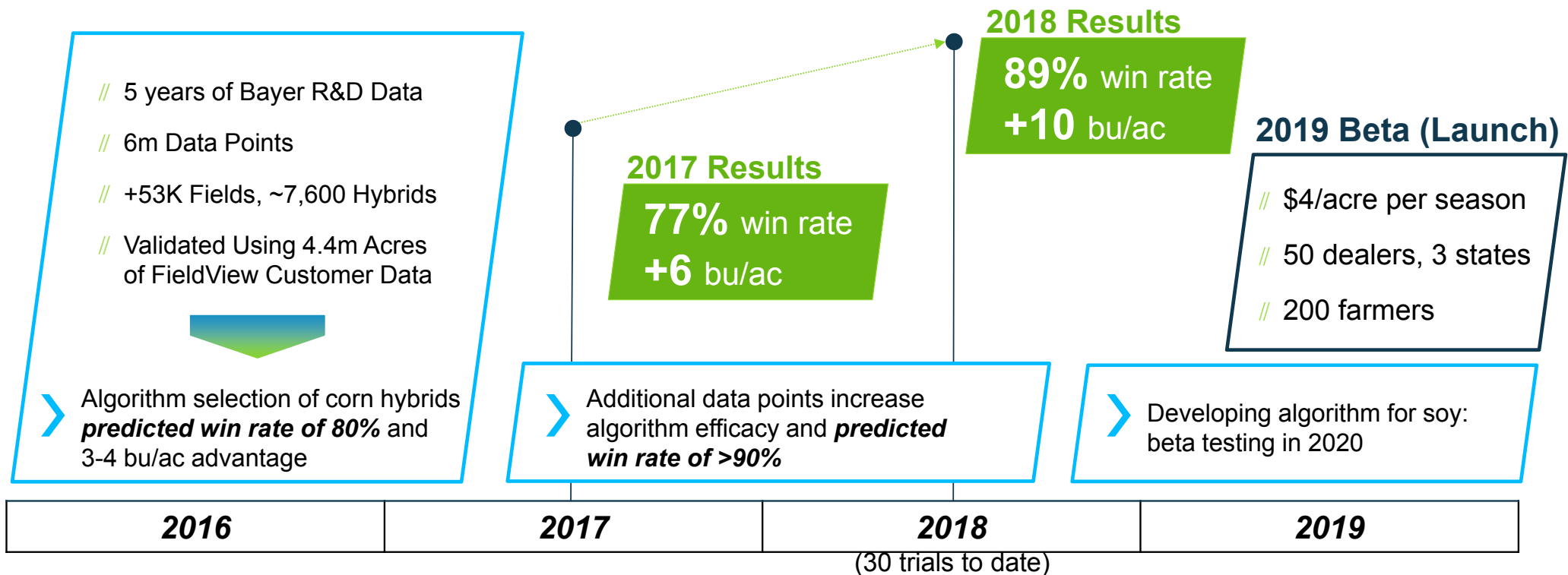


Introducing Seed Placement Advisor for Corn

Using Multiple Algorithms and FieldView Data to Support Seed Selection and Field Placement has Significantly Improved Productivity in Field Tests

Algorithm Development¹

Field Tests¹



¹ Internal estimates and field trials



In-Season Disease Risk Prediction to Identify Susceptible Fields

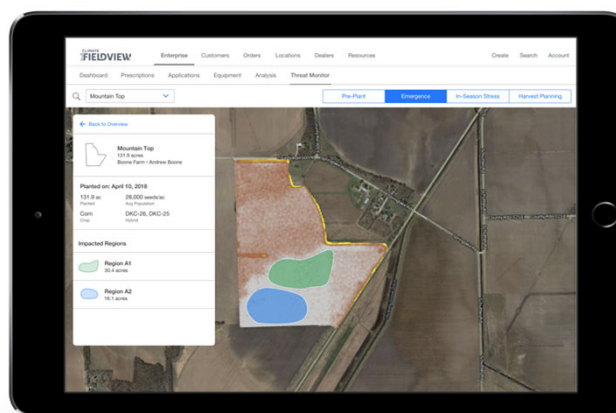
Planning 2019 Pilot for a Solution for Faster Scouting and More Timely Deployment of Crop Protection

Risk-ranking dashboard

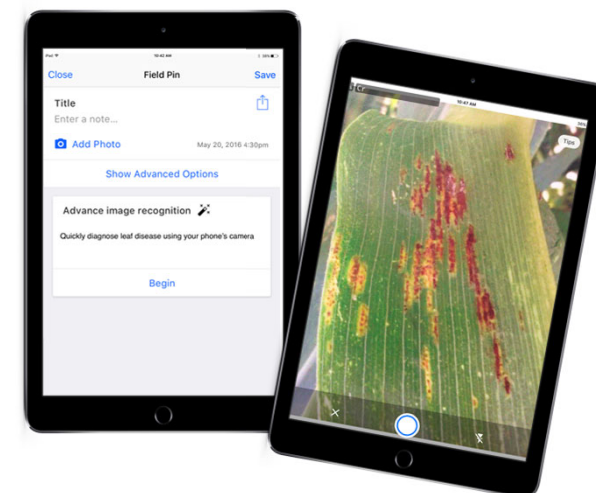
A tablet displaying a risk-ranking dashboard with a table of field data. The table has columns for Field Name, Date of Threat Detection, Risk Status, Treatment Plan, Growth Stage, and Crop. The data is as follows:

Field Name	Date of Threat Detection	Risk Status	Treatment Plan	Growth Stage	Crop
Green Valley Hawthorn Farm - 120.8 ac	April 27, 2018	HIGH	Fungus Reports & Humidity	538 GDUs	Corn DNC-26, DNC-25
Mountain Top Borne Farm - 121.9 ac	April 26, 2018	HIGH	Post Reports	629 GDUs	Corn DNC-26, DNC-25
Hummer Smith Farms Inc - 248.2 ac	April 22, 2018	MEDIUM	Threatened Humidity	601 GDUs	Corn DNC-24
East Stretch Smith Farms Inc - 180.7 ac	April 22, 2018	MEDIUM	Some Fungus Reports	-	Soybean P22758R
Grandview Borne Farm - 188.2 ac	April 26, 2018	LOW	-	645 GDUs	Corn DNC-24

Field-level risk report



Disease identification tools



- // In-season predictions of disease impact for each field
- // Identify fields with highest likelihood of positive return on investment for fungicide application

- // Faster, simplified scouting with automatic disease identification
- // Automatic plant health issue tracking
- // Incorporate history into next season management and product selection



Outcome-Based Pricing Expected to Drive Increased Purchases

Potential to Expand Fungicide Use in Corn and Create Value for Growers

Outcome-Based Pricing Research²

Three-quarters of farmers are more likely to purchase a product with outcome-based pricing.



Half of farmers say they would be likely to **SWITCH** brands with outcome-based pricing.

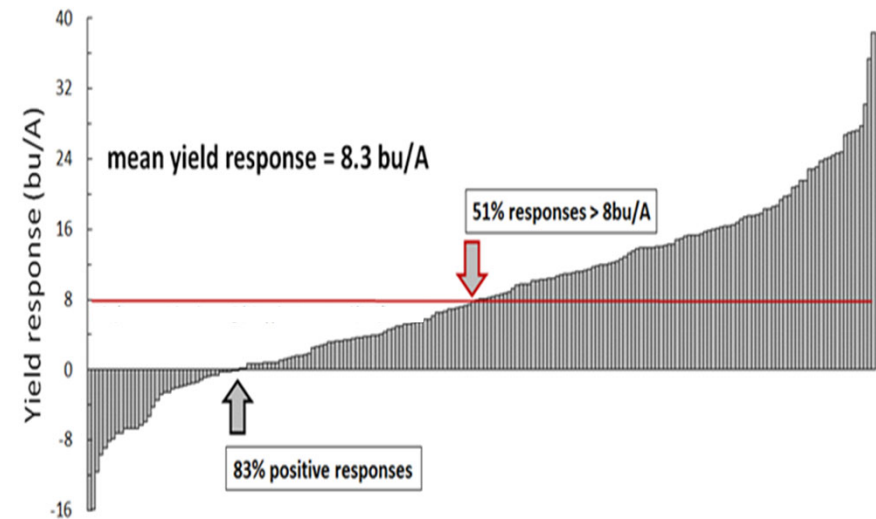


¹ Internal R&D trials

² 2017 and 2018 Market Probe Research commissioned for internal study

³ USDA NASS 2016/2017 report, figure 2 and internal estimates

DEKALB Corn Hybrid Response to Fungicide¹



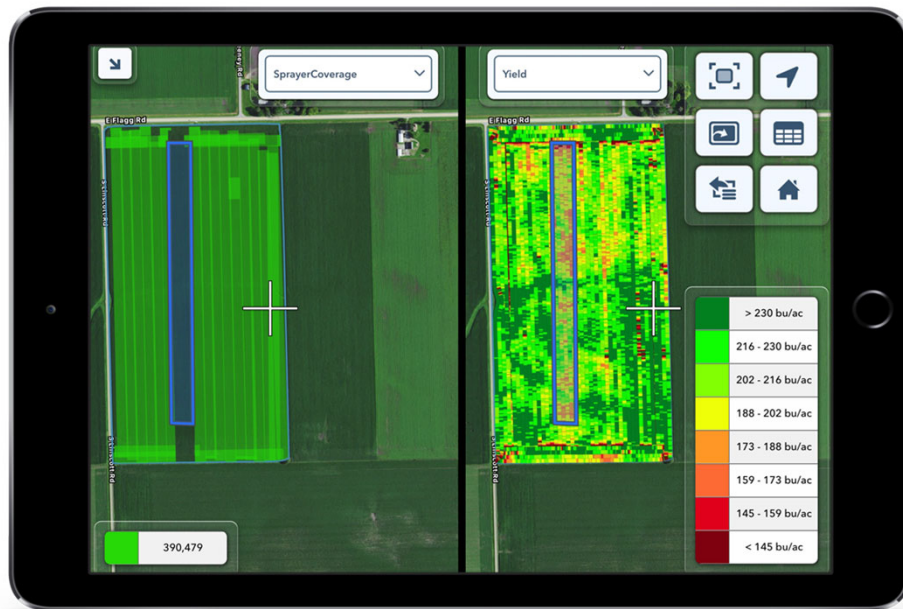
2016 study reveals that **fungicide** treatments used **with DEKALB hybrids** offer average **yield protection of >8 bu/ac**; however, **only utilized on about 15-20%³ of U.S.A. corn acres today**



FieldView Enables Outcome-Based Pricing Model for Fungicides

Farmers Share Value with Bayer for Yield Achieved Above Threshold, as Measured by FieldView

FieldView Maps of 2018 Fungicide Trial



Fungicide Pilot Offer

- // Offered outcome-based price at a defined bu/ac threshold using FieldView as tool to assess in field performance
- // If yield gain is not achieved, a rebate paid to grower for fungicide and application cost

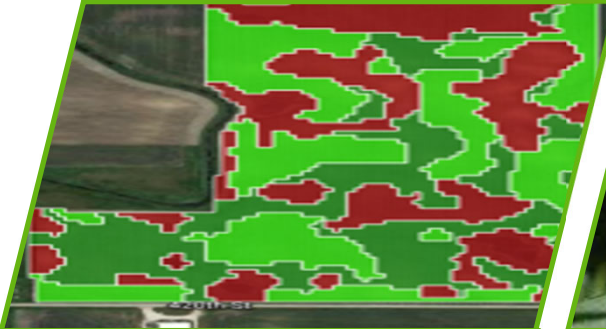
➤ Blue box on yield map on the right depicts lower yields on portion of field not treated with a fungicide, as depicted in spray map on the left



Next Opportunity: Advance Ag Landscape with Tailored Solutions

Enabled by FieldView Platform and our Leading Seed and Crop Protection Portfolio

Seed Advisor



➤ **Seed Advisor** picks the **best hybrid** for your field and provides a **customized variable** rate seeding prescription

Launching

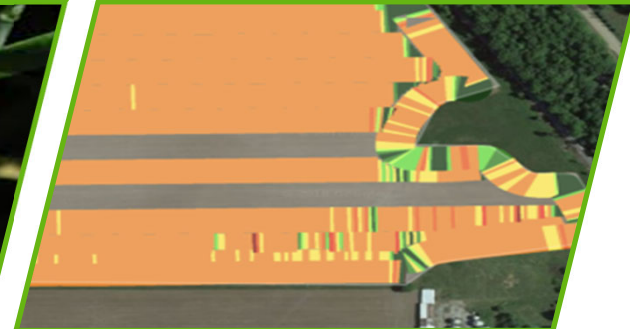
Disease Prediction



➤ **Disease monitoring** and **prediction algorithms** identify fields susceptible to fungal disease by taking a simple photo of a leaf

Late Stage Development

Fungicide Pilot



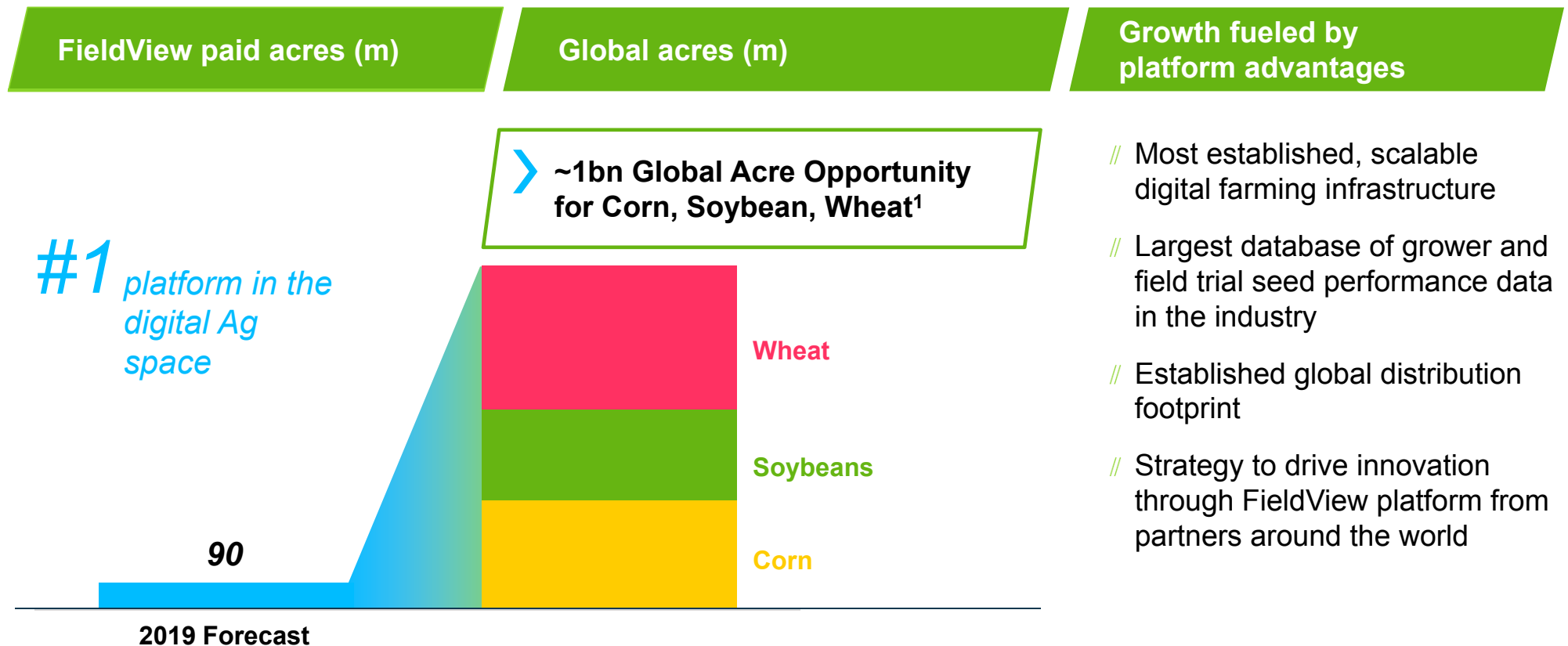
➤ An **outcome-based pricing model** is offered to the grower to protect his field and drive branded fungicide sales

Pilot Program



Significant Opportunity to Expand Digital Ag Footprint

Growth Fueled by Leading Infrastructure, Data, Distribution and Partnerships



¹ Harvested acres – USDA FAS 2018-10-11, ex China



Key Takeaways

Shaping Agriculture to Benefit Farmers, Consumers and our Planet

1 Significant opportunity to minimize variability and optimize yields with digital tools

2 FieldView platform is leading digital ag platform and U.S. brand in the industry

3 Widening the gap with our leading proprietary data, warehouses and algorithms

4 Experiencing increased seed customer retention and share of farm with FieldView

5 Significantly higher win rates achieved in corn production with Seed Placement Advisor

6 Piloting first-ever outcome-based pricing models, enabled by FieldView

7 Pursuing next opportunity to advance the agricultural landscape with tailored solutions



Advancing the Digital Transformation



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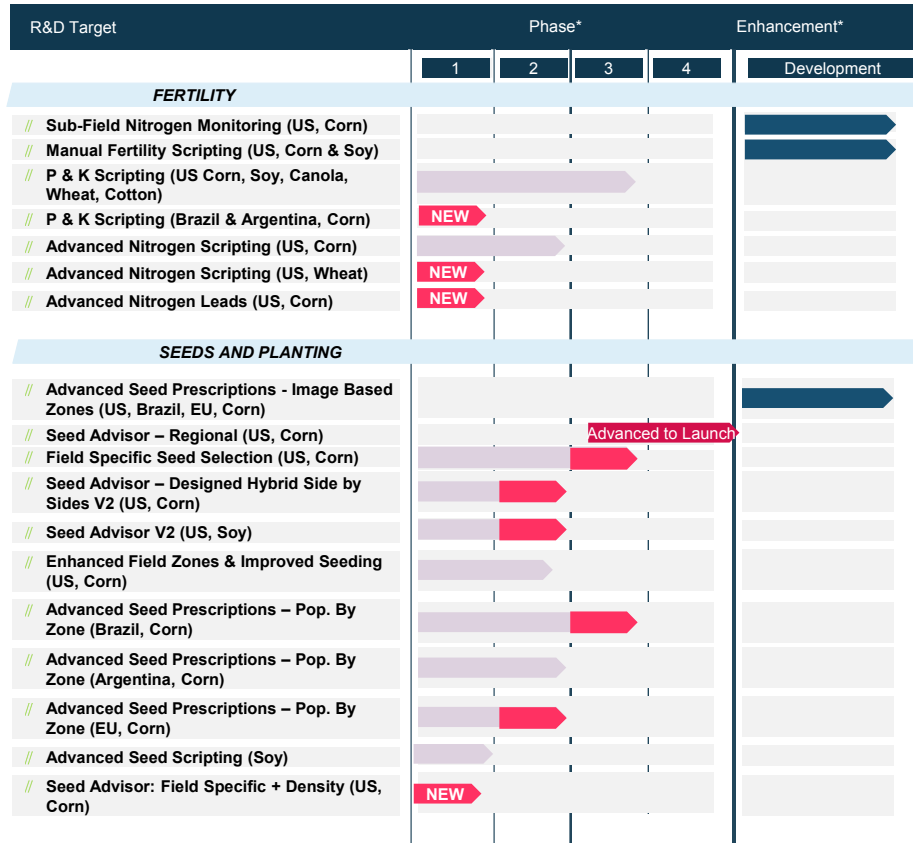
Appendix



Digital Ag Pipeline



Digital R&D Pipeline



***R&D Phases:**

1 – Proof of Concept, 2 – Development, 3 – Pre-Commercial, 4 – Commercial / Launch, 5 – Post-Commercial / Enhancement

P = Phosphorus
K = Potassium

Progress achieved Phases 1 through 4
Status indication for Enhancements to Commercial Products

Pipeline status with color highlighting significant development, progress or advancement in R&D and commercial work

