



Science for a Better Life

re generating growth



New Frontiers in Digital and Carbon Farming

Crop Science Innovation Summit

June 20, 2023

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Cautionary Statements Regarding Forward-Looking Information



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▶ WWW.BAYER.COM



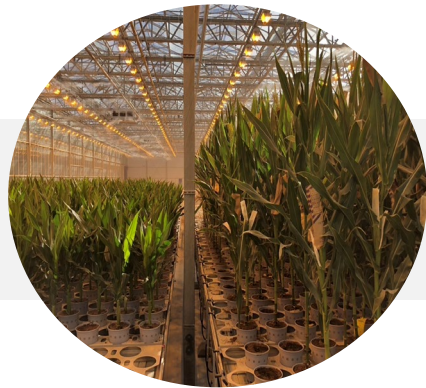
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Digital Platform Optimizing Through the Farm into the Value Chain

Enabling Sustainable Solutions from Farm to Fork

FROM DATA TO VALUE



Digital shifting from data collection and visualization to an essential tool for all farming operations



Digital is transforming to enable new opportunities across the value chain



Lab & Greenhouse



Farm



Value Chain



DRONE-BASED APPLICATION
TIMING RECOMMENDATIONS
PEST DETECTION
HYBRID RECOMMENDATIONS

AG MARKETPLACES
DOWNSTREAM VALUE
RISK SHARING
SUSTAINABILITY & CARBON



Digital Farming Brings Transformational Solutions While Driving Significant Franchise Value and Opportunities Downstream and in Value Chain



Our Vision for Digital Agriculture

- ▶ Increase **yield** and improve **profitability**
- ▶ Glean insights from data to help **manage risk** and address **variability**
- ▶ Manage fields down to the square meter, to farm more efficiently and sustainably
- ▶ Seamlessly collect, visualize and analyze data to enable **more informed decisions**

Three Core Value Drivers

01 FRANCHISE VALUE

02 DOWNSTREAM VALUE

03 PLATFORM VALUE



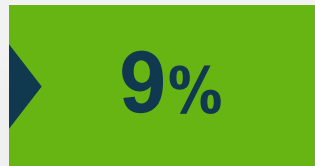
FieldView Drives Incremental Franchise Value and Customer Loyalty

>€1bn of Pipeline Franchise Value is Enabled by Digital



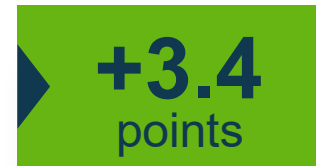
- >220m subscribed acres
- #1 brand in digital ag¹
- Operates in 23 countries
- Largest database of grower and field trial seed performance data in industry
- >80 partners on platform

U.S. corn customers who are active FieldView Plus users have a



higher retention rate^{2,3,4} by volume segmentation

U.S. customers who are active FieldView Plus users have a



higher U.S. Net Promoter Score in 2021-2022² and are more likely to recommend Bayer

U.S. corn customers who are active FieldView Plus users have a



higher seeding rate for Bayer owned corn brands in 2022 vs. national average⁵

¹ According to Kynetec December 2021 FieldView Brand Tracker | ² vs. non FV Plus users | ³ based on U.S. GPOS data 2018-2021 | ⁴ Internal estimate as of 2022 | ⁵ national average based on Kinetic/GFK Analysis



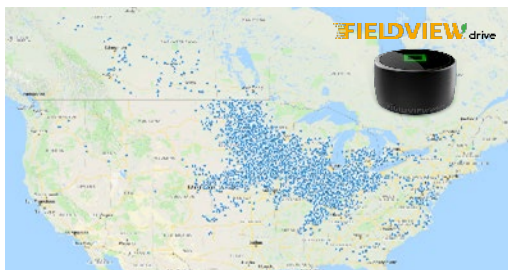
Digital Solutions Deliver Sustainable Profitability

Enabling Decisions that Matter with Industry Leading Data Collection



Industry Leading Data Collection

- >8,000 digital field trials
- >115bn data points of product performance under real-world farmer management practices
- > 62M hrs of equipment data
- Environmental and weather data
- Sensor or IoT data
- Platform Partner data



Enabling Solutions

- Seed Placement
- Disease Management
- Weed Management
- Pest Management
- Horticulture



Providing Tools to Help Growers

- Increase yield and improve profitability
- Farm more efficiently and sustainably
- Manage risk and address variability





Fieldview Digital Insights Maximizing Smart Corn System



01 FRANCHISE
VALUE



Comprehensive Digital Agronomic Support

- > Hybrid Selection & Placement
- > Planting Density
- > Planting Date
- > Fertility Recommendations & Timing
- > Crop Protection Recommendations & Timing



Spray Rig in
Short-Stature Corn Plot
Jerseyville, IL August 2019



Poseyville, Indiana July 2021
Nitrogen Y-Drops for Precise
In-Season Application





Digitally-Proven: 2023 Bayer Corn Seed Showcase Pilot

Providing Confidence to Farmers in putting the Best Seed in the Ground



// Program jointly developed and tested with **growers and dealers to minimize the risk** of trying new brands and different hybrids of seed on their farm, reducing uncertainty and optimizing return on investment



BCS Corn Product Rec.



Digital Split Plant Trial



Performance Warranty

> **Targeting 250k acres** and 700-1000 farmers in targeted U.S. geography

> Fieldview data-driven recommendation **more accurately predicts winning products**¹

> Seed Showcase farmers will **split plant** fields with competitor seed brand product and a **recommended BCS product**. If recommendation doesn't beat the competitor, BCS will pay a **\$6 bu/ac performance warranty** up to a **maximum of \$60/ac**

**Excellent
Customer Experience**

**Increased Engagement with Digital
Tools and Outcome Based Offers**

**Value Created for
Growers, Partners and Bayer**

¹ Internal estimates generated from Digital Recommendation Model assessing last 5 years of agronomic results
The information on this document is to aid in understanding the 2023 Bayer New Business Models Master Agreement and the 2023 Channel or Dekalb Showcase Protocols, which govern all requirements associated with the two programs. This document does not change or modify the 2023 Bayer New Business Model Master.



Advancing Climate Smart Practices on Farm To Achieve Carbon Goals for Growers and Businesses; Creating New Revenue Stream

ForGround
by Bayer

Digital platform that helps farmers transition to climate-smart practices and connects growers, acres, and buyers to more meaningful opportunities.



Growers have access to tools, resources, discounts and financial benefits (through Bayer Carbon Program)



Companies have access to carbon assets and services powered by **FIELDVIEW** platform to support their sustainability goals

Our Commitment: 30% Reduction of Field Greenhouse Gas Emissions by 2030

Builds on Success with our Existing Bayer Carbon Program

~2,600 participating farmers | **10** countries covered | **~1.5m** acres globally

- // Long-term program providing **annual incentives** to **FIELDVIEW** users, enrolled in the program, for verified and validated **climate-smart practices** like no-till and cover cropping
- // Enables 3 Expected Downstream Revenue Opportunities in **>\$200bn/year** market¹

Carbon Services

Product Sales

Carbon Assets
first removals in NA in 2023

Creates new opportunities for growers and businesses alike



- > **First food value chain B2B** collaboration on ForGround platform spanning across Perdue's entire grain network
- > **Perdue grain farmers** may be **compensated** for adopting regenerative practices, allowing Perdue to decarbonize their supply chain



- > Supports Nori in **advancement of the carbon marketplace**
- > **Pave the way** for price discovery of carbon removal credits on the open market
- > Bayer Carbon Program grower payments will be reassessed in accordance with **carbon credit market price** fluctuations

¹ Source: <https://www.reuters.com/article/us-carbontrading-turnover/global-carbon-trading-turnover-at-record-214-billion-last-year-research-idUSKBN1ZN1RN>

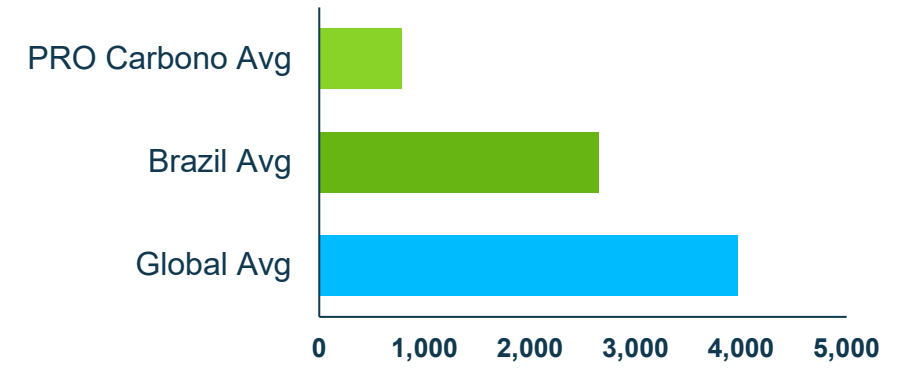


Seeking to Create Carbon Neutral Soybean Industry by Combining Bayer PRO Carbono Practices with FieldView

PRO Carbono

- > Be a change agent to create a carbon neutral industry
- > Increase **productivity** and **profitability** from intensification of practices to sequester carbon
- > **Seed and trait technologies** like **Intacta 2Xtend**, that increase productivity, reduce insecticide use and enable conservation and no-till systems **foundational to success**
- > Measure and track with **FIELDVIEW**

CO₂ eq per mt of soybean produced¹



Carbon Emissions of Soybean Growers in Bayer's PRO Carbono 70% lower than Brazil Average

¹ Assumptions and challenges of carbon footprint accounting in agriculture - Marcelo Morandi and Marília Folegatti - Embrapa Meio Ambiente; SOC = Soil Organic Carbon



Orbia JV is the Largest Digital Ag-Marketplace in LATAM

In combination with **FIELDVIEW**, provides an integrated digital grower experience

Orbia



Orbia Pag

- JV between Bayer, Bravium¹, Yara and Itau; Bayer with **~60% stake**
- Connects growers, input providers and grain traders to a network to expand their reach, secure financing, redeem rewards **from Bayer's Impulso loyalty program**, purchase and sell inputs
- Established in 2019 in **Brazil**, later expanded to Argentina, Colombia and Mexico²
- **~300 distributors** with inputs such as pesticides, seeds and fertilizers
- **~€460m** in commissioned online transactions (GMV³) in 2022
- **>270,000 registered growers** across LATAM
- Covers **~75% of Brazil planted area**
- Recently launched **Orbia Pag**, the first digital pre-approved credit mechanism for farmers

¹ Brazil-based marketing agency who managed Bayer's loyalty program in Brazil, prior to the formation of Orbia.

² Orbia is named „Nucle“ in Mexico // ³ GMV means Gross Merchandise Value, the most common metric for marketplace development

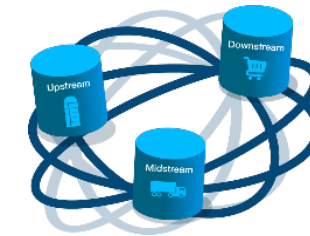


Industry First Collaboration Offering B2B Digital Solutions that Connect the Farm to the Value Chain



- > Azure Data Manager for Agriculture is the **largest connection** point of agricultural data and services **driving interoperability** across the value chain – including food, feed, fiber and fuel
- > Combines **Bayer’s ag expertise** and leading digital farming platform with **Microsoft’s cloud technology** for unrivaled B2B solutions
- > **Bayer AgPowered Services**, based on proprietary capabilities, now available to the industry on **Azure Data Manager’s robust infrastructure**
 - ▶ Imagery Insights
 - ▶ Crop Water Use Maps
 - ▶ Growing Degree Days
 - ▶ Smart Boundary Detection¹
 - ▶ Crop Growth Models¹
- > **Provides cloud-based digital tools** and data science solutions for ag and agri-food businesses to license and use for **internal platforms or customer-facing digital solutions**
- > **Will provide solutions** to address farming operations, **sustainable sourcing, manufacturing and supply chain improvement, and ESG monitoring and measurement**

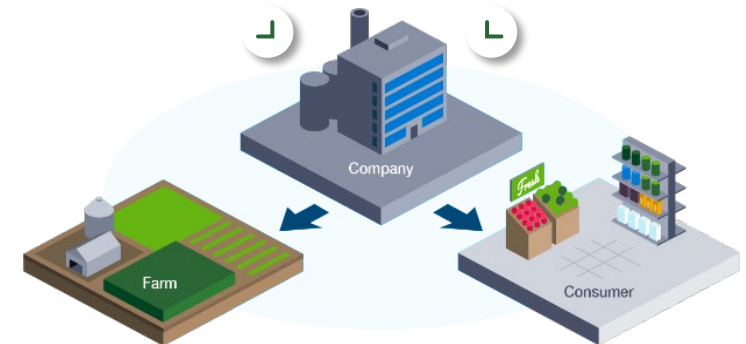
¹ Additional offerings in development



Disorderly Data in Today’s Food and Ag Supply Chains

Microsoft Azure
Data Manager for Agriculture

AgPowered
Services



Enabling Transparency and Sustainability for Companies and Consumers; Advancing New Opportunities for Farmers



Key Takeaways – New Frontiers in Digital & Carbon Farming

01

Empowering digital transformation through the value chain with Fieldview #1 platform

02

Digital unlocking **franchise and downstream value through system solutions** including digital recommendations

03

Industry leading **data collection and interoperability**

04

Digital offerings unlock new value through Seed Showcase and ForGround

05

First B2B digital ag solution via Azure Data Manager and AgPowered Services





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APPENDIX

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