Science for a Better Life

Bayer Crop Science Innovation Summit

New York City // June 20, 2023

Cautionary Statements Regarding Forward-Looking Information

This presentation may contain forward-looking statements based on current assumptions and forecasts made by Bayer management

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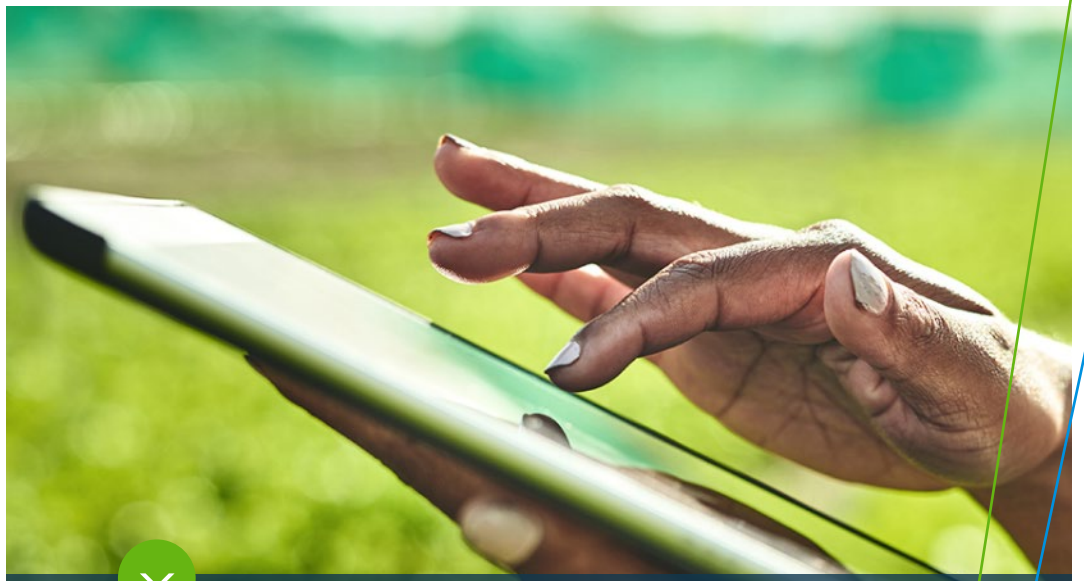

The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments

Event Agenda

Convene, One Liberty Plaza, NY, NY

June 20, 2023

8:00 am	Welcome	Laura Meyer	**Convene – East Hub**
8:02 am	**Vision for Sustainable & Regenerative Agriculture** (Live Webcast)	Rodrigo Santos, Jeremy Williams, Frank Terhorst, Bob Reiter	
9:00 am	Break		
9:15 am	**Innovation Engines to Power New Value Pools** (Live Webcast)		
	// Designer Seeds: Next-Generation Breeding Technology	Mike Graham	
	// Transformative Trait Technologies	Kelly Gillespie	
	// Sustainable Small Molecules	Axel Trautwein	
	// Biological Breakthroughs	Jess Christiansen	
	// New Frontiers in Digital & Carbon Farming	Tom Eickhoff	
11:00 am	Break		
11:20 am	**Live Q&A** (Live Webcast)	Laura Meyer, Rodrigo Santos, Jeremy Williams, Frank Terhorst, Bob Reiter	
12:10 pm	End of Investor Portion of Event	Lunch Served	**Convene – North Gallery**

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Presentation Materials

Science for a Better Life

regenerating growth

Vision for Sustainable & Regenerative Agriculture

Crop Science Innovation Summit

June 20, 2023

Rodrigo Santos // President, Bayer Crop Science

Crop Science Executive Leadership Perspectives

Rodrigo Santos

President,
Crop Science Division

Robert Reiter, Ph.D.

Head of R&D,
Crop Science Division

Jeremy Williams, Ph.D.

Head of Climate LLC and Digital Farming Solutions

Frank Terhorst

Head of Strategy & Sustainability,
Crop Science Division

Our Global Food Systems are Under Increasing Pressure

Demand for Sustainably Sourced Food and Renewable Fuels Never Greater

GROWING POPULATION

+2.2bn
people on the planet by 2050[1]

+50%
more food and feed required to meet growing demand [2]

>3bn
people live in agricultural areas with high to very high water shortages[3]

>70%
of all available freshwater is used in agriculture[4]

90%
of all soils are expected to be degraded by 2050[5]

-20%
loss in arable land per capita by 2050[6]

PRESSURE ON ECOSYSTEMS

-17%
harvest losses from climate change[7]

[1] UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision)
[2] FAO 2017, (FAO Global Perspective Studies)
[3] FAO, 2020 (Water Scarcity | UN-Water (unwater.org))
[4] UN-Water, 2021 Water Scarcity | UN-Water (unwater.org))
[5] FAO Saving our soils by all earthly ways possible | FAO Stories | Food and Agriculture Organization of the United Nations
[6] FAOSTAT (accessed Oct 30, 2018) for 1961-2016 data on land, FAO 2012 for 2030 and 2050 data on land, and UNDEDA 2017: World Population Prospects for world population data
[7] Nelson et. al, (2014); FAO 2016 “Climate change and food security”

Future of Farming

Broadening our sustainability approach with a regenerative focus

re generating growth

Sustainability
Focus

“Producing more with less”

We’re supporting food security while reducing agriculture’s impact on nature

- We’re committed to: (1) minimizing the climate footprint of farming, (2) reducing the environmental impact of crop protection, (3) enabling smallholder farmers and (4) improving water use

Reducing and mitigating:

Increasing productivity while reducing the impact on nature

Regenerative
Focus

“Producing more and restoring more”

We’re supporting food security and securing farm incomes while delivering net benefits to nature

- We’re committed to: **(1)** minimizing the climate footprint of farming, **(2)** reducing the environmental impact of crop protection, **(3)** enabling smallholder farmers and **(4)** improving water use

+

- We’re delivering nature-positive outcomes by improving soil health, restoring biodiversity and protecting habitats, conserving water and sequestering carbon
- We’re helping farmers increase productivity and incomes with climate adaptation solutions and new sources of revenue

Adapting and regenerating:

Increasing productivity and incomes while renewing nature

Lead

with Regenerative Ag Solutions

Win

by being more grower centric

Our Purpose

Shaping agriculture for the benefit of farmers, consumers and the planet

Benefits of Regenerative Ag:

- **Yield increase and improved productivity, social and economic well-being of farmers and communities**
- **Improved soil health**
- **Mitigation of climate change**
- **Preservation, restoration of biodiversity**
- **Conservation of water**

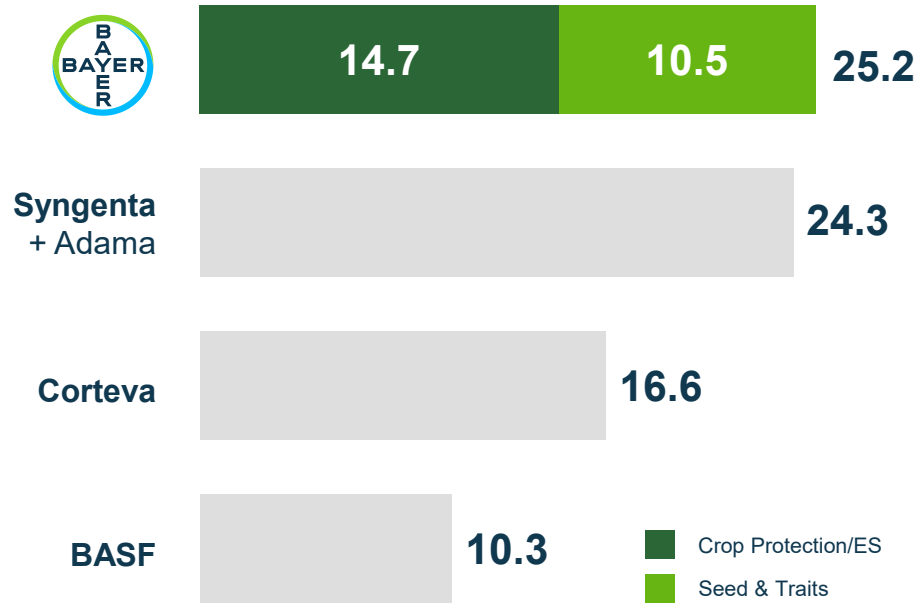
Deliver / **Sustainably-sourced food, Renewable fuels**

The Established Leader in Crop Science

Industry leading profitability underpinned by ~€2.6bn in annual seed & trait licensing revenue

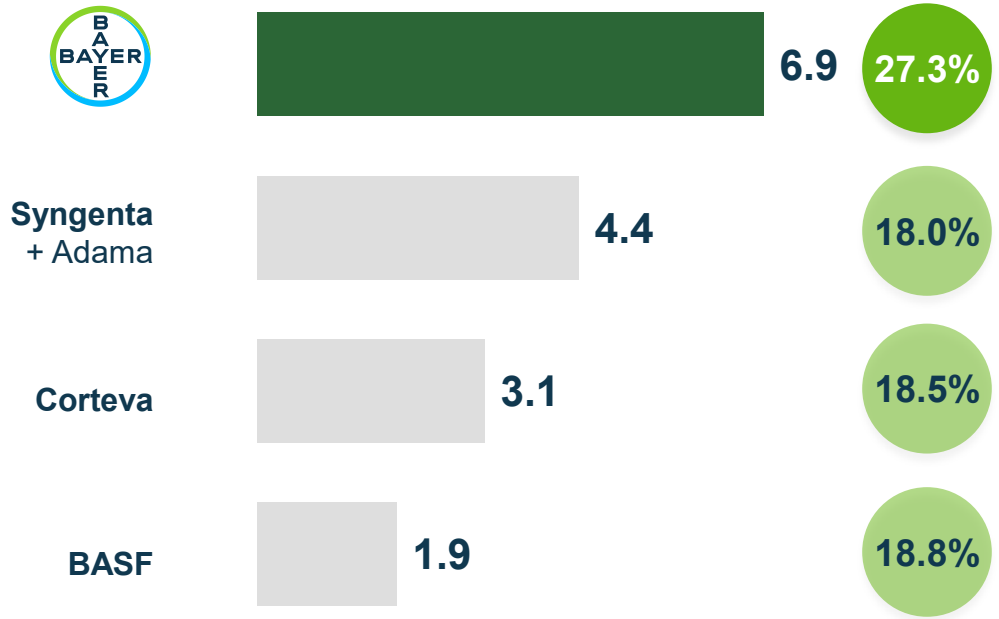
Largest in Sales

Total Sales[1] (€bn), FY 2022



Highest Profitability

EBITDA[1] (€bn) / EBITDA[1] Margin (%), FY 2022



[1] Company information; exchange rate: FY 2022 ~1.05 USD/EUR. EBITDA before special items; Representing the legacy Syngenta AG results plus Adama

Growers Worldwide Recognize the Value We Deliver

#1 in Seed & Traits with Leading Crop Protection Portfolio and >70% of Sales in the Americas

Bayer Crop Science 2022 Sales (€25.2bn)[1]

#1 Market Position

Corn Seed & Traits

Herbicides

Soybean Seed & Traits

#2 Market Position

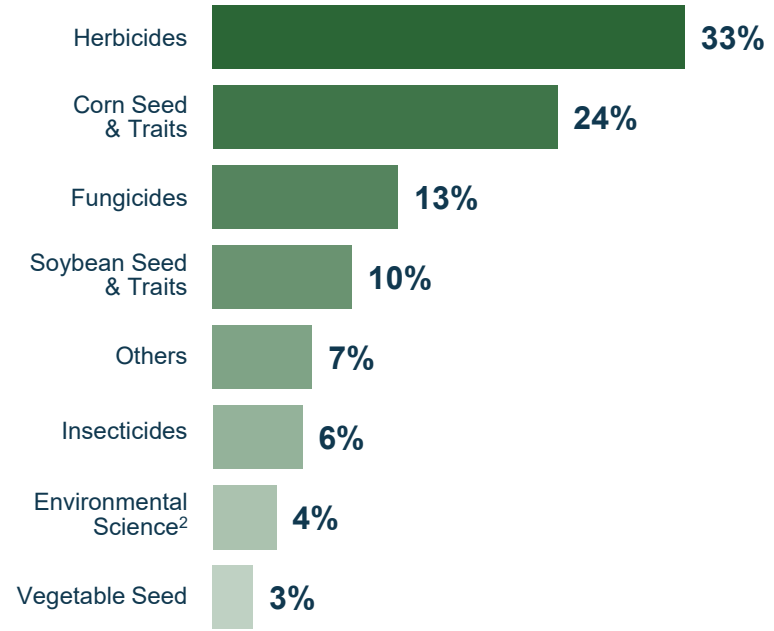
Fungicides

Vegetable Seed

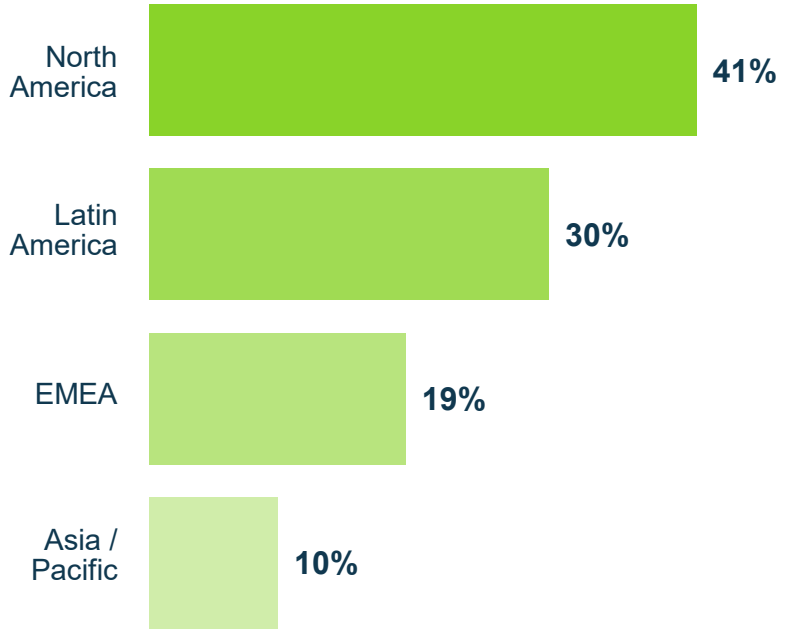
#3 Market Position

Insecticides

SALES BY STRATEGIC BUSINESS ENTITY



SALES BY REGION



Note: Market Position determined annually, as of Q1-2023

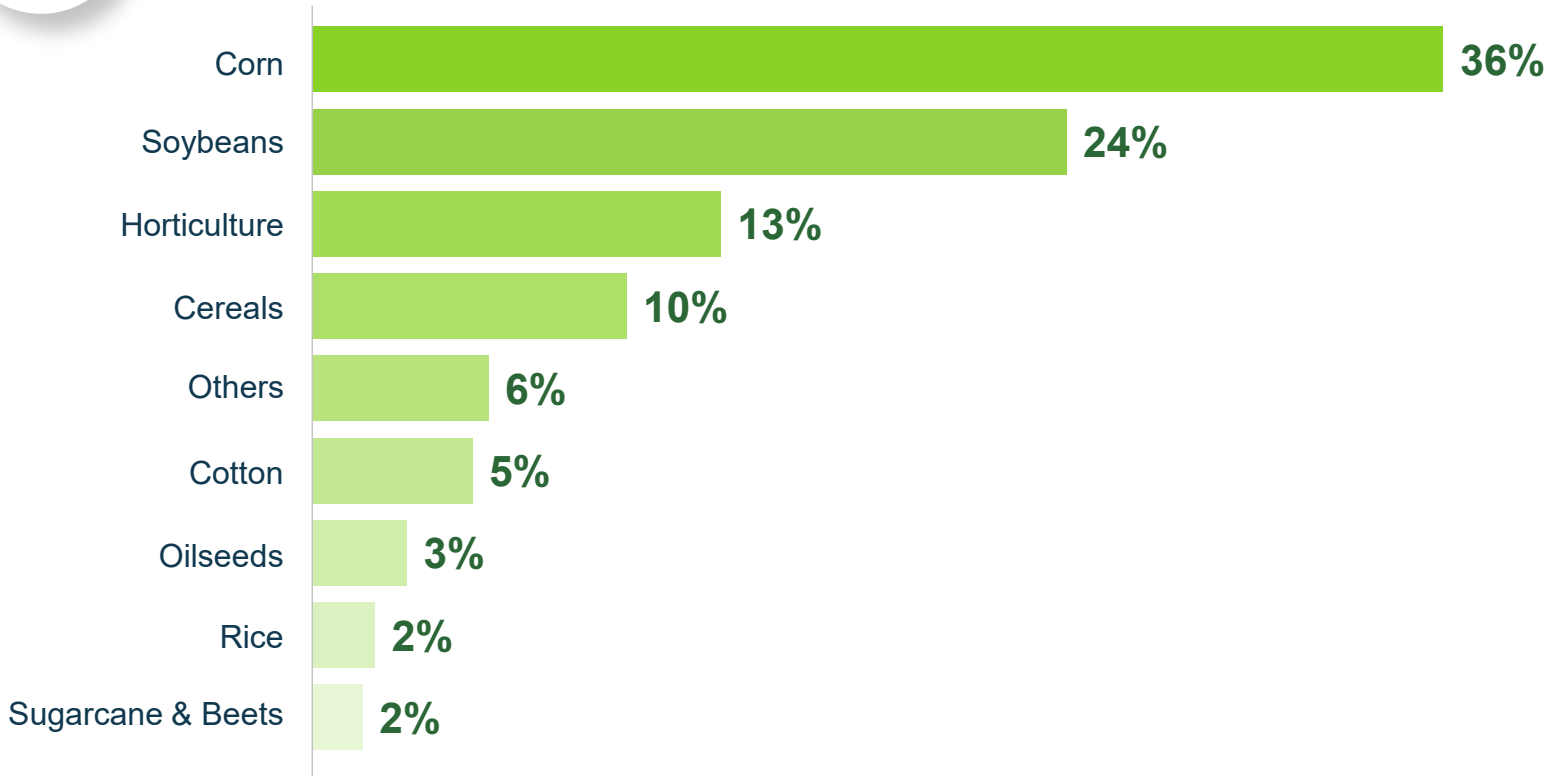
[1] Company information; exchange rate: FY 2022: ~1.05 USD/EUR.

[2] Environmental Science Divestiture - October 2022

Focused in High Value, Broad Acre Crops

Bayer Crop Science 2022 Sales (€25.2bn)

Sales by Crop Served[1]



[1]Source: Company estimates. Based on 2022 sales, excluding Environmental Science sales.
Crop protection sales allocated to crops where they are applied.
"Others" includes digital farming solutions, non-commercial crops, and non-identified crops.

More than Doubling Our Accessible Market by Driving Productivity and Sustainability Together to Unlock Adjacent Spaces

>100bn[1] EUR
2022 Global Ag Input Market

>200bn[1] EUR
2030 Global Ag Input Market & Related Adjacencies

[1] Company estimates

Broadening our Reach To Shape Regenerative Ag on >400m Acres

// Today our seed & trait technologies reach **~340m** acres globally, anchoring our vision for regenerative system solutions

// By the middle of the next decade, we envision broadening our reach to **>400m acres**

// Hybrid wheat, direct seeded rice, corn traits in Africa & Asia and carbon farming enable potential in new crops and markets

// Preceon Smart Corn System and next-gen herbicide tolerance in soybeans build out our base

Delivering Regenerative Ag Benefits and Improved Profitability

Example: 130 HA Bayer Forward Farm Agricola Testa, located in Pergamino, Argentina 2019-2022

Increased farmer roi[1]

+13%
grain productivity

+22%
gross margin/HA

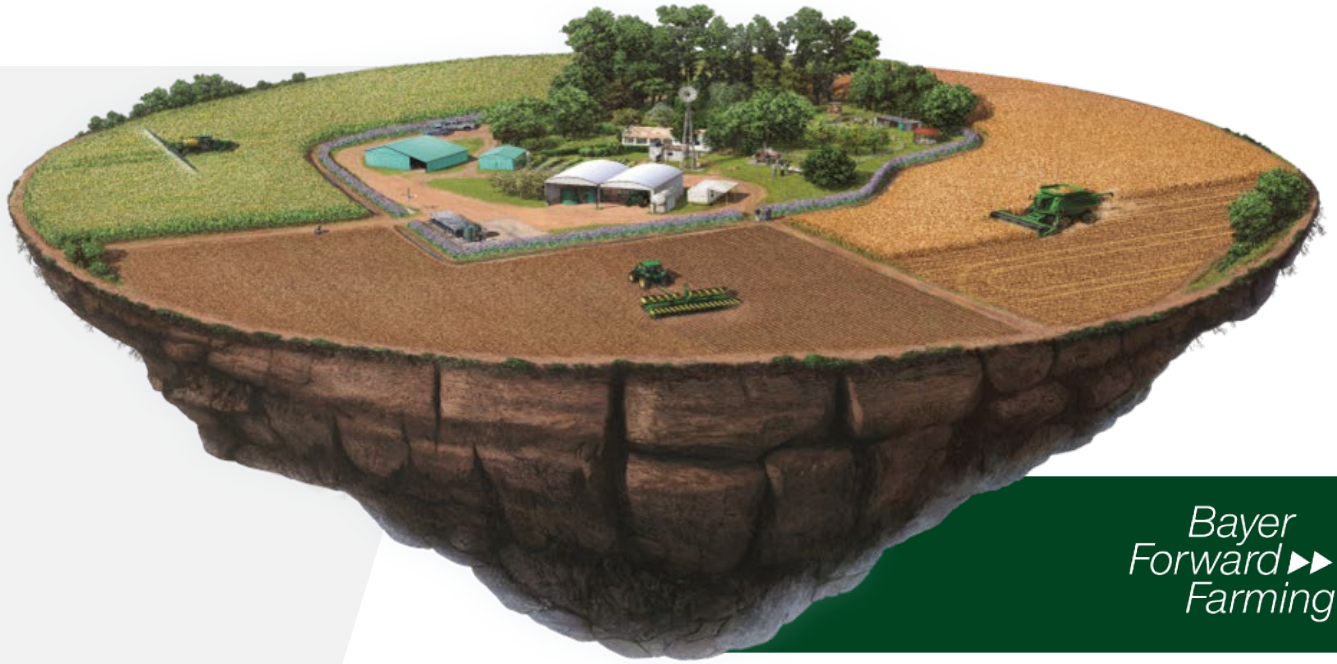
.....And more sustainable agriculture[1]

65%
Improvement in carbon balance (CO_2 eq kg/ha)

+1,512
carbon sequestration (Kg CO_2/HA)

+40%
system biomass production

-15%
less sprays



Graphical depiction of Bayer Forward Farm in Pergamino, Argentina

Farmer expanded regenerative farming practices to 1,000 HA rented land after seeing these results

[1]Since 2015, Agricola Testa has been certified in Good Agricultural Practices in sowing, spraying and harvesting. Results shown here depict the improvements achieved from adoption of no-till agriculture, crop rotation, inclusion of winter & cover crops, implementation of digital agriculture, selection of top performing germplasm, biotechnology traits, a balanced fertilization strategy and monitoring pests for defined control timing practices, from 2019 to 2022 at Bayer's Forward Farm, Agricola Testa, located in Pergamino, Argentina.

Science for a Better Life

Vision for Sustainable & Regenerative Agriculture

Crop Science Innovation Summit

June 20, 2023

Frank Terhorst // Head of Strategy & Sustainability, Bayer Crop Science

Jeremy Williams, PhD // Head of Digital Farming Solutions

Vision: North America Farm of the Future

Year-Round Cropping to Restore the Soil, Sequester Carbon and Improve Productivity & Profitability

regenerating growth

John

Location: Illinois
Size: 5,000 acres
Crops: Corn, Soybeans, Covercress

Current Needs

- **Improved decision-making in crop planning and management**
- **Effective management of rising input costs, volatility for fertilizers**
- **New revenue opportunities**
- **Maintaining healthy & productive soil for the long run**
- **Contributing to sustainable farming without sacrificing returns**

Bayer's Unique System of Solutions

- Preceon Smart Corn System
- Next Gen Insect Control & Herbicide Tolerant Traits
- Nitrogen-fixing seed treatment
- Delaro fungicide

- CoverCress (new crop opportunity)

- HT4/HT5 Soybeans
- Next Gen Broadacre Herbicide

- Microsoft Azure
- FieldView
  - Seed Advisor
  - Disease Management Advisor
  - Multi-Season Crop Planner
  - Outcome-based pricing
- ForGround by Bayer

Features, Benefits, and Outcomes

- ✓ Industry-leading seeds & traits
- ✓ Most flexible, efficacious weed control
- ✓ Simplified, data-based decision making for crop management and precision application
- ✓ For short stature corn, crop management opportunity at later stage and less risk of losses from lodging/green snap
- ✓ Additional farm incomes from cover crops, opportunity from verifiable carbon offset credit
- ✓ Sustainable outcomes:
  - Improved soil health
  - Carbon sequestration
  - Low-carbon oil for renewable diesel
  - Reduced environmental impact from crop protection

Certain products and potential features, benefits, and outcomes on this slide are aspirational and may be subject to regulatory approvals and final verification

Vision: LATAM Farm of the Future

Bayer's Leading Innovation Drives Increased Farm ROI and Improved Sustainable Outcomes in Large-Scale Operations

Ana

Location: Brazil
Size: 1,500 acres
Crops: Soybeans

Current Needs

// **Sustaining productivity with the latest, most advanced input technologies to address challenging tropical farm environment**

// **Remaining competitive in export market with better cost efficiencies**

// **Effective management of large-scale farming operations**

// **Lower impact on the environment; reduced deforestation**

Bayer's Unique System of Solutions

// Monsoy Soybean Varieties
// Next Gen Intacta Insect Control & Herbicide Tolerant Traits
// Broad insect control seed treatment
// Fox Family fungicide
// Plenexos insecticide
// Verango insecticide

// Orbia

// PRO Carbono
PRO Carbono Conecta
PRO Carbono Commodities

// FieldView

Features, Benefits, and Outcomes

- ✓ Industry-leading seeds & traits
- ✓ Most flexible, efficacious weed control
- ✓ Simplified, data-based decision making for crop management and precision application
- ✓ For Orbia, convenient access to input solutions, agricultural & financial service providers, and commodities market
- ✓ Sustainable outcomes:
  - // Improved soil health
  - // Carbon sequestration
  - // Low-carbon oil for renewable diesel
  - // Reduced environmental impact from crop protection

Certain products and potential features, benefits, and outcomes on this slide are aspirational and may be subject to regulatory approvals and final verification

Vision: EMEA Farm of the Future

Creating a Tomato Growing Environment that Enhances Nutrition, Conserves Water and Minimizes Crop Protection Use

Pablo

Location: Spain
Size: 50 acres
Crops: tomatoes

Current Needs

// **Adapting to shifting regulations on crop protection use & residue levels to serve both local & export markets**

// **Improving productivity while becoming more resource-efficient, especially in water use**

Bayer's Unique System of Solutions

// DeRuiter hybrid tomato seeds
// Serenade biological fungicide
// Ambition plant activator
// BioAct biological
// Vynyty Press
// Velum Prime

// Bayer NemaTool

// Bayer ResiYou

Features, Benefits, and Outcomes

- ✓ Varieties with better built-in disease resistance, higher yield potential
- ✓ Combination of chemical & biological crop protection solutions, with digital tools for verification, to be fully compliant with EU regulations
- ✓ Sustainable outcomes:
  - // Reduced environmental impact from crop protection

Certain products and potential features, benefits, and outcomes on this slide are aspirational and may be subject to regulatory approvals and final verification

Vision: APAC Farm of the Future

Providing Sustainability Benefits to Rice Production for Farmers and the Environment while Improving Farmer ROI

regenerating growth

Ramesh

Location: India
Size: 3 acres
Crops: rice

Current Needs

- **Managing rice production with scarce and increasingly expensive labor**
- **Gaining more know-how on new & better technologies and practices**
- **Increasing productivity while keeping costs manageable**
- **Adapting to climate change with expected water scarcity**

Bayer's Unique System of Solutions

- Arize non-GM herbicide tolerant hybrid rice seeds for direct seeding
- Reatis & Evergol seed treatment
- Herbicides:
  - Oxadiazone pre-emergent
    Council early to mid-post
    Next gen post-emergent
- Velum
- Next Gen insecticides
- Next Gen fungicide

- FarmRise

- Better Life Farming

Features, Benefits, and Outcomes

- ✓ From direct seeding, higher yield output using less labor, inputs, and time vs transplanting
- ✓ For FarmRise and Better Life Farming – access, know-how, & expertise on new technologies and practices, plus agricultural & financial service providers
- ✓ Additional incentives from verifiable carbon credits
- ✓ Sustainable outcomes:
  - Lower carbon & methane emissions
  - Reduced water use
  - Reduced environmental impact from crop protection

Certain products and potential features, benefits, and outcomes on this slide are aspirational and may be subject to regulatory approvals and final verification

Lead

with Regenerative Ag Solutions

Win

by being more grower centric

Our Strategic Priorities

01 **Maintain Leadership** positions in our core markets

02 **Shape Regenerative Ag** by investing to increase food production, farm incomes and resilience in a changing climate, while renewing nature

03 **Digitally Enable Our Sales** to offer full crop system solutions, creating an outstanding customer experience

04 **Invest** in innovation **to Win** in new markets

regenerating growth

Innovative, Sustainable Solutions to Address Global Challenges

Global Challenges:

Our Sustainability Goals:

30% **Reduction in Crop Protection impact** on the environment

30% **Reduction in Field Greenhouse gas** emitted per kg of crops produced

25% **Reduction in Water Use** per kg of crops produced in rice cropping systems

100m **Empowering 100m smallholder** farmers by 2030, to become more productive and profitable

Our Solutions:

- Novel small molecules and biological solutions with reduced environmental impact
- Short stature corn to unlock additional yield potential by optimizing crop inputs

Xivana PRECEON SMART CORN SYSTEM FLiPPER

- Digital tools for carbon sequestration measurement, precise input application
- Next-gen herbicide tolerant traits to enable no-till/ conservation tillage systems
- Covercress cover crops

FIELDVIEW CoverCress The cover crop that pays

- High-performing rice seed
- Digital precision farming
- Innovative crop protection solutions for weed control in lieu of field flooding

Arize

- Arize dry-seeded rice varieties and hybrids
- Better Life Farming
- FarmRise Mobile App
- Food Value Chain Partnerships and BayGAP

FARMRISE

Science for a Better Life

Our Innovation Investment

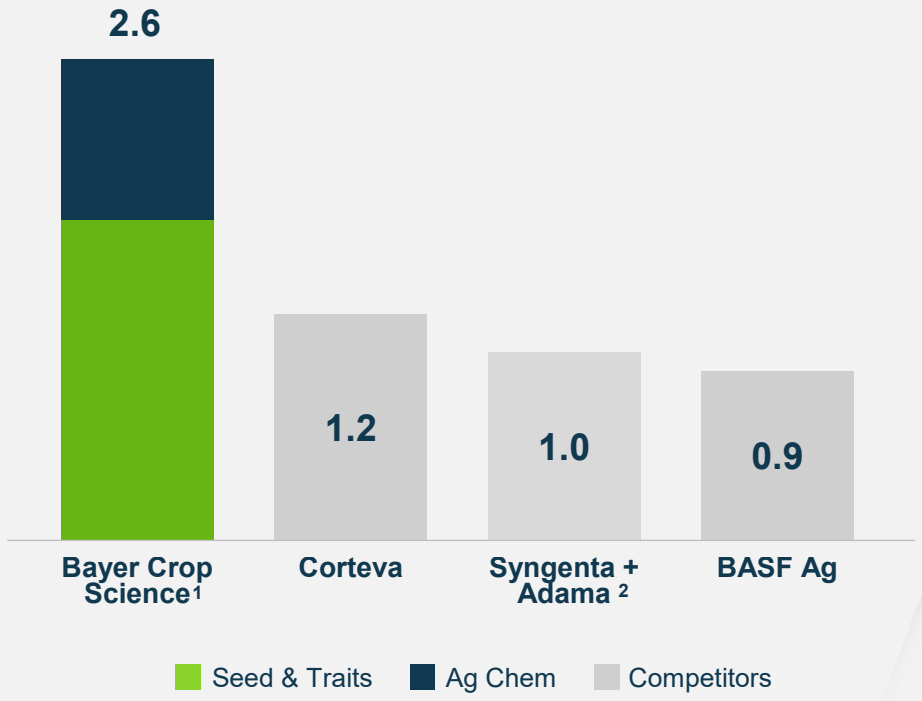
Crop Science Innovation Summit

June 20, 2023

Bob Reiter, PhD // Head of R&D, Bayer Crop Science

Building the Farm of the Future with €2.6bn Annual R&D Investment

2022 Ag R&D Investment (€bn)



Top Talent:

>7,700
R&D employees[3]

>100
Key Collaborations

Providing Next Generation Solutions:

>500
Hybrids & Varieties Deployed in `22

12
New Biotech Traits in Development

>250
New Crop Protection Registrations in `22

30-60
New Molecules in Field Trials Annually

2022 reported results, exchange rate: FY 2022: ~1.05 USD/EUR; [1] Bayer R&D expenses exclude special items; [2] Represents the legacy Syngenta results plus Adama for FY'22; [3] Per Bayer annual report

Leaps by Bayer Technology Investments Expand R&D Reach

18 Distinct Investments in Sustainable Productivity and Improved Nutrition

Leap 03/ Reduce environmental impact of agriculture

EARTH OPTICS
Sound
PIVOT BIO
NewLeaf symbiotics
andes
ChrysaLabs
AgBiome

Leap 07/ Provide next-generation healthy crops

pairwise
UNFOLD
ukko

Leap 08/ Develop sustainable protein supply

NuCicer
AMFORA
FORK&GOOD

Leap 09/ Prevent crop and food loss

APOLLO AGRICULTURE
grãodireto
GUARDIAN AGRICULTURE
RANTIZO WE DELIVER SOLUTIONS
Gerthbio

Companies shown by primary Leap but may have potential in further Leaps
For additional information on these and other Leaps by Bayer investments, please visit: https://leaps.bayer.com/

R&D Investment Powers Pipeline with >€30bn Peak Sales Potential

~50% of Peak Sales Incremental to Current Annual Sales

by Sales Reporting SBE

Other SBE[2]

- Hybrid Wheat, **~€700m**
- Digital Platforms, HortiView
- 100's of cotton varieties, 1000's of vegetable varieties/hybrids, canola hybrids and rice hybrids

Insecticides

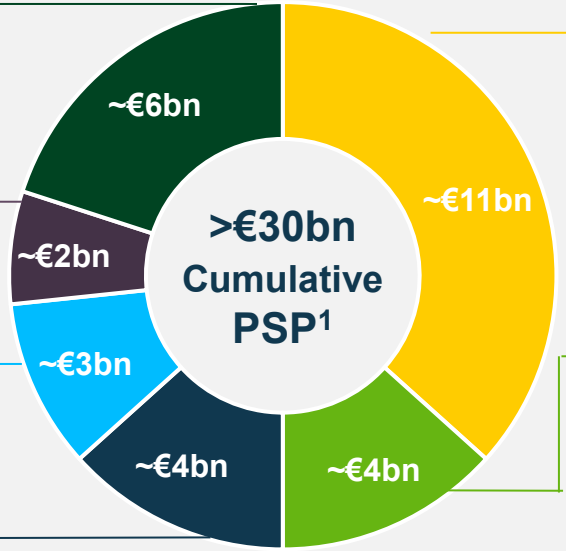
- Plenexos Insecticide, **~€500m**
- Various LCM projects (formulations and mixtures)
- Digital Farming Solutions Franchise Value

Fungicides

- Next generation Fungicide Small Molecules, **>€1.2bn**
- Various LCM projects (formulations and mixtures)
- Digital Farming Solutions Franchise Value

Herbicides

- New Herbicide Small Molecule, **>€750m**
- Various LCM projects (formulations and mixtures)
- Digital Farming Solutions Franchise Value



Corn S&T

- Preceon Smart Corn System, **>€1.5bn** globally
- Next Gen Corn Insect Traits (LEP4, 5, CRW4), **>€1bn**
- 5th Generation Herbicide Tolerance in Corn
- 1000's of new corn hybrids
- Digital Farming Solutions Franchise Value

Soy S&T

- 4th and 5th Gen Herbicide Tolerance Trait in Soybeans, **>€1bn**
- 3rd and 4th Gen Insect Protection Trait in Soybeans, **>€800m**
- 1000's of new soybean varieties
- Digital Farming Solutions Franchise Value

Upside Opportunities:

- Direct Seeded Rice
- Corn Biotech Traits in new markets in Asia & Africa
- New Herbicide Small Molecule, over-the-top label
- Carbon Farming
- **~€1.5bn** Biologicals Sales Ambition

Phasing of €30bn PSP[1]: **30%** by 2032, **80%** by 2037

[1] Represents non-risk adjusted estimated peak sales for the combined breeding, biotech, crop protection and environmental science pipelines, as well as new business models and new value areas. Note that products are excluded from the pipeline PSP typically the year following launch. Projects listed are only a subset of the pipeline.
SBE = Strategic Business Entity; LCM = Life Cycle Management; PSP = Peak sales potential
[2] "Other SBE" category includes seeds and traits, such as cotton, canola, wheat, OSR, rice, vegetable seeds and sugarbeets, plus digital platforms

Successfully Advancing Regenerative Ag Solutions for Farmers

15 Projects Advance in 2022; Hundreds of Seed Deployments and New Crop Protection Registrations

BREEDING

>500

New hybrids and varieties deployed across corn, cotton soybeans and vegetables

CHEMISTRY

>250 New crop protection registrations

10 New formulations launched

9 New actives advanced, including 2 launches

BIOTECH

2

New trait projects advanced in soybeans

DATA SCIENCE

4

New Digital Tools Launched

Convergence of Leading R&D Platforms to Unlock Next Layer of Value Creation in Agriculture

SEEDS & TRAITS

BREEDING

Leading germplasm libraries paired with advanced breeding and data science technology application

>3,500 unique **field-testing locations**

>500 deployments in 2022:

- **>250** in corn
- **~150** in soybeans
- **>90** in vegetables
- **>10** in cotton

BIOTECH

Leading protein optimization technology with extensive protein libraries

First-ever biotech trait for piercing and sucking insect protection

>65 traits products in 27 years – reaching ~300m acres annually

~3bn datapoints generated by Precision Genomics team to deliver biotech traits and accelerate genetic gain

12 next-gen. traits in development

CROP PROTECTION

CHEMISTRY

Strong discovery platform for molecules with new modes-of-action and differentiated profiles

100% **Novel Mode of Action** in early discovery

30-60 molecules selected for field trials per year

Expect **~90-100** new formulations to launch in the next decade

Launched **15** new actives in past 15 years

BIOLOGICALS

Open Innovation Model to deliver innovative and sustainable solutionsto growers

>40 assets under evaluation for new collaborations or in-licensing

>1,300 trials in 46 countries in 2022

2 Multi-year strategic partnerships with Ginkgo Bioworks and Kimitec

>60m acres in row crops, plus additional high value horticulture and vegetables acres

DIGITAL FARMING

DATA SCIENCE

#1 **database of grower and field trial** seed performance data in the industry

>115bn data points of product performance under real-world farmer management practices

>220m subscribed acres across 23 countries

Science for a Better Life

regenerating growth

Designer Seeds: Next-Generation Breeding Technology

Crop Science Innovation Summit

June 20, 2023

Mike Graham // Head of Plant Breeding, Bayer Crop Science

Bayer Plant Breeding Unmatched Scale Maximizes Farm Productivity

Bayer Plant Breeding products reach ~**160m** acres globally

Six main row crops:

Corn | Soybean | Cotton | OSR/ Canola | Wheat | Rice

Elite germplasm with integrated biotech and native traits deliver **€10.5bn** annual seed & trait sales

Delivering World-Class Genetics and Product Offerings

Increasing Yield Potential

- **Developing and deploying >500** unique products every year across large and small holder **customers**
- **Enabling increased yield potential** across crops

Managing Biotech and Native Breeding Traits

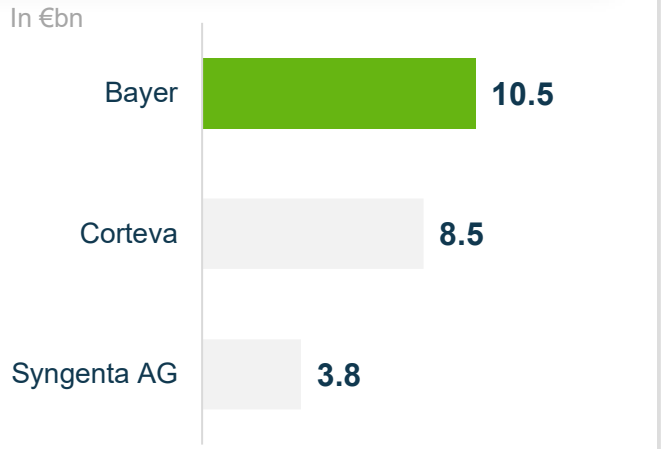
- Managing **~65 active biotech and native traits and 138 trait packages** across crops within the breeding pipeline
- **Native traits** like Short Corn (SD) and disease resistance provide additional value

Building Next Generation Innovations

- Each product advanced through the breeding pipeline goes through **~140 data science models** until commercialized
- New **protected culture** facilities in Marana, AZ and Petrolina, Brazil, expected to **accelerate breeding** generations by **up to 6X**

Leading Positions in Global Seed & Traits Fueled by Innovation

2022 Global S&T Sales[1]



#1 | Market Position[2]

Corn Seed & Traits

Soybean Seed & Traits

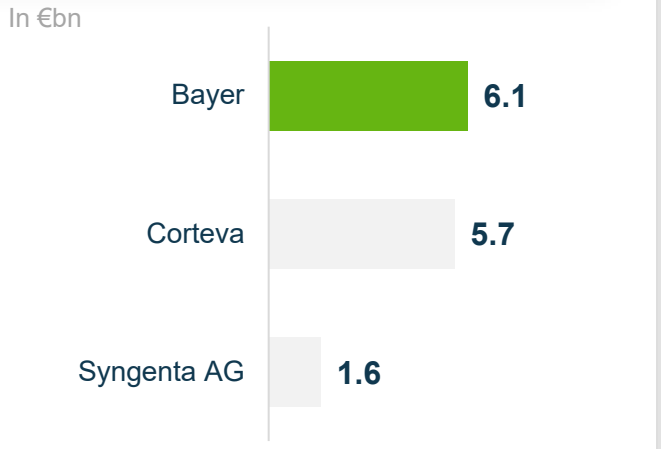
U.S. Cotton Seed & Traits

Wheat Germplasm- U.S.

#2 | Market Position[2]

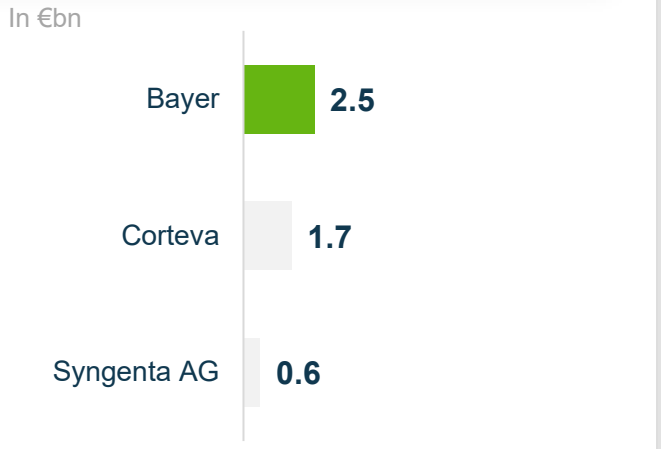
Vegetable Seed

2022 Corn S&T Sales[1]



Seed Share[3]		Seed Share[3]	
U.S.	>55%	Europe	~20%
Brazil	~30%	South Africa	~70%
Argentina	~50%		

2022 Soy S&T Sales[1]



Seed Share[3]	
U.S.	>35%
Brazil	~20%

[1] Source: As reported in FY 2022, exchange rate FY2022: ~1.05 USD/EUR; [2] Market Position determined annually, as of Q1-2022; [3] Internal estimate including sum of branded plus licensed seed (germplasm) share measured as of 2022 for U.S. and Europe and as of 21/22 season for Brazil, Argentina and South Africa

Data Connected Plant Breeding Advantage

Breeding Product Development Process (8-10 years)

Data & analytics driving decisions & AI connected pipeline - enabling a dynamic breeding pipeline

Fieldview Field Health Imagery Data Collection

Seed Chipping Technology for accelerated discovery

Marana, AZ Protected Culture Design Center

Cassette Planter delivers large scale field testing

Drone Sensors; globally connected data ecosystem

Seed Bulk-Up for Pre-Launch testing

Customer Insights

Data & Insights

Customer driven quantitative economic indices

Discovery

Population Selection

Population simulation and human supervised, model driven selection for desired characteristics

Phase One

Early Design

Advanced genomic selection including future environmental challenges

Phase Two

Intermediate Development

Large-Scale Field Testing, Trait Integration and prescriptive data collection to inform models and feed pipeline

Phase Three

Advanced Product Understanding

Traited Testing, Early Tailored Solutions data generation, and preparation of digital data package for Climate models

Phase Four

Pre-Launch

Broad product testing by R&D and Market Development, Seed Bulk-Up, System Testing and Pre-Marketing

Competitive Advantages

- Extensive environmental and on-farm data driving targeted discovery
- Unique data-driven bio-economic models that allow precise fitting of product concepts

- Industry-leading global germplasm libraries across crops and markets- 100X larger
- Decades of field and genomic data combined with industries leading data science platform

- Ability to rapidly sample and genetically evaluate millions of seeds- 15X faster
- Advanced Product Design facilities that enable multiple cycles of planting per year

- Industry leading Trait Integration programs stack traits into elite germplasm
- Largest global field-testing footprint & digital field-testing twin capabilities diversifies geographic data insights

- Fully automated seed distribution centers prescriptively sample diverse growing environment
- Traited-Testing evaluates products as they would be experienced by the growers

- Most advanced and distributed network of field testing in the industry
- Evaluation of agronomic systems for product deployment & customer recommendations

Deploying >250 Corn Hybrids in 2022 to Expand Leading Position

Foundational to Expected Growth in Our >€6bn Global Annual Corn Seed & Trait Sales

Extensive Corn Germplasm Delivers

- **>100m** acres of Bayer Corn Germplasm grown in 2022
- Deployed **>250** new hybrids globally in 2022; offer **>1,500** hybrids globally
- **>7 bu/acre U.S. yield advantage** with leading hybrids in like-for-like trait package hybrid comparisons[1]
- **Best NCGA Yield Performer[2]** in 2022, **winning >70% of the ~National Spots**, with 20 of the 27 spots from Bayer germplasm

Key Seed Brands

DEKALB

Channel

AGROESTE

sementes agroceres

[1] Annual yield advantage calculated each year by comparing 3 leading DEKALB products within each state having a minimum of 100 comparisons to national competitor products containing similar crop protection traits as of 2022. All comparisons are head-to-head using +- 2RMs and weighted average calculated using 15% moisture; [2] NCGA = National Corn Growers Association – National Corn Yield Contest.

Soybeans, Cotton and Vegetable Seed Businesses Benefit from Annual Germplasm Refresh to Drive Sales Growth

Soybeans

- Deployed **~150** new varieties in 2022; offer **>850** varieties in North America
- Over last 4 years, RR2Xtend & Xtend Flex Soybeans saw a **2.9 bu/acre advantage**[1] over Enlist™ E3 Soybeans

Cotton

- Deployed **>10 varieties** in 2022; offer **>30 Deltapine varieties in the U.S.**
- U.S. lint/acre yield advantage with leading varieties; 2022 was **~70 lbs/ac advantage for Deltapine**[2] vs. top-planted competitor varieties

Vegetables

- Deployed **>90** varieties in 2022; sell **~2,000 vegetable hybrids** and varieties in **22 crops** across **110 countries**
- Innovative varieties of fruits and vegetables can **help develop more sustainable and regenerative food systems** and increase access to essential nutrients

[1] Soy Trials: (184 locations with 20 in 2019 (Roundup Ready® 2 Xtend), 57 in 2020 (Roundup Ready® 2 Xtend), 67 in 2021 (XtendFlex® Soybeans) and 40 in 2022 (XtendFlex® Soybeans) reporting data located with 22-IA, 24-IL, 23-IN, 11-KS, 1-KY, 7-MI, 30-MN, 10-MO, 1-MS, 5-ND, 17-NE, 15-OH, 1-OK, 11-SD, 4-PA and 2-WI,). Significant at P ≤ 0.10 LSD at 0.6 Bu/A as of 12/13/2022. Roundup Ready 2 Xtend or XtendFlex® soybeans planted with a farmer-selected (or in case of Bayer Trials, Bayer-selected) weed control program that may include dicamba, glyphosate, glufosinate and various residual herbicides. Enlist E3® soybeans planted with a farmer-selected (or in case of Bayer Trials, Bayer-selected) weed control program that may include glyphosate, Enlist One® herbicide, Liberty® 280 SL herbicide and various residual herbicides; [2] Cotton 3-year average: 2600 trials comparing top DP varieties within a region vs. the top 3 planted competitors based on market survey data (Kynetec).

Breeding Pipeline to Deliver €11bn in Peak Sales Potential

Thousands of New Varieties and Hybrids in Development to Fuel Growth in €10.5bn S&T Sales

Other: ~€1bn

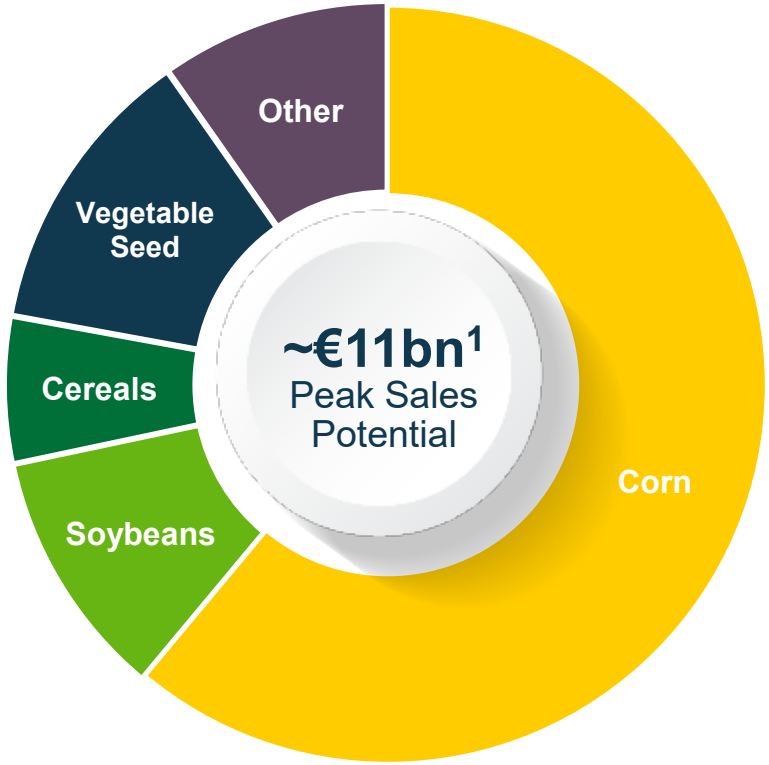
- Rice hybrids for APAC
- Hundreds of Cotton varieties to support annual refresh in U.S.; ~10/year
- Canola germplasm for EMEA and Canada

Vegetable Seed: ~€1bn

- Thousands of new varieties in over 22 different crops; ~ 90/year

Cereals: ~€1bn

- Hybrid Wheat
- Wheat Germplasm and Disease Pkg.



Corn: ~€7bn

- Thousands of new corn hybrids in development for annual refresh across each global market; ~ 250/ year
- Corn Disease Shield- NA

Soybeans: ~€1bn

- Thousands of new soy varieties in development for annual refresh across Americas~ 150/ year
- Soybean Native Resistance

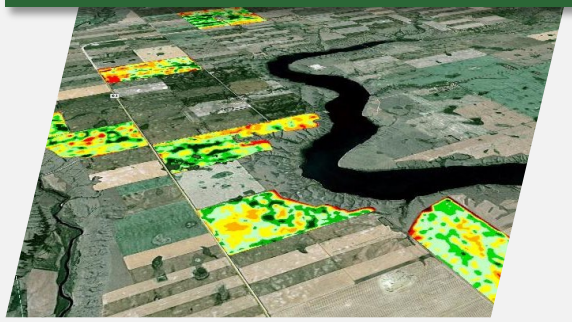
Upside potential from Direct Seeded Rice System

[1] Represents non-risk adjusted estimated peak sales for the breeding pipeline. ~50% incremental sales value.
Note: Projects listed per crop are subset of the pipeline; selected top contributors to peak sale potential

Accelerating Genetic Gain with Precision Breeding

ACCELERATING OUR ABILITY to bring innovative solutions to our customer around the world

Data & analytics driving decisions & AI connected pipeline - enabling a dynamic breeding pipeline



Fieldview Field Health Imagery Data Collection

Customer Insights

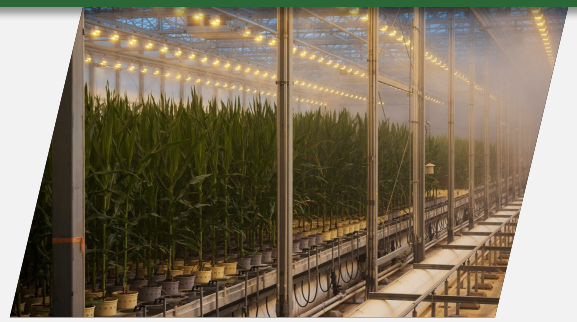
Customer Driven quantitative economic indices

Seed Chipping Technology for Accelerated Discovery

Advanced Genomic Capabilities

Genomic Insights & AI driving new breeding starts

Doubling Genetic Gain by 2030



Marana, AZ Protected Culture Design Center

Accelerated Breeding Methods

Genomic Insights & AI driving new breeding starts

Accelerating Breeding Cycle from 5-6 years to ~4 months

Cassette Planter delivers large scale field testing

Digital Field-Testing Twin

Mix of simulated and actual field testing

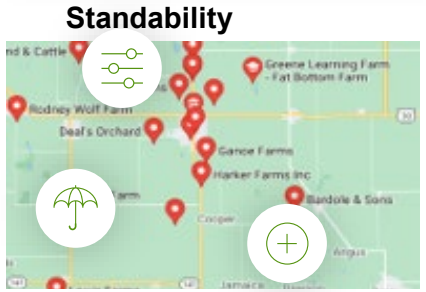
Data Driven Solutions and Simulation Key to Acceleration

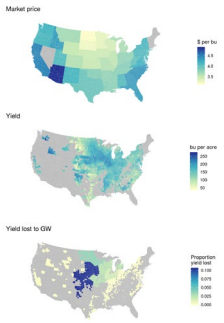
Starts with a Customer Driven Pipeline

- Every plant designed is aligned with **customer-preference quantification**
- Novel translation of **customer insights into a number** allowing for accurate data driven decisions through product development
- Selection indices combine **economic and agronomic** data with customer survey preferences and insights to determine desired characteristics for next-gen. hybrids

Greene County, Iowa Customer Survey Preferences

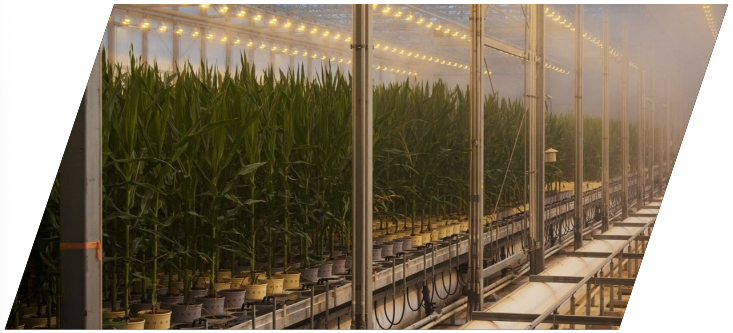
Economic, Yield and Disease Pressure Data





Accelerated Breeding Methods

- Continuous Breeding Cycle **accelerating from 5-6 years to ~4 months**
- New **protected culture** facilities in Marana, AZ and Petrolina, Brazil

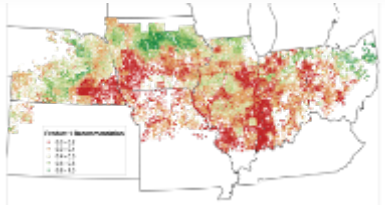


Leads to Digital Field-Testing Twin

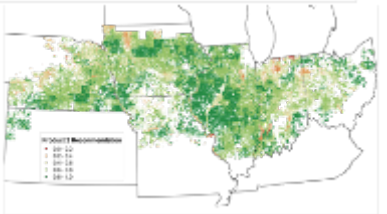
- Simulations use our **extensive data assets** to predict performance across millions of scenarios and environments
- Simulations assist with **crop placement** and **product advancement**

Example: PRECEON Hybrid Ear Height Simulation

Short-Stature Hybrid1- Ear height too low in simulation



Short-Stature Hybrid 2 - shows favorable ear height in simulation



Simulated ear height for >130k farmer fields across 10 environmental years

Hybrid Wheat: New Production System for the World's Largest Crop

Potential to Shape Transformation of Wheat Production by End of the Decade

Resilient Hybrid Wheat System

- Hybrid wheat expected to provide **higher yield** and **yield stability,** with potential fit on a significant portion of the **~555m acres of wheat** grown globally and **~€700m PSP**
- Envision a **more sustainable and resilient system** with better nitrogen use efficiency, disease, drought and heat tolerance
- Advancements in **genomic tools** and the **cytoplasmic male sterility system** are enabling the development of hybrid wheat at competitive cost
- 'Blue ocean' market potential to drive value of market for Wheat seed and technologies, which has already happened in crops like corn

Hybrid Wheat Row Configuration Testing
Nampa, Idaho | June 2022

Hybrid Wheat Nursery
Filer, Idaho | June 2022

Market Leaders in Hybrid Wheat

Different climatic zones in key regions Europe and North America require **distinct approaches**:

Europe

- In 2021, we launched a **strategic R&D partnership with RAGT**, the European market leader in varietal wheat, leveraging strong complementarity of partners:
  - **RAGT:** Best-in-class germplasm and rich portfolio of native traits
  - **Bayer:** Wide array of R&D assets, seed production know-how; leader in CP

US

- Hybrid wheat program based on our leading U.S. WestBred germplasm position

Our Vision: A digitally enabled sustainable hybrid wheat system offering

Direct Seeded Rice: More Sustainable & Profitable Solution

Rice Production Systems Today Water & Labor Intensive

- 3RD LARGEST GLOBAL CROP **WITH 165M HA**[1]
- USES UP TO **43%** WORLD'S IRRIGATION[2]
- **~80%** TRANSPLANTED PRODUCTION[3]

[1] Our World in Data: Land area per crop type, World, 1961 to 2021 (ourworldindata.org)
[2] International Rice Research Institute: Water management - IRRI Rice Knowledge Bank
[3] Scientific Reports: A global analysis of alternative tillage and crop establishment practices for economically and environmentally efficient rice production | Scientific Reports (nature.com)

FARMER ECONOMICS SHOW **16% LOWER COSTS** WITH DSR[4]

- Reduces Water Usage **by up to 40%**[5]
- **Up to 45% reduction** in CO2 emissions[6]
- Manual labor reduced by **up to 50%** or 150 labor hours per 1 Ha DSR[7]
- Methane **reduction by up to 85%**[8]

[4] Internal estimate via DirectAcre program in India | [5] TRP Water Use: Kyenetec Panel Survey Data 2020, IRRI (2009), Bouman et al. (2002) | Water Savings from TRP to DSR: Bayer Sustainable Rice Initiative Pilot, Singh et al: (2015) | [6] Carbon emission - IPCC (2006/2019) | [7] Labor: Sidana et al. (2020) | [8] CH4 Reduction: Science Direct Direct-seeded rice reduces methane emissions - ScienceDirect

Today: Resource Intensive **Transplanted Rice (TPR) practices**


Puddling & Leveling

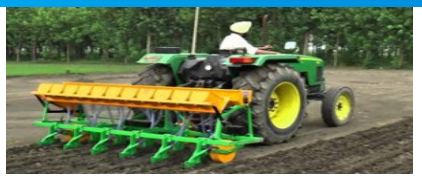

Nursery Beds


Manual transplanting


Manual reaping

Future: Mechanized and Technology driven **Direct Seeded Rice (DSR) cultivation**


Laser land levelling


Direct seeding with machinery


Precision Application


Mechanical harvesting

Our Target: Improve water use per kg of crop by 25% in 2030 by transforming rice cropping system

Bayer Direct Acres: DSR Crop System Featuring Hybrid Rice

Elite Rice Germplasm, Effective Weed Mgmt. and Digital Tools to Drive Sustainable, Operational Efficiency

Bayer direct acres

Bayer Portfolio of Solutions for Rice Production

Seeds & Seed Growth	Herbicides	Fungicides	Insecticide	Crop Performance Enhancer
Arize, Gaucho **~40% Seed Share in DSR Market in India (7% of Acres)**	COUNCIL activ Post-Emergent single shot application Ricestar, adora Need Based LPO	Antracol, NATIVO	vayego	Ambition

DIGITAL TOOLS & PLATFORMS — FARMRISE

CARBON & SUSTAINABILITY

*Opportunity for **75%** **DSR HA in India by 2040**[1]*

DIRECT SEEDED **RICE SYSTEM**

- *Elite Designed Hybrid Rice*
- *Integrated & Effective Weed Mgmt System*
- *Digital Insights & Agronomic Support*

[1] internal estimate based on socio economic, climate effects and policy environment

Key Takeaways – Designer Seeds

01 Foundational germplasm platform delivers **~500 new products annually on >160m acres**

02 Delivers **~€11bn in peak sales potential** with expansion and upside potential

03 Widening our leadership position through **AI connected pipeline** and **key investments** to improve genetic gain and acceleration to market

04 Enabling opportunities in underserved market, like **hybrid wheat and direct seeded rice**

05 **Driving regenerative ag** with higher farm productivity, as well as resource and water utilization

Science for a Better Life

re generating growth

Transformative Trait Technologies

Crop Science Innovation Summit

June 20, 2023

Kelly Gillespie // Head of Digital Ecosystem Services, Bayer Crop Science

Bayer Industry Leader in the Development of Plant Biotech Traits

>65 Trait Products in 27 Years, Broadly Licensed and Widely Adopted

Bayer Plant Biotech traits reach ~300m acres annually, focused in the Americas

Offered in four main row crops

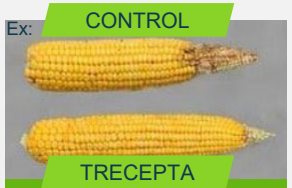
Corn | Soybean | Cotton | Canola

Elite germplasm with integrated biotech and native traits deliver **€10.5bn** annual seed & trait sales; €2.6bn from licensing

Delivering Exceptional Insect & Weed Control Solutions

Herbicide Tolerance

- Offering **glyphosate, glufosinate tolerance** in soybeans, cotton, corn and canola**; +dicamba tolerance** in soybeans and cotton
- **Key enabler of conservation and no-tillage systems** to improve carbon sequestration in Ag



Insect Control

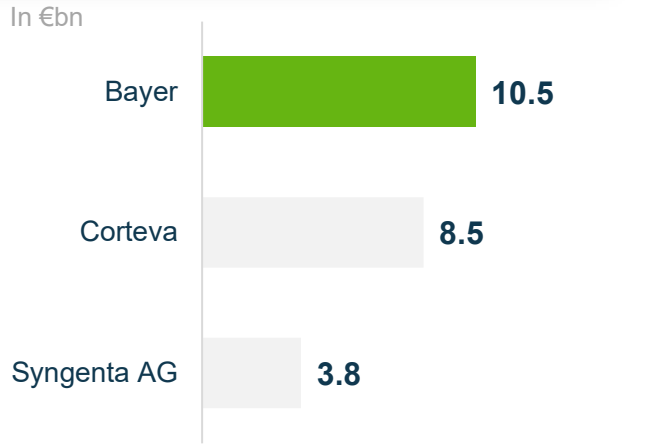
- Providing **resistance to insects** that feed on the roots, stalks, leaves and grain
- Has **reduced insecticide use** and allows for **more targeted control** through the expression of **Bt proteins; plus RNAi technology in CRW3**

Next Generation Innovations

- **ThryvOn** cotton first-ever trait to target a piercing, **sucking pest using engineered protein technology**
- Reducing height of corn plant using RNA biotechnology in **Phase 3 short-stature corn;** an industry-first with potential to transform corn production

Leading Positions in Global Seed & Traits Fueled by Innovation

2022 Total S&T Sales[1]



#1 | Market Position[2]

Corn Seed & Traits

Soybean Seed & Traits

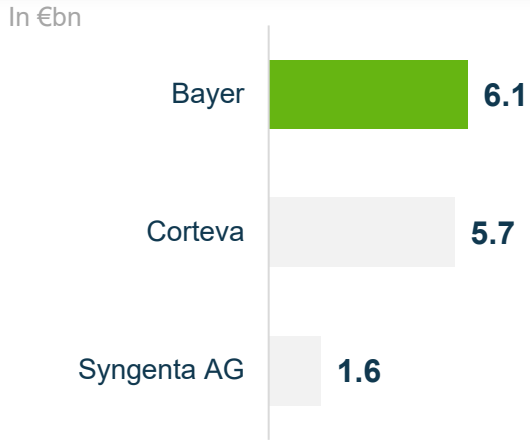
U.S. Cotton Seed & Traits

Wheat Germplasm - U.S.

#2 | Market Position[2]

Vegetable Seed

2022 Corn S&T Sales[1]



Trait Share[3]

U.S. ***~85%***

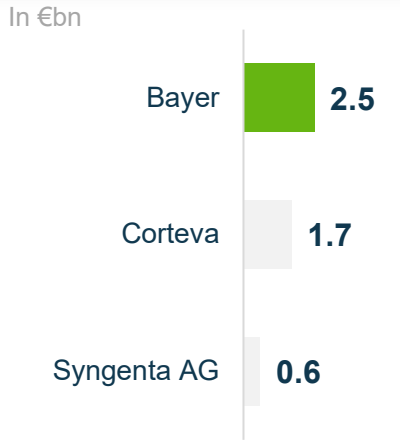
Brazil ***~30%***

Trait Share[3]

Argentina ~50%

South Africa ~60%

2022 Soy S&T Sales[1]



Trait Share[3]

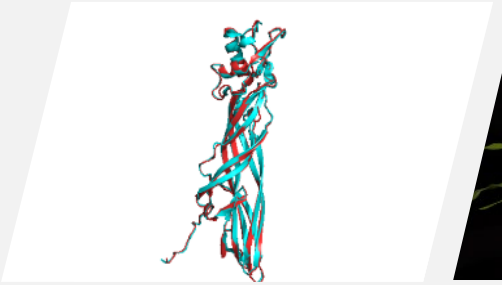
U.S. ***~50%***

Brazil ***> 80%***

[1] Source: As reported in FY 2022, exchange rate FY2022: ~1.05 USD/EUR; [2] Market Position determined annually, as of Q1-2022; [3] Represents the percentage of acres planted in the country that contain at least one Bayer biotech trait

Decades of Investment and Expertise Unlocks Biotech Advantage

Biotech Trait Development Process (12-15 years)



Gene Library contains Millions of Unique Proteins

Gene to Phenotype Optimization

Commercial Candidate Selection

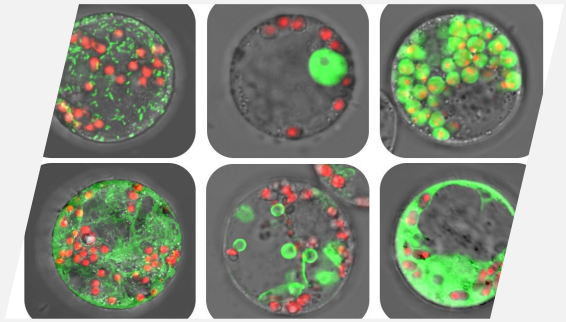
Field Trials for Trait Approval

Seed Bulk-Up for Pre-Launch testing

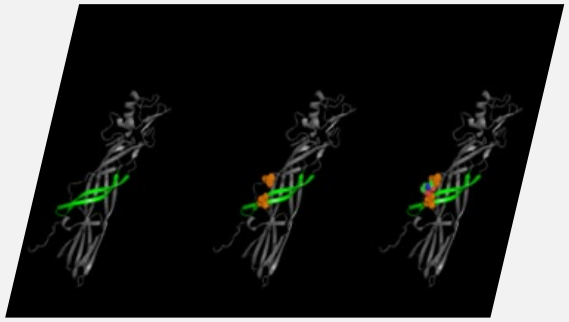
Phase 0	Phase 1	Phase 2	Phase 3	Phase 4
Trait Discovery	**Proof of Concept**	**Early Development**	**Advanced Development**	**Pre-Launch**
High-Throughput Screening Identifies Desired Characteristics	State-of-the-Art Gene and Protein optimization capabilities Drive Product Concept Demonstrations In-Crop	Large-Scale Transformation, Commercial Candidate Selection, Pre-Regulatory Data Generation	Trait Integration, Regulatory Data Generation	Regulatory Submissions & Approvals, Seed Bulk-Up, System Testing and Pre-Marketing
Competitive Advantages				
Industry-leading **microbial gene libraries** enable new trait areas and novel MOAs Application of **cutting-edge RNA** technologies to develop targeted innovative products Industry leading **genome editing toolkits** drives novel trait discovery	Best-in-class **synthetic biology gene** expression toolkits drive precision in gene to phenotype optimization **High throughput, AI-driven protein** design drives rapid iteration to optimize new MOAs	Development of **multi-gene stacks** that enable a multitude of solutions for growers **CRISPR technology for targeted insertion** to enable product development flexibility **Largest global field-testing** footprint diversifies geographic data insights	**New traits are introgressed** into the most elite germplasm, and stacked with the industry's leading traits	**Experience successfully launching traits globally** Identification of **optimal agronomic systems** (trait, germplasm, chemistry) for product deployment & customer recommendations

Widening Leadership in Plant Biotech with Key Technology Pillars

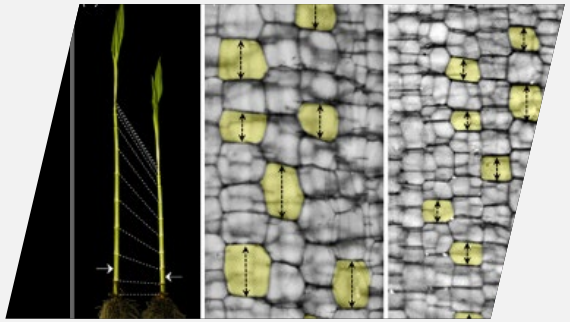
Four Key Technology Pillars in Plant Biotechnology



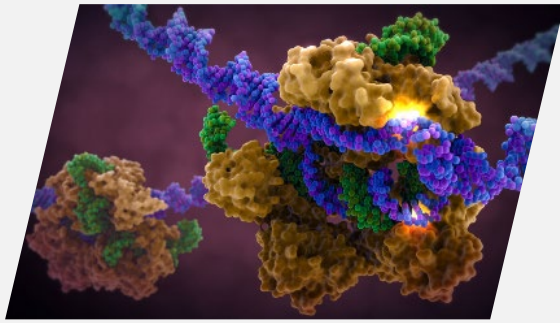
Ex: Intracellular targeted gene expression



Ex: Insect control protein from Cotton ThryvOn



Ex: RNA-based trait used for development of short stature corn



Ex: CRISPR Genome-Editing technology

Gene

- **Leading Library: >300M** unique protein encoding genes in metagenomic database to facilitate rapid trait discovery
- **Expression: Synthetic Biology** gene expression toolkits drive precision in gene to phenotype optimization
- **Gene Stacking: Delivering largest multi-gene stack** to enable broader options for pest management

Protein

- **Protein** structure, design and engineering **expertise**
- **>300 protein structures** solved and **AI-Driven** structural design to deliver unique modes of action for pest control
- Ex: Advances in protein technology enabled **first piercing and sucking pest trait above**

RNA

- **RNA pathways** successfully used to control insects; “Billion-Dollar Bug” in our CRW3 trait
- First to use **micro-RNA-based suppression** technology for agronomic trait improvement
- Industry leading **Sensor Technology** for next generation targeted trait efficacy

Genome Mapping & Editing

- **>2.7bn** data points generated **annually** to deliver biotech traits and provide genomic insights
- Development and access to **multiple genome-editing capabilities**
- **CRISPR** gene-editing technology to target insertion for commercial product development

Delivering sustainability, yield improvements, difficult to manage insect solutions, and flexibility in weed management

Developing Novel Cash Cover Crop with Potential for Low-Carbon Renewable Feedstock in Growing Biodiesel Market

Bayer Acquires Majority Share (65%) in CoverCress Inc. (CCI)

CoverCress

Example: CoverCress seed fits in Bayer rotational corn/soy crop system

Unique Rotational Agronomic System to Deliver Renewable Fuels to the Market
3 Crops in 2 Seasons to provide growers sustainable benefits and new cash cover crop

CoverCress

- **Low carbon intensity rotational cash crop** that can deliver many ecosystem benefits of a cover crop and attractive economics of an oilseed crop
- **Carbon sequestration** potential
- **Developed through gene editing and advanced breeding tools**; improved the oil profile, protein content and yield of field pennycress
- **Niche market in U.S. Midwest initially**; within draw area in proximity to crushing and refining facilities
- Expect to launch crush-ready **CoverCress product mid-2020's**

The Need

- Aviation and industrial transportation sector emissions reductions to come from sustainable low carbon intensity biofuels, due to lack of electrification options
- Expect demand for 6bn gallons of Renewable Diesel/Sustainable Aviation Fuel by 2030

The Business Model

- Closed Loop Production Contract (i.e. Farmers will be paid a premium to produce CoverCress; Bunge delivers oil to Chevron to convert to Renewable Diesel/Sustainable Aviation Fuel; CoverCress receives value from crusher (i.e. Bunge))
- CoverCress ownership: Bayer 65%; Chevron and Bunge 35%

Biotech Pipeline to Deliver €7bn in Peak Sales Potential

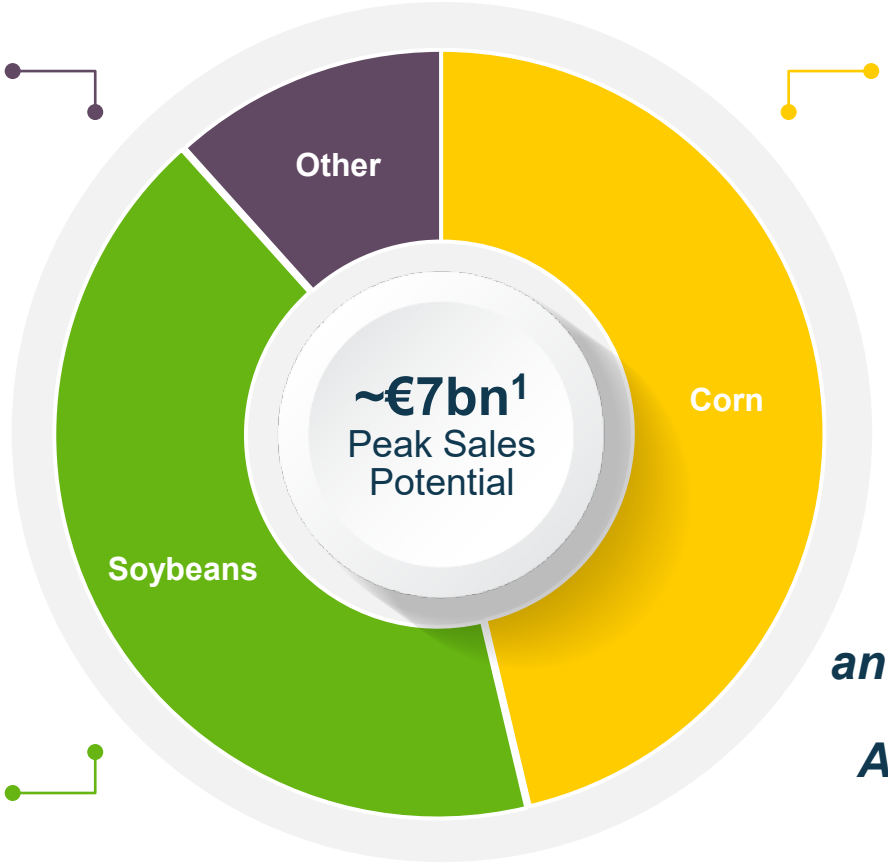
12 Biotech Traits in Development; Offering up to Six MOA's and Potential for 10 Traits in a Stack

Other Traits: ~€1bn

- Cotton Bollgard 4
- Cotton HT3/4
- Cotton Lygus
- Canola Dicamba Tolerance
- Sugarbeet HT2

Soybean Traits: ~€3bn

- 4th & 5th Gen Herbicide Tolerance >€1bn
- 3rd & 4th Gen Insect Traits >€800m



Corn Traits: ~€3bn

- Short Stature Corn- Biotech Trait
- Next Gen Corn Insect Traits (LEP4, 5 CRW4) >€1bn
- 5th Gen Herbicide Tolerance in Corn

Expansion of existing and future trait portfolio into new markets in Asia and Africa creates upside value

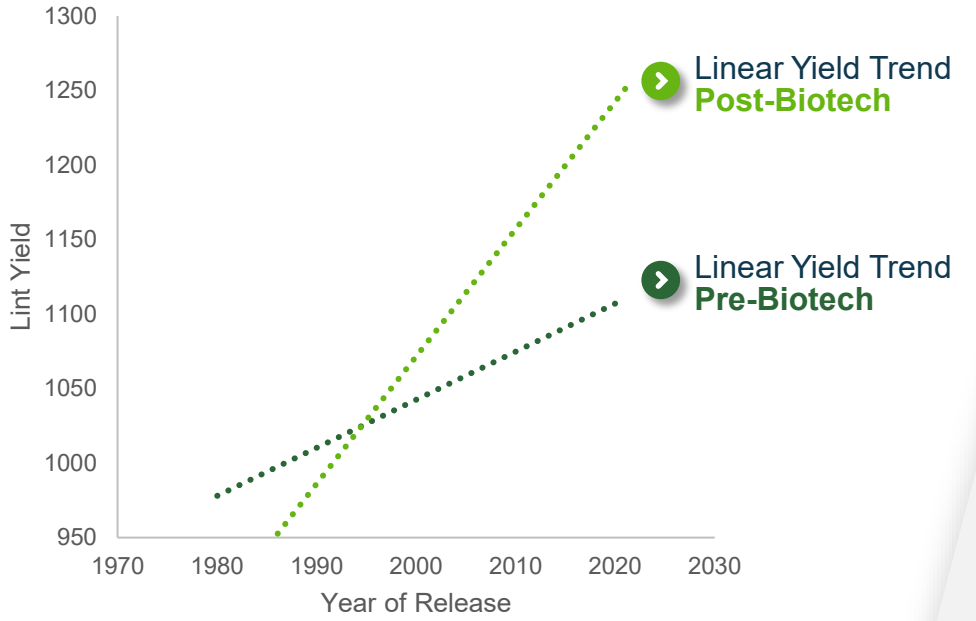
[1] Represents non-risk adjusted estimated peak sales for the biotech pipeline. ~50% incremental sales value.
Note: Projects listed per crop are subset of the pipeline; selected top contributors to peak sale potential

Leading Sustainable Cotton Production Advancements

Genetic Improvements and Trait Technologies Key to Measurable Improvements in Sustainability of Cotton Production

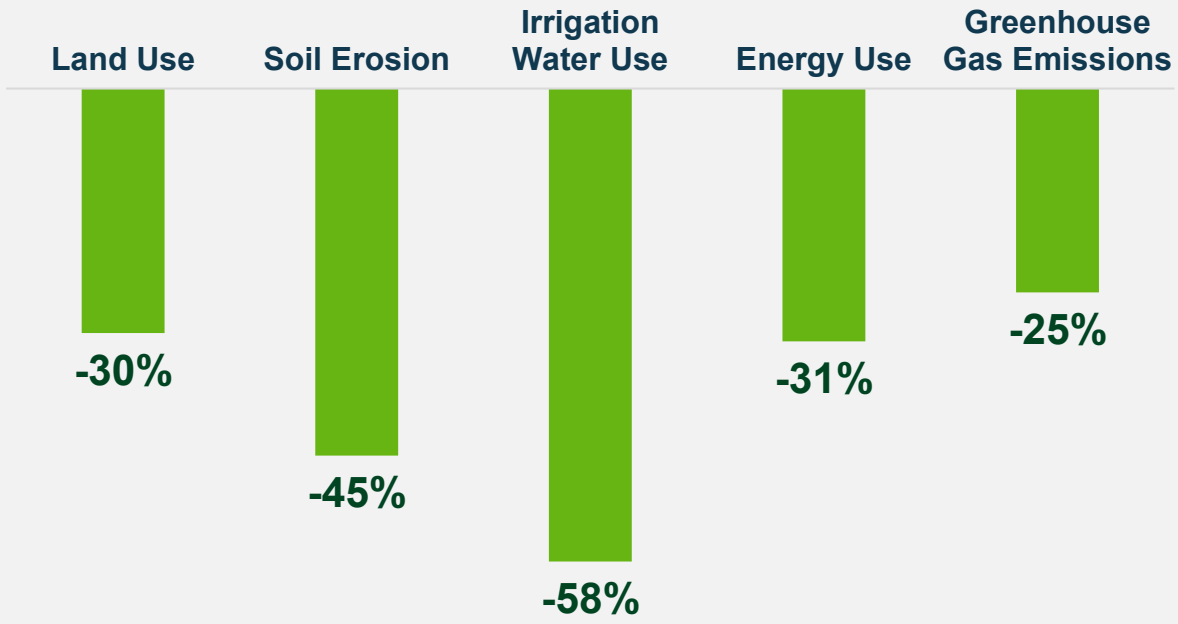
Genetic Gain Improved from 3.2 to 8.6 lbs/year

Bayer Deltapine Long Term Yield Trend
(without Dry-Tough)



Significant Sustainability Improvements in Cotton

Sustainability Improvements in U.S. Cotton Production[1]
% Reduction 1980 vs. 2020



[1] Source: Field to Market 2021 National Indicators Report

Next-Generation Traits Further Enhance Cotton Productivity

Driving Sustainability and Profitability in our >€600m Cotton S&T Business[1]

Global Leader in Cotton Seeds and Traits

U.S. Germplasm Share of Market: **~65%**

Trait Share of Market: U.S. **~70%** | Brazil **~50%** | Australia **100%**

Next Generation Cotton Trait Technologies

Building on Bollgard 3 XtendFlex Technology with 2023 commercial **launch of ThryvOn Technology**

Phase 3:

- **4th gen herbicide tolerance**, adding HPPD and PPO tolerance to XtendFlex
- **4th gen Bollgard 4 cotton** also in **Phase 3**, offering multiple modes of action to control lepidopteran insects

[1] 2022 cotton seed & trait sales for Bayer Crop Science
ThryvOn™ Technology has received full approval for planting in the United States but, as of the date this material was published, is pending approval in certain export markets. Specific plans for commercialization depend upon regulatory approvals and other factors.

Next-Gen Intacta Traits to Expand Leading Soybean Franchise

Intacta 2 Xtend Successfully Launched; IP3 and IP4 in Pipeline to Deliver >€800m peak sales potential

1st Generation — INTACTA RR2 PRO®

#1

South America soybean system[1]

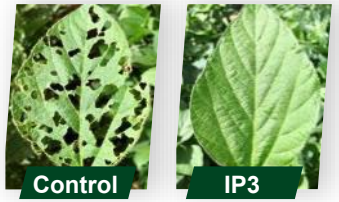
- **Excellent control** of soybean loopers, velvetbean caterpillar and axil borer
- **Glyphosate tolerance** provides proven weed control and enables conservation tillage
- On **~85m** acres in Brazil in 2021/22

2nd Generation — PLATAFORMA INTACTA 2 XTEND

- Industry-first with three proteins for insect control and resistance management, plus adds dicamba tolerance for tough-to-control weeds
- LAUNCHED on **>800k** acres in Brazil in 2021/22 season. Targeting **~6m** acres for the 2022/23 season
- Performance advantage of **2.89 bu/acre**

3rd and 4th Generation — INSECT PROTECTION

Velvetbean Caterpillar Infested



Soybean Looper Infested

- **IP3 in Phase 3;** Delivering multiple modes-of-action for insect control
- **IP4 ADVANCED to Phase 2;** focused on Brazil
- **>€800m peak sales potential**

Boone, Iowa, June 2021

IP3 = 3rd generation insect protection trait in soybeans // IP4 = 4th generation insect protection trait in soybeans
[1] Data based on number of traited acres per Bayer internal estimates

Next Gen Soybean Herbicide Tolerance Traits to Provide Industry Leading Flexibility

Drives **~€1bn Peak Sales Potential** by Addressing Farmers' Herbicide Resistance Challenges

4th Gen Herbicide Tolerance (HT4)

In Phase 3

Expected 2027 launch

- Adds 2 additional herbicide tolerances:
  HPPD (Mesotrione) + 2,4-D

July 2022 | Jerseyville, Illinois

Potential Opportunity Across

>180m

Soybean Acres

5th Gen Herbicide Tolerance (HT5)

Advanced to Phase 3

- Adds 1 additional herbicide tolerance:
  PPO

July 2022 | Monmouth, Illinois

Always read and follow label instructions. Products not registered in all jurisdictions.

Rollout of Most Advanced Corn Rootworm Control Trait Continues

CRW3: Industry's Only RNAi-Based Corn Rootworm Trait Launched in Brazil in VTPRO4 and in the U.S. in SmartStax PRO; Expected 2024 Launch in VT4PRO in U.S. as Additional Offering

LAUNCHED / / / / / /
BRAZIL/ ARGENTINA 20/21

VTPRO4

2021/2022: >4m acres

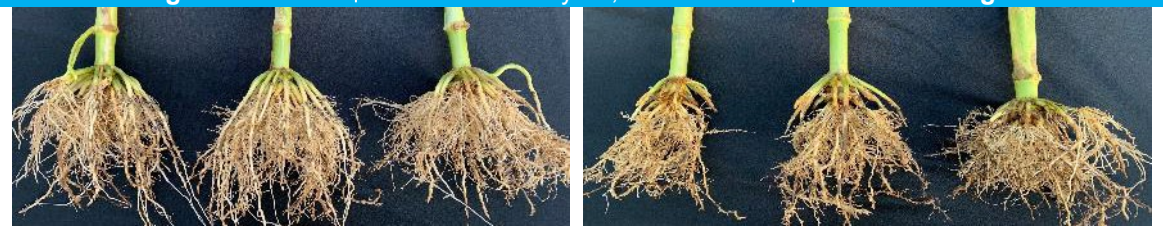
- **Most advanced technology** for control of insects in Brazil corn
- Two modes below-ground insect control, including **CRW3**, plus three modes above-ground insect control and glyphosate tolerance

SmartStax PRO with RNAi TECHNOLOGY

LAUNCHED U.S. 2022
2022: ~100k acres
2023e: >1m acres

Corteva Qrome product (P1366Q)

Average Root Rating: 0.30	**Location:** Ireton, Iowa July 20, 2021	**Average Root Rating:** 1.20



- **SmartStax PRO with RNAi Technology** has less average corn rootworm damage in 100% of the trials vs. Corteva Qrome® products in 34 Bayer trials in medium to very high corn rootworm pressure environments[1]
- For each root node damaged by CRW larvae, a yield loss of ~15% can be expected.[3] Root injury score of **0.97 nodes** in a 200 bu/acre yield environment could result in **29 bu/acre yield loss**
- ~30m acres infested with CRW in the U.S.

VT4PRO™ with RNAi TECHNOLOGY

*VT4PRO with CRW3 expected **2024 launch in the US;** additional offering with **5+ bu/ac advantage over Corteva Qrome products**[3]*

[1] Head-to-head comparisons across 34 Bayer trials in medium to very high corn rootworm pressure environments;
[2] Tinsley, N.A., Estes, R.E. and Gray, M.E. 2012. Validation of a nested error component model to estimate damage caused by corn rootworm larvae. Journal of Applied Entomology. DOI:10.1111/j.1439-0418.2012.01776.x
[3] Based on 2022 Bayer breeding data generated over 253 locations, 2838 comparisons of 2024 launch class of VT4PRO with RNAi technology vs. key commercial Qrome products within +/- 2 RM maturity range

Next Gen of Corn Insect Control Drive >€1bn Peak Sales Potential

Delivering 4th Generation Corn Rootworm and 4th/5th Generation of Lepidoptera Protection

4th Generation Corn Rootworm

- Expected mid decade
- Two new MOAs plus improved RNAi technology provides excellent efficacy against CRW populations under high pressure

4th Generation Lepidoptera Protection

- Expected late this decade
- Multiple modes of action to improve efficacy against Fall Armyworm

5th Generation Lepidoptera Protection

- Expected early 2030s
- Targeted control of pest species

U.S. Ground Breaker Trials In 2023

Powered by Short Stature Corn Hybrids and FIELDVIEW

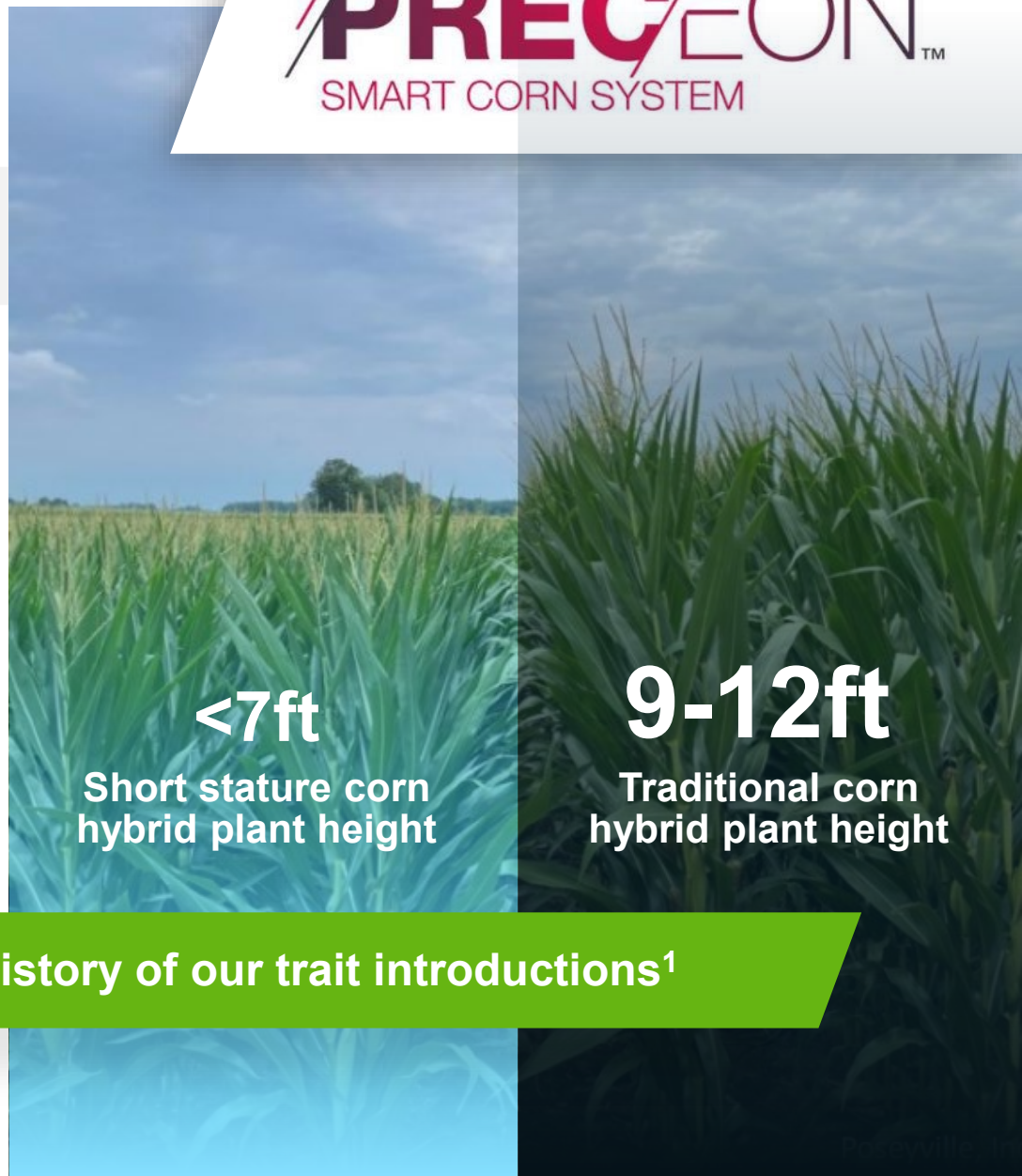
PRECEON™ SMART CORN SYSTEM

New era in corn production to help farmers manage risk and protect yields

- Short stature corn hybrids
- FieldView digital insights
- Tailored support

GROUND BREAKERS®

- **300** on-farm trials
- **>30,000** acres



Highest likelihood to plant a new trait in the history of our trait introductions[1]

[1] Source: Online farmer survey Feb./Mar. 2020 (n=900)

Offers Transformational Shift in Production

Powered by Short Stature Corn Hybrids and FIELDVIEW

PRECEON™ SMART CORN SYSTEM

Key Features and Benefits Enhance Profitability and Environmental Sustainability of Corn Production

Protection

- Production stability with improved standability in high winds and challenging weather conditions
- Annual yield losses due to stalk lodging in the U.S. range from 5% to 25%[1]

Iowa 2020 Trials Following Derecho Windstorm

Access

- Improved in-season crop access due to reduced height
- Supports tailored solutions with precise in-season crop protection

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

Yield potential

- Shows promise in unlocking yield potential through increased opportunity to optimize crop inputs, planting densities, and field placement
- Potential to optimize use of key nutrients like nitrogen, as well as reducing land and water requirements

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

[1] Purdue University (http://www.extension.purdue.edu/ay/ay-262.html)

Planning Regional Tailored Approaches

Holistic Smart Corn System Powered by Short Stature Corn Developed via Three Technology Approaches

PRECEON™ SMART CORN SYSTEM

Planned Technology Approach for Launch of Preceon Smart Corn System

Breeding Approach – Phase IV
2023 Ground Breaker Trials in the U.S.
Native Trait: advanced breeding used to introgress naturally occurring short stature characteristics into elite germplasm

Biotech Approach[1] – Phase III
Uses transgene to shorten internodes; enables applicability across wide array of germplasm

Gene Editing Approach - Discovery
Location of launch will be dependent upon regulatory environments

>220m
Corn Acres Global Potential

Americas Alone Account for 140m Acres

>€1.5bn
Global Peak Sales Potential

[1] in collaboration with BASF

Key Takeaways – Transformative Trait Technologies

01 Bayer biotech traits reach **~300m acres globally** and contribute **€10.5bn S&T annual sales** with **#1 share position**

02 Robust pipeline with 12 biotech traits, offering up to 6 modes of action and up to 10 stacked genes, with an **estimated peak sales potential of ~ €7bn**

03 **Widening our leadership position** through gene technology, protein structure design, RNA technology and genome mapping and editing technologies

04 Leading blockbuster technologies like **PRECEON Smart Corn System and the next generation of Herbicide Tolerant Soybeans**

05 **Driving regenerative ag** with higher farm productivity, reduced pesticide usage and optimized resources

Science for a Better Life

regenerating growth

Sustainable Small Molecules

Crop Science Innovation Summit

June 20, 2023

Axel Trautwein // Head of Regulatory Science, Bayer Crop Science

Crop Protection Helps to Sustainably Feed the World

30% average net yield benefit

by using CP on food crops

550 **Million tons**

of additionally produced food crops (Wheat, Potato, Rice)

In caloric value, **this amount could feed**

>2bn people

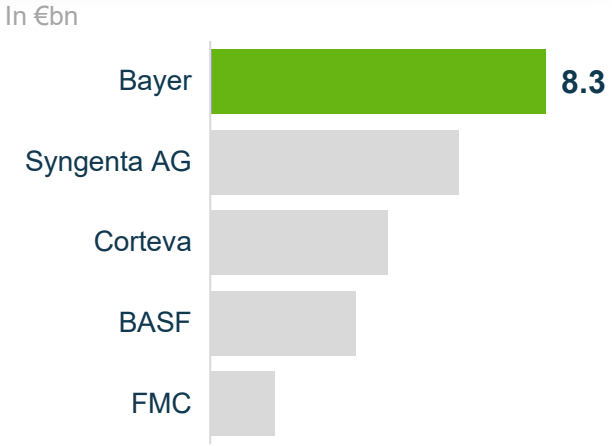
Net Yield Benefit through Crop Protection

Based on 2019 study conducted by European Parliamentary Research Service (Farming without plant protection products (europa.eu)), EXCLUDING Corn and Soy numbers
Note: Losses are calculated at the global scale and are caused by pathogens, pests, viruses and weeds. Crop protection without PPPs include crop rotation, biological control, soil management, resistant varieties…

Leading Positions in Global Crop Protection

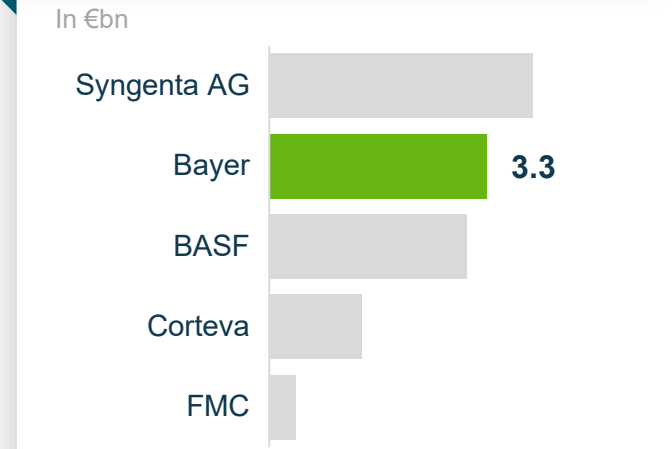
Driving >€13bn in Sales in 2022

2022 Herbicides Sales[1]



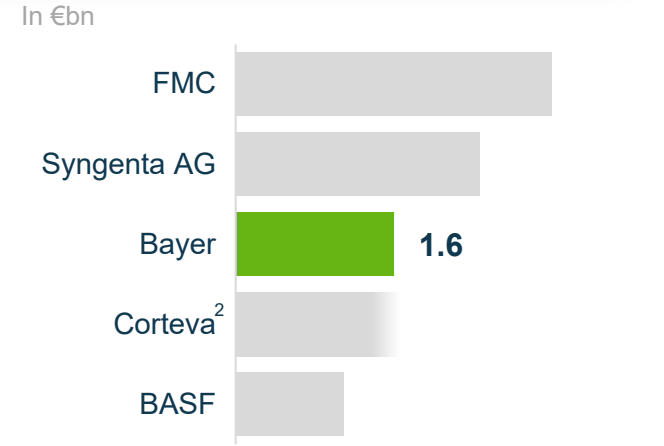
LAUDIS · CORVUS · ADENGO · TriVolt · Roundup PowerMAX 3 HERBICIDE · XTENDIMAX VaporGrip

2022 Fungicides Sales[1]



NATIVO · SERENADE SOIL ACTIV · DELARO Complete · PROSARO PRO · Fox Xpro · Luna

2022 Insecticides Sales[1]



MOVENTO · VELUM · vayego · Curbix

Chart shows comparison to strategic peer group
[1] Source: Company reporting, exchange rate FY2022: ~1.05 USD/EUR
[2] Corteva Insecticides sales exclude non-crop business, internal estimates

Bringing New Crop Protection Innovation to Market

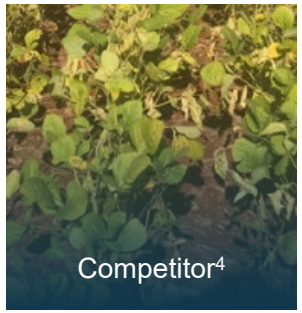
Launched Two New Actives, 10 New Formulations and >250 Registrations in 2022

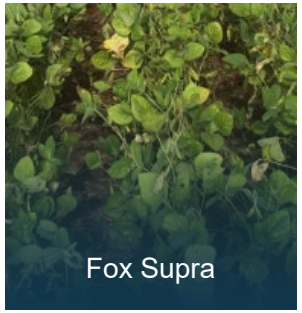
Industry Leading Crop Protection Development… | 15 new AIs launched in the past 15 years; 9 advancing, including 2 launches, in 2022

Fox Supra

- Includes next-gen technology **Indiflin®**[1], with Prothioconazole
- Offers **unrivaled control** of Asian Soybean Rust
- Builds on **#1 position** in soybean fungicides[2] in LATAM

PSP of Fox Family[3] ~€850m
Pre-launched in 2022 in Brazil & Paraguay



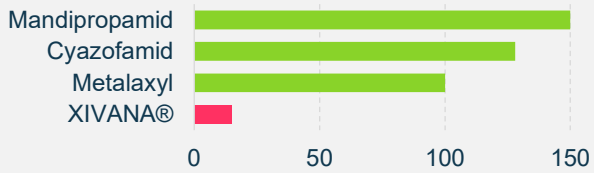


Xivana

- Powered by **Fluoxapiprolin**
- New horticulture fungicide; delivers outstanding protection of grapes – to expand to potatoes and vegetables
- High, **long-lasting efficacy**

PSP of >€200m
Launched in 2022 in Australia (grapes)

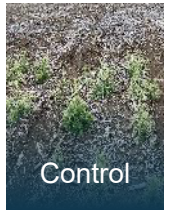
Typical use rates:
potatoes, vegetables [g/ha]

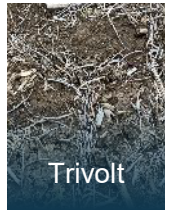


… drives our Life Cycle Management | 10 new formulations launched in 2022

TriVolt

- Pre-emergence selective corn herbicide for U.S.
- Launched in 2022
- Contains 3 AIs: Thiencarbazone, Flufenacet and Isoxaflutole to provide overlapping residual control of key broadleaf weeds and grasses





Mateno Complete

- Includes Aclonifen, a new herbicide mode of action for Australia
- Launched in 2022
- Suitable for use in wheat and barley for hard-to-control grass and broadleaf weeds

Fox products also sold under Cripton brand name in other markets; [1] In collaboration with Sumitomo; [2] Internal estimates; [3] for soybeans in LATAM; [4] BASF Orkestra Ultra; PSP = Peak Sales Potential

Crop Protection Pipeline to Deliver ~€9bn in Peak Sales Potential

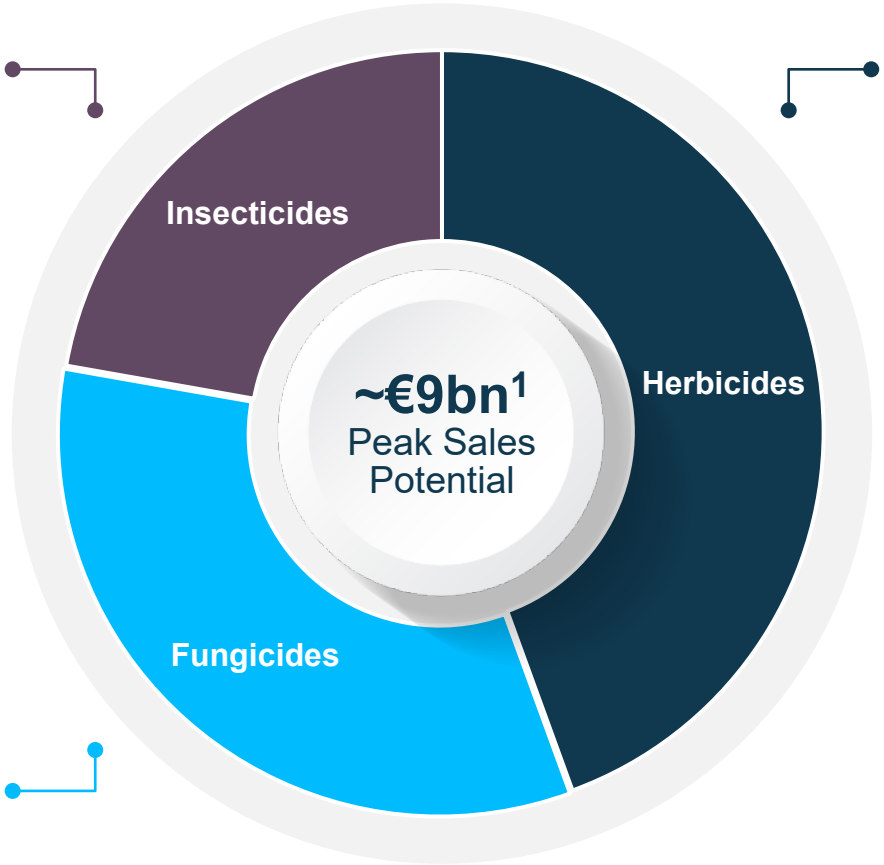
Advancing Nine Actives in 2022

Insecticides: ~€2bn

- Plenexos Insecticide, **~€500m**
- Various LCM projects such as Vayego Duo, Velum, Rice Plant Hopper

Fungicides: ~€3bn

- Next generation Fungicide Small Molecules, **>€1.2bn**
- Various LCM projects such as Luna Flexx, Super Nativo, Delaro Forte



Herbicides: ~€4bn

- New Herbicide Small Molecule, **>€750m**
- Various LCM projects such as Convintro, Mateno Complete, Adengo

Seed growth

- 2 biological seed treatments in phase 3
- Various LCM projects such as INS FUN ready mixture and Redigo FS 25

[1] Represents non-risk adjusted estimated peak sales for crop protection, including biologicals. Note that products are excluded from the pipeline PSP typically the year following launch; PSP = Peak sales potential; ~50% incremental sales value. Estimated to reach ~30% of peak sales potential by 2032, ~80% by 2037 and 100% by 2038+; Projects included are only a subset of the pipeline

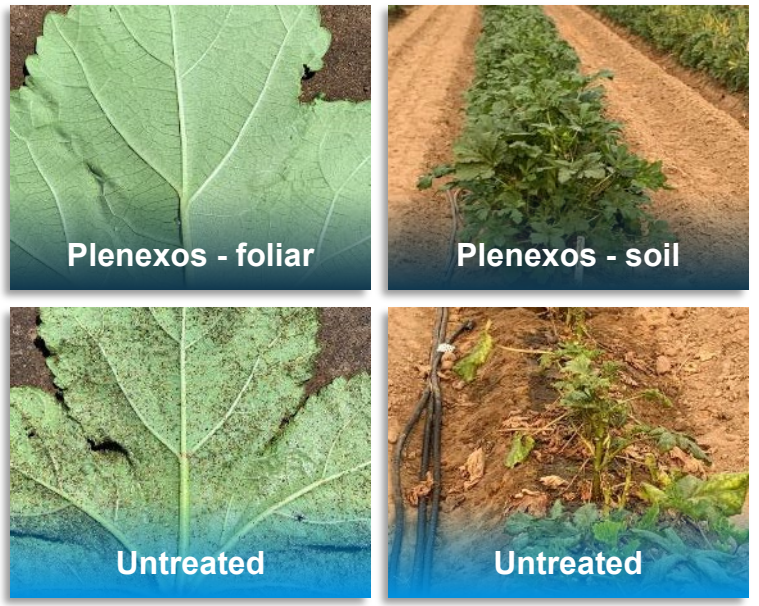
Plenexos… Where Healthier Fields Meet Higher Yields

Our Next Generation Ketoenol Insecticide with ~€500m Peak Sales Potential

Plenexos will be the first ketoenol insecticide expected to offer both foliar and soil uses

Plenexos will enhance ketoenol insecticides by offering:

- High plant mobility, which will ensure **high efficacy** against key sucking pests (aphids, whiteflies, scales, mealybugs) at **low dose rates** for **foliar and soil uses**
- Featuring a **broad crop scope**, Plenexos will be suitable for application in **arable and horticulture** crops (soybeans, cotton, fruits and vegetables)
- Favorable pollinator and beneficial toxicological profile which will ensure **broad flexibility** and **fit to Integrated Pest Management programs, as well as low residue levels** for several uses
- Targeted markets: LATAM, NA, APAC and TAMECIS[1]
- **First regulatory submissions** in key markets in **2022, first launches** expected from **2025 onwards**[2]



Increases productivity per acre and field health through improved insect control

Always read and follow label instructions. Products not registered in all jurisdictions. Plenexos is the brand name of the ketoenol insecticide Spidoxamat
[1] TAMECIS stands for Turkey, Africa, Middle East, Commonwealth of Independent States; [2] Commercialization is dependent on multiple factors, including successful conclusion of the regulatory process. The information presented herein is provided for educational purposes only and is not and shall not be construed as an offer to sell, or a recommendation to use, any unregistered pesticide for any purpose whatsoever. It is a violation of federal law to promote or offer to sell an unregistered pesticide

New Broad Spectrum Fungicide[1] with a PSP of >€1bn

A New Fungicide with Broad Geographical, Crop and Disease Scope, Currently in Phase 3

New broad-spectrum Fungicide with blockbuster potential

- For global use confirmed in cereals, corn, fruits & vegetables with upside potential in numerous other crops
- Proven Mode of Action in a highly competitive future market
- Favorable regulatory profile
- Providing farmers worldwide with a reliable tool to ensure healthy crops and robust resistance management
- Excellent fit with Bayer's fungicide portfolio, helping to strengthen our leading position

[1] in collaboration with 3rd party; PSP = Peak Sales Potential


BAYER
Shaping
Agriculture
Unlocking a new
benchmark in the
industry
CropKey
unlocking the future of
sustainable
crop protection

Designing the Next Generation of Sustainable Crop Protection Solutions to Serve the Needs of Farmers & Society

Why is disruptive innovation needed?

- **Maintain license to operate** (increasing regulatory requirements)
- Increase durability of actives
- Overcome existing resistance
- **Address future agronomic practices** (e.g. precision application, drone spraying)

What do we plan to deliver?

From incremental innovation on traditional chemistry **to disruptive innovation towards next generation of sustainable chemistry:**

CropKey

- Highly effective and precise
- Breaking resistance
- Unprecedented sustainability and safety profile

Why Bayer?

- CP R&D Unrivalled Experience
- Target Discovery *New*
- Deep Knowledge On Biological Systems
- Human & Env. Safety Expertise
- Computational Life Science
- Partner Of Choice
- Scientists Courageous To Pioneer

… make us unique

CropKey Approach to Open Uncharted MoA & Chemical Spaces

Pioneering Today to **Unlock** the Crop Protection Solutions of Tomorrow

Advanced Discovery Engine

Computational Target Discovery
Discover selective and safe MoA by proprietary algorithms & omics

New Paradigm in Screening
Gain deep knowledge on biological systems by **Machine learning approaches** & virtual screening and docking

Digital Chemistry
Explore unlimited virtual chemical spaces by **AI supported** selection, design & synthesis

Predictive Early Safety
Focus on registrability & sustainability supported by early *in vitro* tests & ***in silico*** **predictive models**

Novel MoA in Research Pipeline

100%
in Target Discovery

>30
New molecular targets under investigation

targenomix
the target identification company

>80%
in Early Research

>10
Newly validated targets identified for screening

>65%
in Advanced Research

>5
Novel modalities / screening technologies evaluated in collaboration with external providers

Enriching Our Pipeline with Novel & Sustainable Modes of Action

CropKey First representatives of CropKey approach are being brought from conception to reality in record time

New Herbicide Molecule

- First new mode of action in post emergence weed control in 30 years, based on CropKey approach
- Securing farmers production in situations with tough to control grasses
- Allows use in various new market segments, as well as potential for precision application

PSP of >€750m

Project is currently in Phase 3

Glyphosate Only

Mix Partner + New Herbicide
Product concept with new active

New Fungicide Molecule

- Broad-spectrum Horticulture fungicide with a new mode of action, based on CropKey approach
- Control of key leaf spot fungi (incl. Anthracnose) across key regions
- Opportunities to extend beyond horticulture to cereals (barley), oil seed rape and seed treatment[1]

PSP of >€200m[1]

Project is currently in Phase 2

Standard Only

New Fungicide

[1] Expansion into oil seed rape and seed treatment not yet included in PSP; PSP = Peak Sales Potential

Key Research Partners and Academics Help Us Unlock the Future of Sustainable Crop Protection

targenomix
the target identification company

Targenomix Joins Bayer Crop Science as part of the *CropKey* approach to R&D

- Acquired German biotech startup in November 2022
- **Systems biology approaches** to **unlock** new potential, fueling our discovery engine
- Innovative tools to identify and select **safe and sustainable compounds**

The *CropKey* approach creates new modalities with unparalleled safety for food and farm

- New collaboration with Oerth Bio announced in January 2023
- Unique **protein degradation** technololgy (PROTAC)
- Built to protect crops from disease and pests while **leaving all other species and biome unaffected**

Using Genomics to Unlock the Future for Pest Control

- Project between Bayer, Rothamsted and Syngenta
- Sequence and assemble genomes of 20 of the world's most damaging crop pests

Formulation Expertise Drives our Life Cycle Management

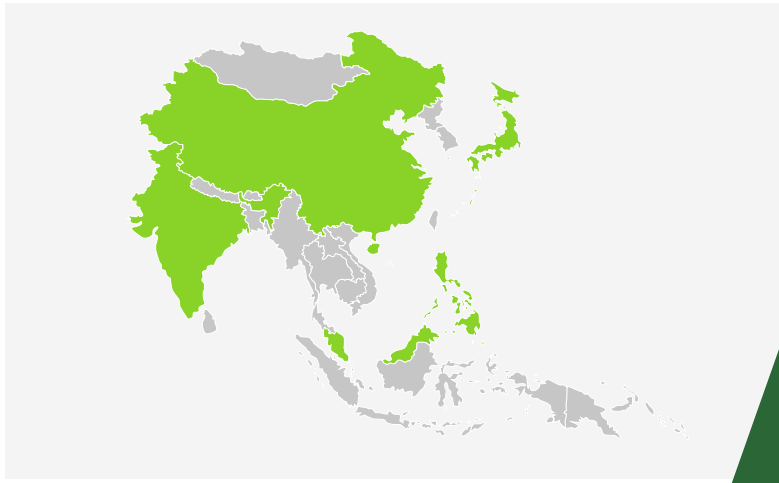
Expect to see ~90-100 new formulation launches in the next decade

Leader in product design for precision / drone application

- Require less water, reduce the overall volume of solution application and enhance operator safety
- Novel formulations extend good efficacy into very-low volume range through in-build adjuvants that enhance spreading, retention and uptake

Key products validated in APAC for drone segment

NATIVO® vayego® yeoval® MOVENTO®



- Relevant part of our crop protection portfolio validated for drone uses
- Pipeline strategy for very-low volume-ready products in place
- Partnering with drone manufacturers and application service providers such as Rantizo (LEAPS investment)

Reducing Crop Protection's Environmental Impact

Developing Crop Protection Products with Better Benefits and Less Impact on the Environment

Our goal

We will reduce the environmental impact of our crop protection products by 30% against a 2014 – 2018 baseline by 2030

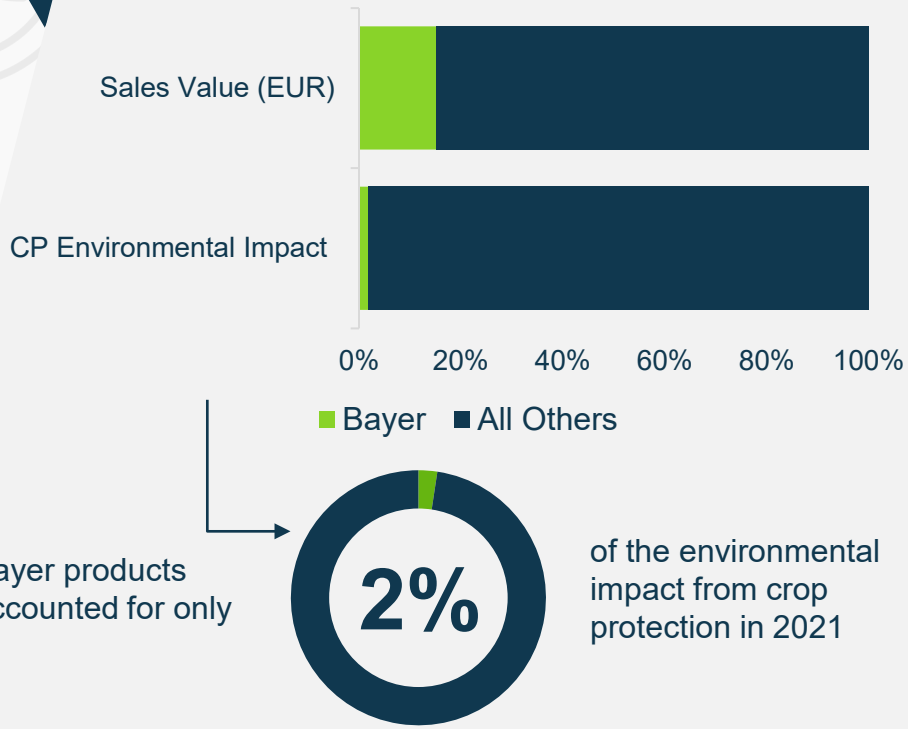
30%

Our achievement to date
2017 – 2021 vs 2014 – 2018

We reduced the global environmental impact of our crop protection products by

14%[1]

2021 Crop Protection Industry Environmental Impact



[1] Comparison against a 2014 – 2018 baseline
Preliminary impact assessment has been conducted by Technical University of Denmark (DTU) based on the PestLCI/USEtox® models. PestLCI secondary distributions currently out of scope. Impact assessment limited to current scientific consensus of USEtox®: aquatic organisms and the substances which can be characterized in USEtox®. Terrestrial and pollinator impact assessment is currently not included in USEtox®. CP application data mostly from third parties such as Kynetec/Kleffmann in some countries based on Bayer estimates.

Key Takeaways – Sustainable Small Molecules

01 We are a **global leader in Crop Protection** with >€13bn in sales in 2022 and #1 position in Herbicides, #2 position in Fungicides and #3 position in Insecticides

02 Promising catalysts drive **~€9bn peak sales potential** of our Crop Protection pipeline

03 We are **designing the next generation of sustainable Crop Protection solutions** to serve the needs of farmers & the society through our CropKey approach

04 Bring leading crop protection innovations to growers with a **new broad-spectrum fungicide** and **first new mode of action for post emergence weed control in 30 years**

05 We are **committed to reduce the environmental impact** of our CP products by 30% by 2030

Science for a Better Life

regenerating growth

Biological Breakthroughs

Crop Science Innovation Summit

June 20, 2023

Jessica Christiansen // Head of Sustainability and Business Stewardship, Bayer Crop Science

Biological Solutions Key to Advancing Benefits of Regenerative Agriculture

BIOLOGICALS by Bayer — *The power of nature. Empowered by science.*

- Active ingredients **derived or developed from naturally-occurring sources**
- Pathway for growers to **protect their crops and land**, increase their nitrogen use efficiency and **limit their environmental impact**

01

BIOCONTROLS

Biocontrol products aim to protect plants from pests and diseases

02

BIOSTIMULANTS

Biostimulant products aim to improve nutrient use efficiency and tolerance to e.g. drought or heat

regenerative agriculture

"producing more and restoring more"

- **Improved soil health**
- **Mitigation of climate change**
- **Conservation of water**
- **Yield increase and improved productivity, social and economic well-being of farmers and communities**
- **Preservation, restoration of biodiversity**

re generating growth

Deliver Sustainably-sourced food, Renewable fuels

Building on the Leading Portfolio of Biological Solutions to Meet Growing Market Needs

The power of nature. Empowered by science.

In-licensed / Commercial Products

Biocontrols			Biostimulants	
Insecticides	Fungicides	SeedGrowth/Soil	SeedGrowth	Crop Performance Enhancers
XenTari WG, BioAct PRIME, FLiPPER, VYNYTY CITRUS, decis, Citrole, REQUIEM[1]	SERENADE ASO, SONATA	Integral Pro[3], Poncho Votivo[3], SERENADE SOIL ACTIV	B-360[2], TagTeam[4], Nitragin Gold[4], Optimize[4]	Ambition, Ambition COBRE

Table shows selected examples only

Leading Position

- Bayer is the **#1 Trusted Brand** in Biologicals by Growers[5]
- Delivering **~€200m in annual sales** in 2022
- Offering **>20 commercial products**

Select Key Product Offerings

ACCELERON SEED APPLIED SOLUTIONS

- **Acceleron portfolio** offers advanced seed treatment solution in the industry (for corn, soybean and cotton)
- **Designed to complement, protect, and enhance seeds including Bayer's DEKALB corn commercial hybrids from the outset** (exclusive combinations of seed treatments merging chemical and biological products)

FLiPPER — *Biological Insecticide*

- **Natural product** containing fatty acids derived from a by-product of extra virgin olive oil
- Consistent broad-spectrum activity across multiple fruit and vegetable crops and pests
- **In-licensed from AlphaBio Control**

[1] In-licensed from Total Energies; [2] Also sold under BioRise and Torque brand names; [3] 3rd party product from BASF, [4] In-licensed from Novozymes; [5] 75-100 growers polled in each of seven countries (Europe, Brazil, US) for potato, tomato and grapes, Bayer Market Research 2020

Serenade Soil Activ Tailored for Soil and Crop Health

Accelerate Growth in Emerging Global Soil Application Market Across Fruits & Vegetables

NEW Serenade Soil Activ propelling Serenade brands to >€170m peak net sales in next 10 years

Serenade brand family: the biological active *bacillus amyloliquefaciens strain QST 713* delivers solutions in emerging soil treatment and expanding bacterial disease markets:

- **Serenade ASO** offers QST 713's combination of several modes of action to help **control foliar bacterial and fungal diseases while reducing residues**
- **NEW Serenade Soil Activ** with its higher concentration of QST 713 spores provides farmers handling efficiency with low use rates and less water consumption
  - The concentrated QST 713 spores, applied in furrow or via drip, can speed up root formation and uptake of nutrients, raising marketable qualities (skin, shelf life, nutrient content)
  - Launched in U.S., Canada & Australia, sales in all global regions expected with coming registrations

- Higher proportion of big potatoes
- ~10% more premium class potatoes
- Better skin finish, improved uniformity
- Lower use of water/ac

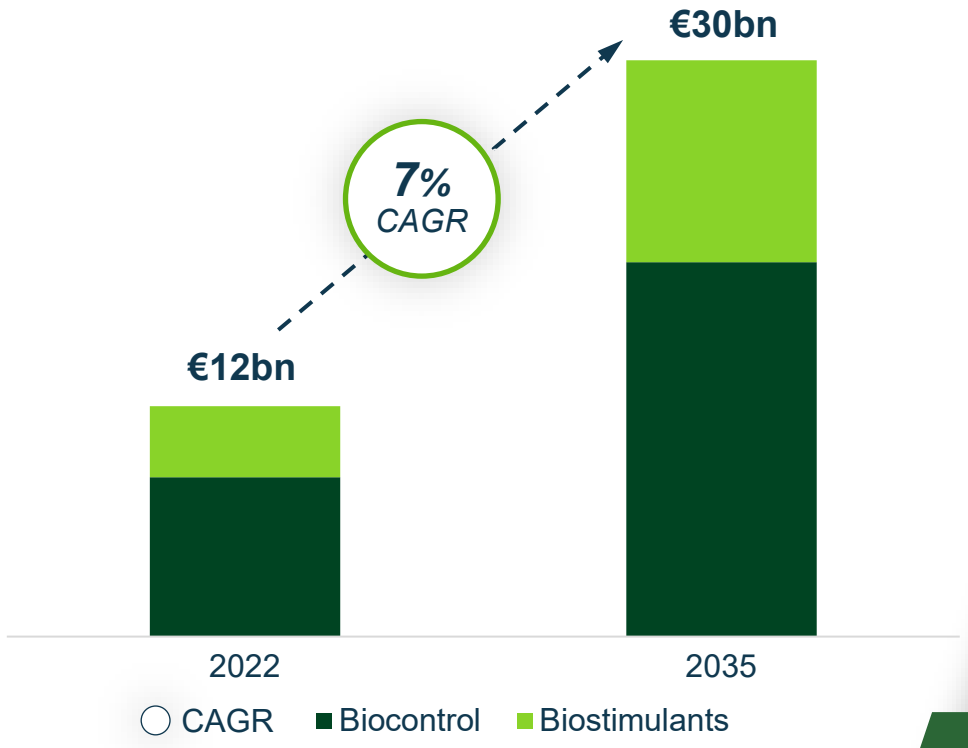
Sustainably increases marketable yield with spores optimized for improved root colonization

Always read and follow label instructions. Products not registered in all jurisdictions.

Biologicals Market Expected to More than Double to €30bn by 2035

We aim to Outgrow the Market with a 17% CAGR

Global Biologicals Market



Bayer Biologicals Opportunity

€200m
Sales 2022

17% CAGR

>€1.5bn
Sales 2035e

In-licensing or distribution; expanding current portfolio

Pipeline advancements

Strategic research partnerships

Increasingly stringent regulatory approvals processes, consumers' demand for low- and no-residue food products and retailer food sourcing standards drive growers to look for new innovations in crop protection

Source: Global Agricultural Biologicals Market, Forecast to 2030, Frost & Sullivan, 2022 and internal estimates

Expanding a World Class Biological Platform with Open-Innovation

Partner of Choice with Industry Leading Capabilities in Development, Regulatory and Commercialization

Open Innovation Ecosystem

Robust asset evaluation for **in-licensing or distribution** of commercial or late stage products

January 2023

Commercialized

- Scouting to meet **short to mid-term portfolio needs**
- M2i: partner to supply fruit and vegetable growers around the world with pheromone-based crop protection products
- Ecología y Protección Agricola: commercialized Vynyty Citrus

Pipeline advancements through development of internal assets and co-development with selected partners

SeedGrowth Corn Yield PHASE 3

SeedGrowth Bird Repellant PHASE 3

- Evaluating opportunities for **mid-term portfolio differentiation**
- Actively advancing products in our pipeline
- Establishing preferred partners for co-development and commercialization

Multi-year strategic research partnerships with technology leaders to develop proprietary portfolio of next generation biologicals

October 2022

February 2023

- **Driving next-generation biological concepts**
- **Ginkgo**: 3-year collaboration on nitrogen optimization, carbon sequestration, and next generation crop protection
- **Kimitec**: strategic partnership to accelerate the development and commercialization of biological crop protection solutions and biostimulants

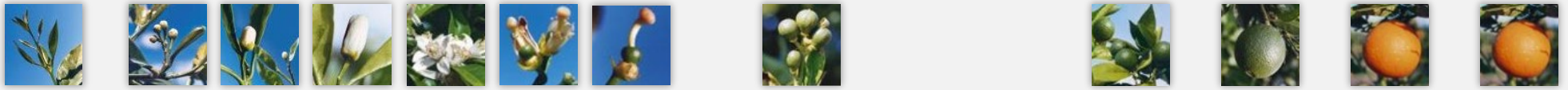
Complementing efforts with academic partnerships and Leaps by Bayer investments, *such as:* andes Sound PIVOT BIO

Biologicals Most Effective in Integrated Crop Management System; Complementary to Other Technologies

Example: Integrated Citrus Pest Management

Citrus Crop Calendar

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



Integrated Pest Mgmt Recommendation

- VYNYTY CITRUS
- MOVENTO
- CITROLE

Timing and application recommendations through croppingview

VYNYTY CITRUS

- **Sustainable and effective pheromone-based product** that controls three of the most common invasive pests in citrus cultivation, using pyrethrin, an organic compound that does not encourage residues
- Replicates the sexual pheromone of the **South African cotonet** (Delottococcus aberiae) to attract the males of the species, inhibiting their reproduction in a specific and targeted manner
- Depending on pest pressure, the use of Vynyty Citrus[1] can be complemented by the precise use of **products like Movento and Citrole using CroppingView**

[1] In-licensed from EPA Ecologia

Two Biological Seed Treatments Advanced in our Pipeline

Pipeline advancement focused on differentiated products

Bird Repellent

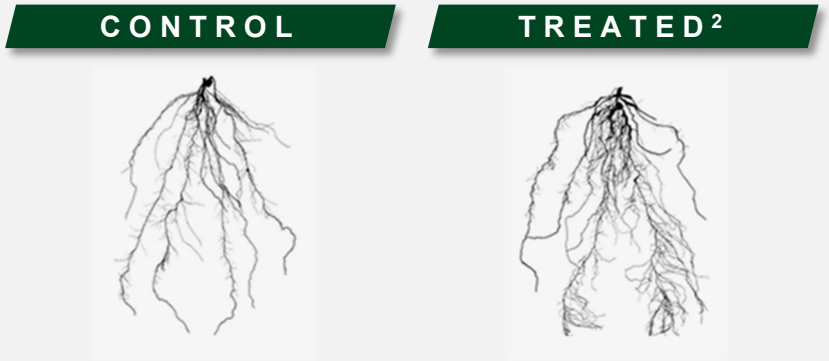
- Bird repellent for corn seeds in Europe with Black Pepper Oleoresin (BPO) as active ingredient
- BPO is a food grade natural extract which is applied onto seeds to protect them from bird attacks in freshly sown fields, which cause 9-15% of corn acreage in Europe to be replanted[1]
- BPO is a unique biological alternative to substitute chemical bird repellents with poor toxicological and environmental profiles

PROJECT IS CURRENTLY IN PHASE 3

Biological Seed Treatment

- Expected to unlock yield potential in corn
- Significant and consistent yield increases demonstrated in trials over several years in the core regions
- Will associate with corn roots and increase nutrient availability by solubilizing insoluble nutrients
- Potential for improved and increased root systems can enable higher yields

PROJECT IS CURRENTLY IN PHASE 3



[1] according to internal survey in Germany, France and Italy
[2] shows two week old corn plants grown in containers in greenhouse; Pipeline phases as of Feb'23

Comprehensive Open-Innovation Strategy for Nitrogen Fixation

The Need

- Synthetic nitrogen fertilizer has helped feed >3.5bn people[1]
- But accounts for ~3% of global greenhouse gas emissions
- Regulatory requirements are increasing around the globe

// *"Pulling fertilizer out of thin air"* //

Our Approach

- In-licensing or distribution
- Pipeline advancements
- Strategic research partnerships

Transformational Partnership with GINKGO BIOWORKS

- Enhance nitrogen fixing bacteria through synthetic biology
- Leverage Ginkgo's expertise in microbial discovery, our expertise in agronomics, product development and commercialization
- Exclusive commercialization rights to programs already started at Bayer and/or Joyn Bio
- Aiming to reduce use of added synthetic fertilizers while maintaining the yield potential of the crops

[1] Source: Our World in Data

Key Takeaways – Biological Breakthroughs

01 Leading portfolio with **~€200m in annual sales** from >20 commercial offerings in 2022

02 **Expect to outgrow the market** and reach **€1.5bn sales ambition by 2035**

03 Aim to **explore additional value pools** like nitrogen fixation technologies via our **open-innovation strategy**

04 Most **optimal use** case for biological solutions such as Vynyty, Flipper or Serenade is **integrated** with other solutions

05 Pathway for growers to **protect their crops and land**, increase nitrogen use efficiency and limit their environmental impact

Science for a Better Life

regenerating growth

New Frontiers in Digital and Carbon Farming

Crop Science Innovation Summit

June 20, 2023

Thomas Eickhoff // Head of Science for Digital Farming, Bayer Crop Science

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	AG MARKETPLACES
TIMING RECOMMENDATIONS	DOWNSTREAM VALUE
PEST DETECTION	RISK SHARING
HYBRID RECOMMENDATIONS	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

CLIMATE FIELDVIEW™

- **>220m** subscribed acres
- **#1** brand in digital ag[1]
- 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

9%

higher retention rate[2,3,4] by volume segmentation

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

+3.4 points

higher U.S. Net Promoter Score in 2021-2022[2] and are more likely to recommend Bayer

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

+3.7%

higher seeding rate for Bayer owned corn brands in 2022 vs. national average[5]

[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 Kynetec/GFK Analysis

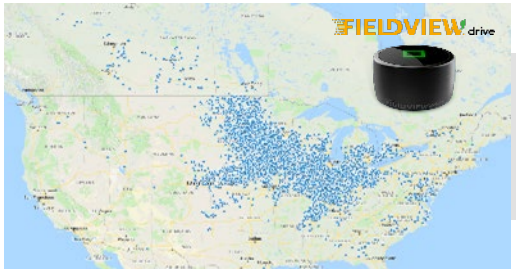
Digital Solutions Deliver Sustainable Profitability

Enabling Decisions that Matter with Industry Leading Data Collection

CLIMATE FIELDVIEW™

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

PRECEON™ SMART CORN SYSTEM

Comprehensive Digital Agronomic Support

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

CLIMATE FIELD VIEW™

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** market[1]

Carbon Services

Product Sales

Carbon Assets
first removals in NA in 2023

Creates new opportunities for growers and businesses alike

PERDUE AgriBusiness

- **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

Nori

- 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

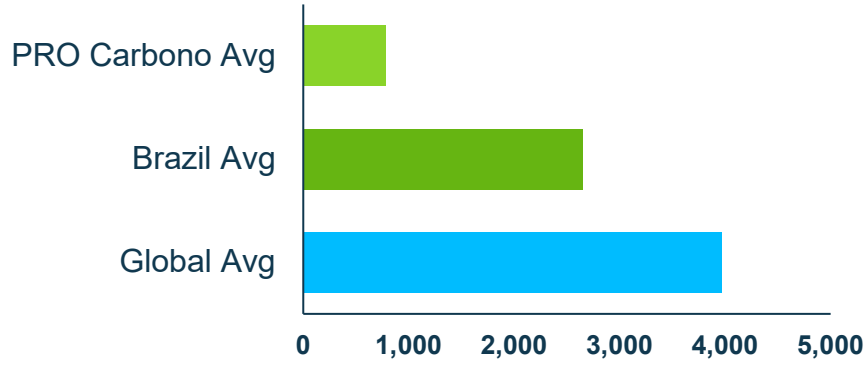
[1] Source: https://www.reuters.com/article/us-carbontrading-turnover/global-carbon-trading-turnover-at-record-214-billion-last-year-research-idUSKBN1ZN1RN

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

CO_2 eq per mt of soybean produced[1]



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

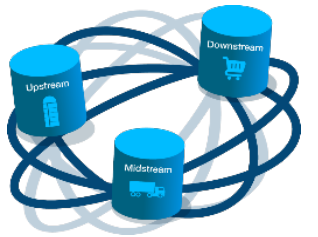
- JV between Bayer, Bravium[1], Yara and Itau; Bayer with **~60% stake**
- Connects growers, input providers and grain traders to a network to expand their reach, secure financing, redeem rewards **from Bayer's Impulso loyalty program,** purchase and sell inputs
- Established in 2019 in **Brazil**, later expanded to Argentina, Colombia and Mexico[2]
- **~300 distributors** with inputs such as pesticides, seeds and fertilizers
- **~€460m** in commissioned online transactions (GMV[3]) 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 Detection[1]
  - Crop Growth Models[1]
- **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

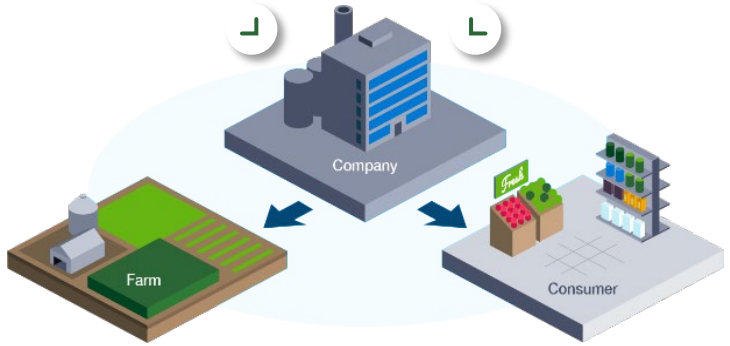
[1] Additional offerings in development



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

Science for a Better Life

APPENDIX

Bayer Crop Science Innovation Summit

New York City // June 20, 2023

Crop Science: Seed & Traits and Digital R&D Pipeline
(Annual Update Feb 2023)

€21bn PSP

Projects listed here and included in the peak sales potential by segment do not include projects funded by our LEAPS investments; includes all advancements made in FY'22, updated Feb'23

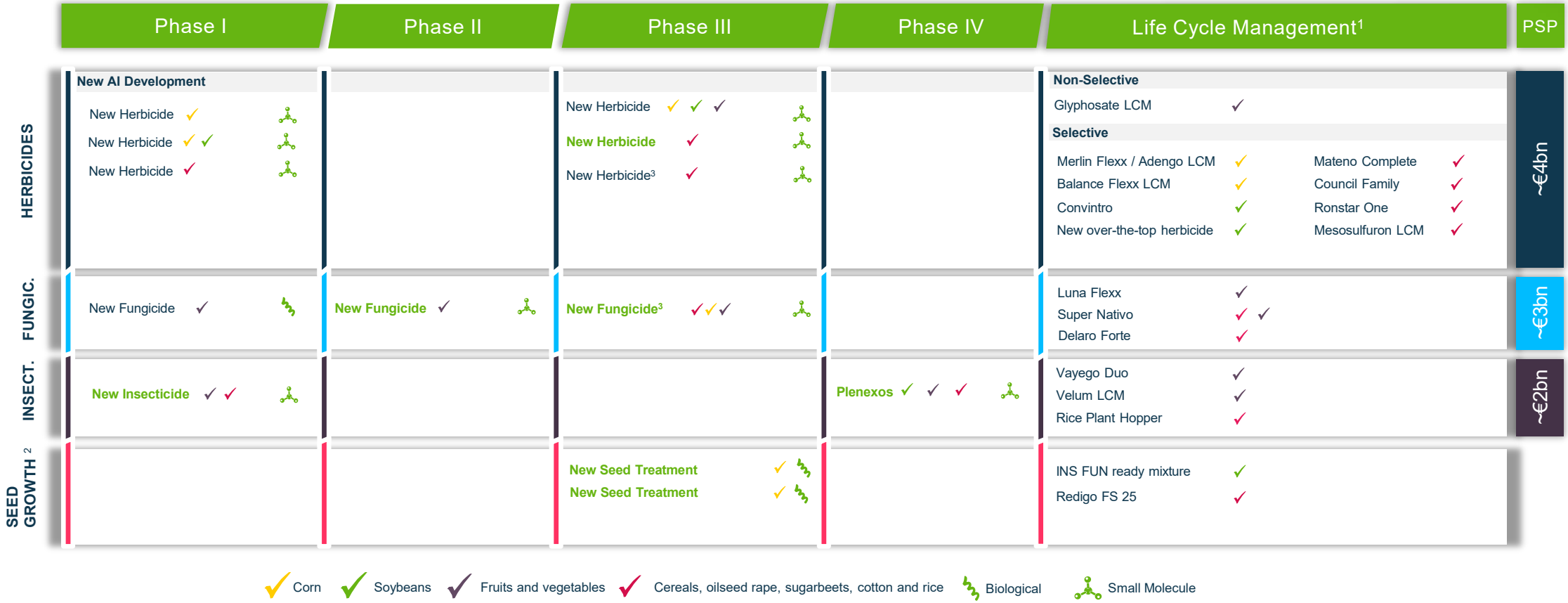
PSP = Peak Sales Potential, 50% incremental; Expected to reach 30% of PSP by 2032, 80% of PSP by 2037 and remainder in 2038+; **Note that products are excluded from the pipeline PSP typically the year following launch**

[1] In collaboration with KWS; [2] In collaboration with BASF; [3] "Other" category includes seeds and traits, such as cotton, canola, wheat, OSR, rice, vegetable seeds and sugarbeets, plus carbon and digital Models

Crop Science: Crop Protection R&D Pipeline

(Annual Update Feb 2023)

€9bn PSP



[1] Shown here is a subset of Bayer's total life cycle management activities; focused on new formulation developments which have the potential to bring significant innovation to customers compared to currently marketed product; Products shown may not yet be fully registered in all jurisdictions; includes all advancements made in FY'22, updated Feb'23; [2] SeedGrowth is currently reported within other SBEs; [3] 3rd party collaboration

PSP = Peak Sales Potential, 50% incremental; Expected to reach 30% of PSP by 2032, 80% of PSP by 2037 and remainder in 2038+; **Note that products are excluded from the pipeline PSP typically the year following launch.**

■ **advanced to next phase** Selection of projects listed here and included in the peak sales potential by segment do not include projects in early research or discovery

Data Connected Plant Breeding Advantage

Breeding Product Development Process (8-10 years)

Data & analytics driving decisions & AI connected pipeline - enabling a dynamic breeding pipeline

Fieldview Field Health Imagery Data Collection

Seed Chipping Technology for accelerated discovery

Marana, AZ Protected Culture Design Center

Cassette Planter delivers large scale field testing

Drone Sensors; globally connected data ecosystem

Seed Bulk-Up for Pre-Launch testing

Customer Insights

Data & Insights

Customer driven quantitative economic indices

Discovery

Population Selection

Population simulation and human supervised, model driven selection for desired characteristics

Phase One

Early Design

Advanced genomic selection including future environmental challenges

Phase Two

Intermediate Development

Large-Scale Field Testing, Trait Integration and prescriptive data collection to inform models and feed pipeline

Phase Three

Advanced Product Understanding

Traited Testing, Early Tailored Solutions data generation, and preparation of digital data package for Climate models

Phase Four

Pre-Launch

Broad product testing by R&D and Market Development, Seed Bulk-Up, System Testing and Pre-Marketing

Competitive Advantages

- Extensive environmental and on-farm data driving targeted discovery
- Unique data-driven bio-economic models that allow precise fitting of product concepts

- Industry-leading global germplasm libraries across crops and markets- 100X larger
- Decades of field and genomic data combined with industries leading data science platform

- Ability to rapidly sample and genetically evaluate millions of seeds- 15X faster
- Advanced Product Design facilities that enable multiple cycles of planting per year

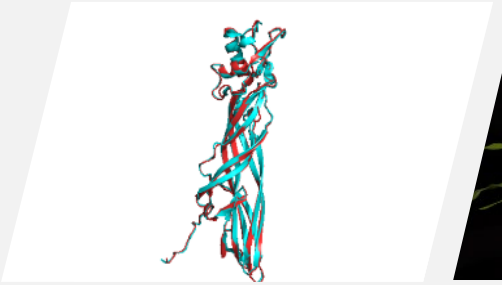
- Industry leading Trait Integration programs stack traits into elite germplasm
- Largest global field-testing footprint & digital field-testing twin capabilities diversifies geographic data insights

- Fully automated seed distribution centers prescriptively sample diverse growing environment
- Traited-Testing evaluates products as they would be experienced by the growers

- Most advanced and distributed network of field testing in the industry
- Evaluation of agronomic systems for product deployment & customer recommendations

Decades of Investment and Expertise Unlocks Biotech Advantage

Biotech Trait Development Process (12-15 years)



Gene Library contains Millions of Unique Proteins

Gene to Phenotype Optimization

Commercial Candidate Selection

Field Trials for Trait Approval

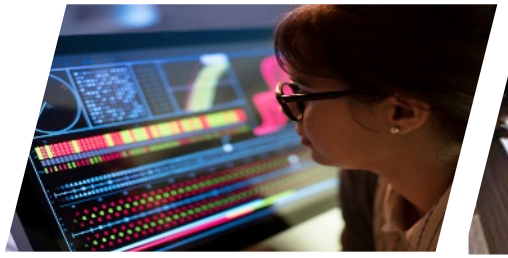
Seed Bulk-Up for Pre-Launch testing

Phase 0	Phase 1	Phase 2	Phase 3	Phase 4
Trait Discovery	**Proof of Concept**	**Early Development**	**Advanced Development**	**Pre-Launch**
High-Throughput Screening Identifies Desired Characteristics	State-of-the-Art Gene and Protein optimization capabilities Drive Product Concept Demonstrations In-Crop	Large-Scale Transformation, Commercial Candidate Selection, Pre-Regulatory Data Generation	Trait Integration, Regulatory Data Generation	Regulatory Submissions & Approvals, Seed Bulk-Up, System Testing and Pre-Marketing
Competitive Advantages				
Industry-leading **microbial gene libraries** enable new trait areas and novel MOAs Application of **cutting-edge RNA** technologies to develop targeted innovative products Industry leading **genome editing toolkits** drives novel trait discovery	Best-in-class **synthetic biology gene** expression toolkits drive precision in gene to phenotype optimization **High throughput, AI-driven protein** design drives rapid iteration to optimize new MOAs	Development of **multi-gene stacks** that enable a multitude of solutions for growers **CRISPR technology for targeted insertion** to enable product development flexibility **Largest global field-testing** footprint diversifies geographic data insights	**New traits are introgressed** into the most elite germplasm, and stacked with the industry's leading traits	**Experience successfully launching traits globally** Identification of **optimal agronomic systems** (trait, germplasm, chemistry) for product deployment & customer recommendations

Industry-Leading Expertise in Chemical Crop Protection R&D

Designing Molecules to Safely & Sustainably Address Needs of Farmers and Society

Chemical Crop Protection R&D timeline (10-14 years)



Phase 0

Mode of Action & Hit Identification

AI-supported molecular target & hit identification toward designing of potent and sustainable molecules

Competitive Advantage

Powerful target-based discovery platform

Unique early safety assessment with *in vitro* tests and *in silico* prediction tools & models

Focus on novel Mode of Action & novel chemical spaces

Phase 1

Proof of Concept

Profiling of best candidates addressing market needs; field trials; chemical & formulation optimization; mammalian & environmental toxicology assessment

Competitive Advantage

AI-supported design of molecules to create desired properties

World-class biology testing

Combined regulatory and chemical expertise allow early decisions to maximize probability of success

Phase 2

Early Development

Commercial candidate selection and product concepts; process development; pre-regulatory data generation

Competitive Advantage

Largest global field-testing footprint diversifies geographic data insights

Industry-leading formulation expertise with locations in Europe, NA, APAC

CoGs leadership ensured by cutting edge science and AI-supported synthesis and route design

Phase 3

Advanced Development

Commercial proof of concept, regulatory data generation

Competitive Advantage

Largest portfolio of assets and digital capabilities to define digitally enabled tailored solutions (CP, Breeding, Plant Biotech, Data Science)

Scientific and agronomic knowledge to design best resistance-breaking products

Phase 4

Pre-Launch

Regulatory Submissions & Approvals, Production, Application Optimization, Pre-Marketing

Competitive Advantage

Unrivaled global regulatory experience advising

Evaluation of agronomic systems for product deployment & customer recommendations

Industry-Leading Technology for the Next Generation of Biologicals

4-6 Year Product Development Timeline

Partner of Choice to Bring the Next Generation of Biologicals to Growers

Discovery	Research Optimization	Field Development	Grower Support	Industry leading portfolio
Access to a variety of diverse technologies through our Open Innovation Network	Accelerate competencies in fermentation and formulation optimization of microbial products for agriculture	Worldwide network of field-testing capabilities for early screening and development of application programs	Dedicated resources to understand compatibility, rainfastness and stability of biologicals in jug and on seed	Sustaining today's leading lineup and pioneering next generation of biologicals
Competitive Advantage	***Competitive Advantage***	***Competitive Advantage***	***Competitive Advantage***	***Competitive Advantage***
Strategic research partners with in-depth understanding of innovative modes of action resulting in novel products	Market leading end use products with ease of handling for customer and good shelf life for distribution	Understanding of geographic product range with precise guidance on practical use	Exceptional customer support with market leading biological products	Ability to address untapped markets and work within challenging regulatory constraints worldwide

Science for a Better Life

Bayer Crop Science Innovation Summit

New York City // June 20, 2023