Science for a Better Life

re generating growth

Biological Breakthroughs

Crop Science Innovation Summit

June 20, 2023

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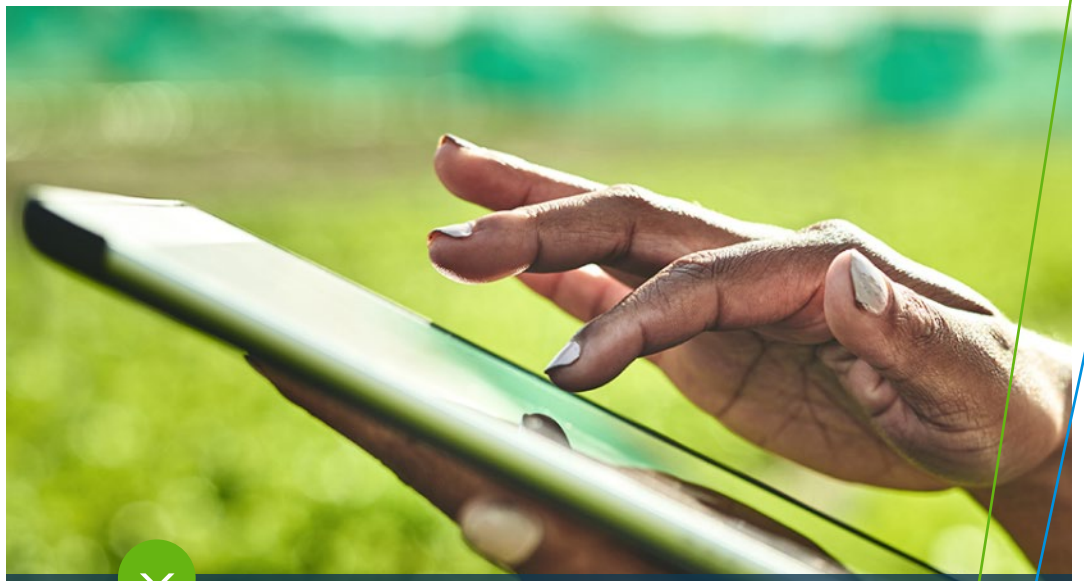

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Biological Solutions Key to Advancing Benefits of Regenerative Agriculture

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[1], VYNYTY CITRUS, decis, Citrole, REQUIEM	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®3 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

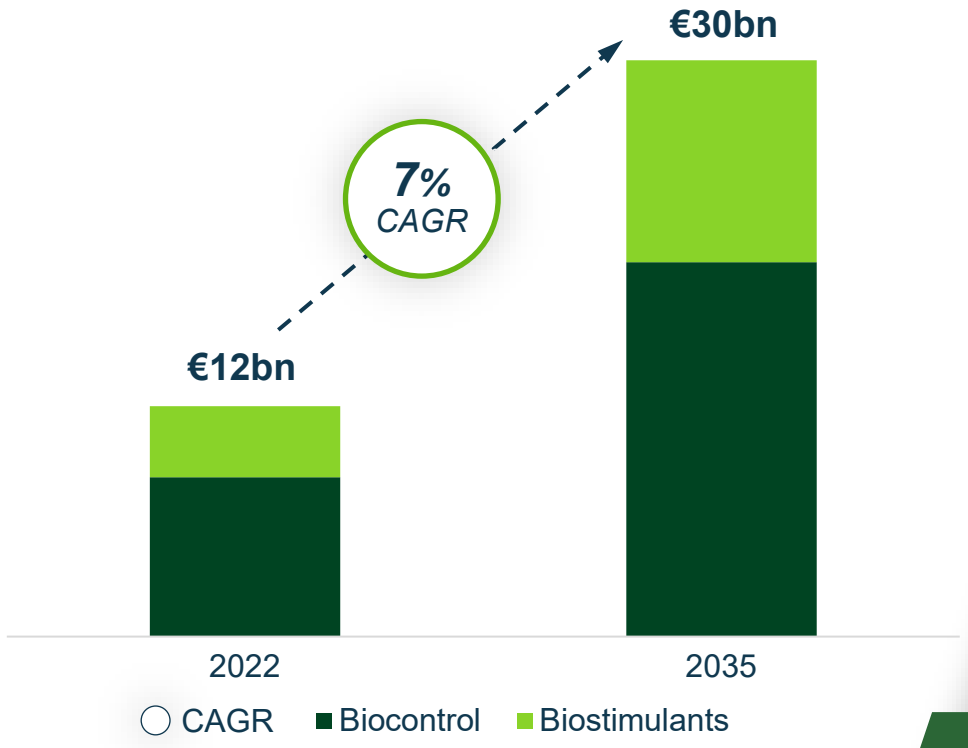
Sustainably increases marketable yield with spores optimized for improved root colonization

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

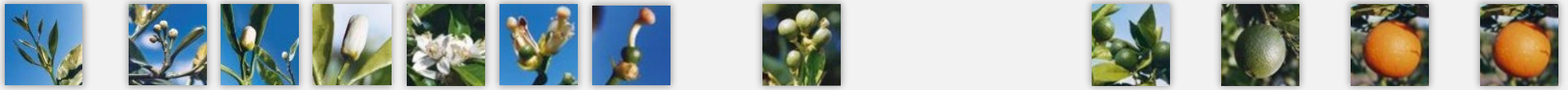
Complementing efforts with academic partnerships and Leaps by Bayer investments, *such as:* andes Sound PIVOT BIO

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

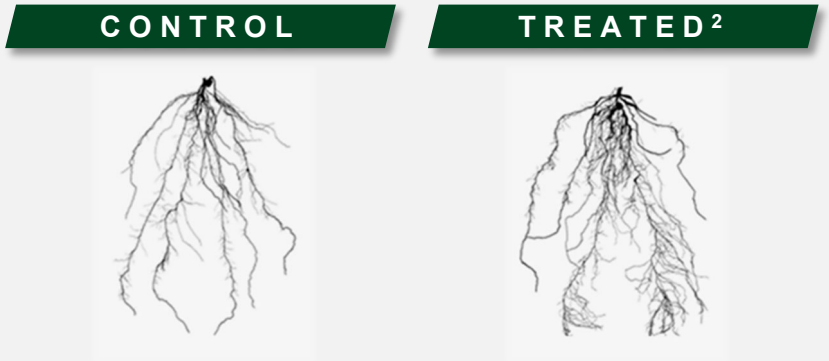
- Bird repellent for corn seeds in Europe with Black Pepper Oleoresin (BPO) as active ingredient
- BPO is a food grade natural extract which is applied onto seeds to protect them from bird attacks in freshly sown fields, which cause 9-15% of corn acreage in Europe to be replanted[1]
- BPO is a unique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

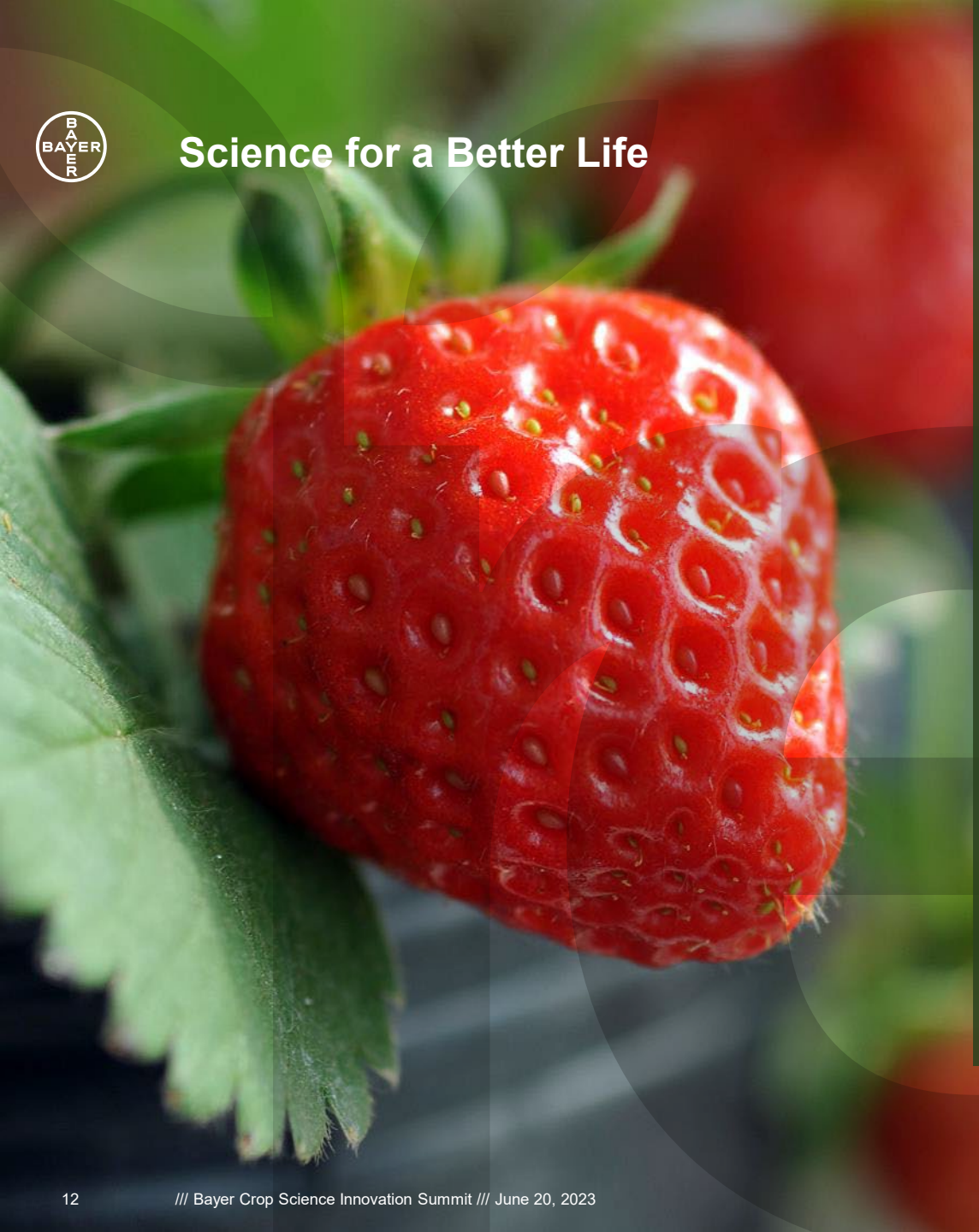
01 Leading portfolio with **~€200m in annual sales** from >20 commercial offerings in 2022

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

APPENDIX

regenerating growth

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Crop Science Innovation Summit

June 20, 2023

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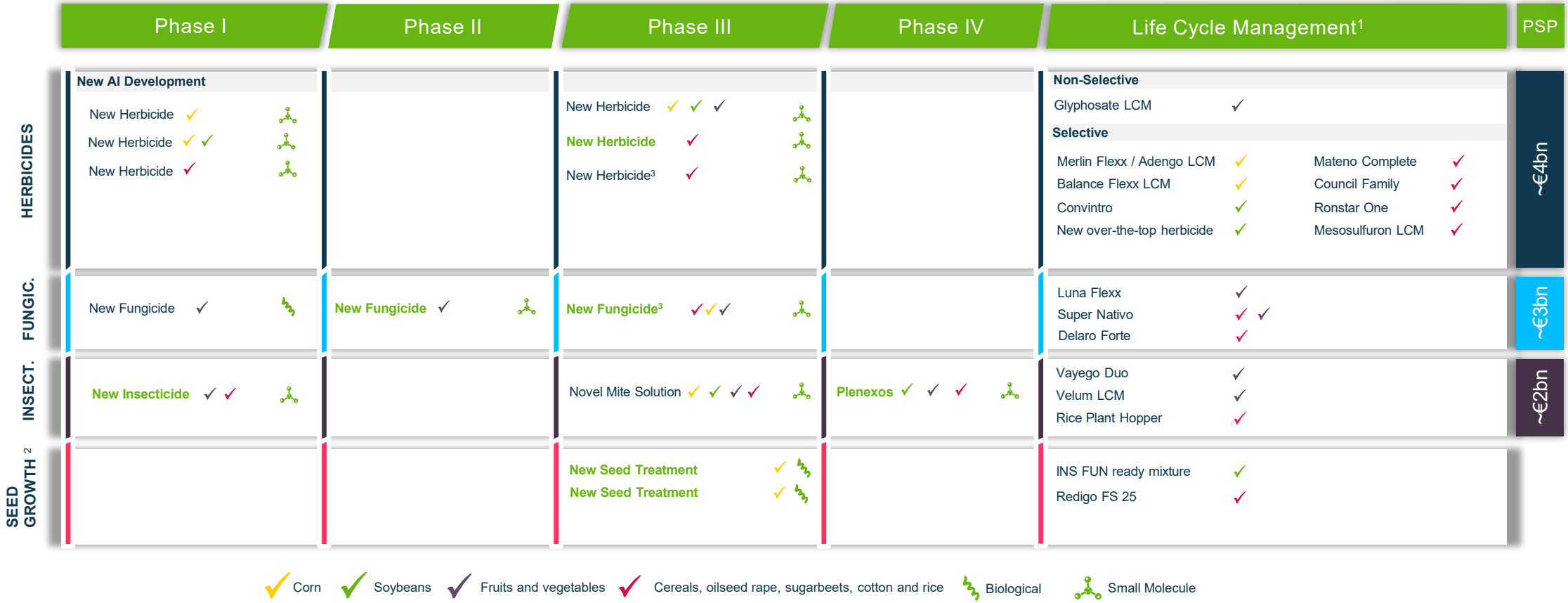
Crop Science: Crop Protection R&D Pipeline

(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

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

Access to a variety of diverse technologies through our Open Innovation Network

Competitive Advantage

Strategic research partners with in-depth understanding of innovative modes of action resulting in novel products

Research Optimization

Accelerate competencies in fermentation and formulation optimization of microbial products for agriculture

Competitive Advantage

Market leading end use products with ease of handling for customer and good shelf life for distribution

Field Development

Worldwide network of field-testing capabilities for early screening and development of application programs

Competitive Advantage

Understanding of geographic product range with precise guidance on practical use

Grower Support

Dedicated resources to understand compatibility, rainfastness and stability of biologicals in jug and on seed

Competitive Advantage

Exceptional customer support with market leading biological products

SERENADE

BIORISE

FLiPPER

Industry leading portfolio

Sustaining today's leading lineup and pioneering next generation of biologicals

Competitive Advantage

Ability to address untapped markets and work within challenging regulatory constraints worldwide