



Keynote Agricultural Solutions

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Agenda

- 1 **Market environment**
- 2 Agricultural Solutions – focus area of BASF
- 3 The new BASF in agriculture in 2019
- 4 Target markets
- 5 Differentiators
- 6 Key measures
- 7 Targets

The world in 2030

Population growth

~9 billion people need food

Growing middle class¹

High demand for calories and protein rich diet

Limitations in arable land

Arable land under pressure², limited expansion possible

Climate change

High volatility in crop production and farmer income

The society in 2030

Increased
urbanization

Acceptance of
digital technologies;
ag labor shortage

Demand
for healthy,
sustainable food

Consumers demand
transparency and
sustainability

Increasing
regulatory
requirements

Drive for
innovative
solutions

Trade
conflicts

Increased trade
frictions and local
food demand

The farm in 2030

50% higher
productivity
required

Drives growth
in high-quality
seeds and crop
protection

Resistance
to existing crop
protection products

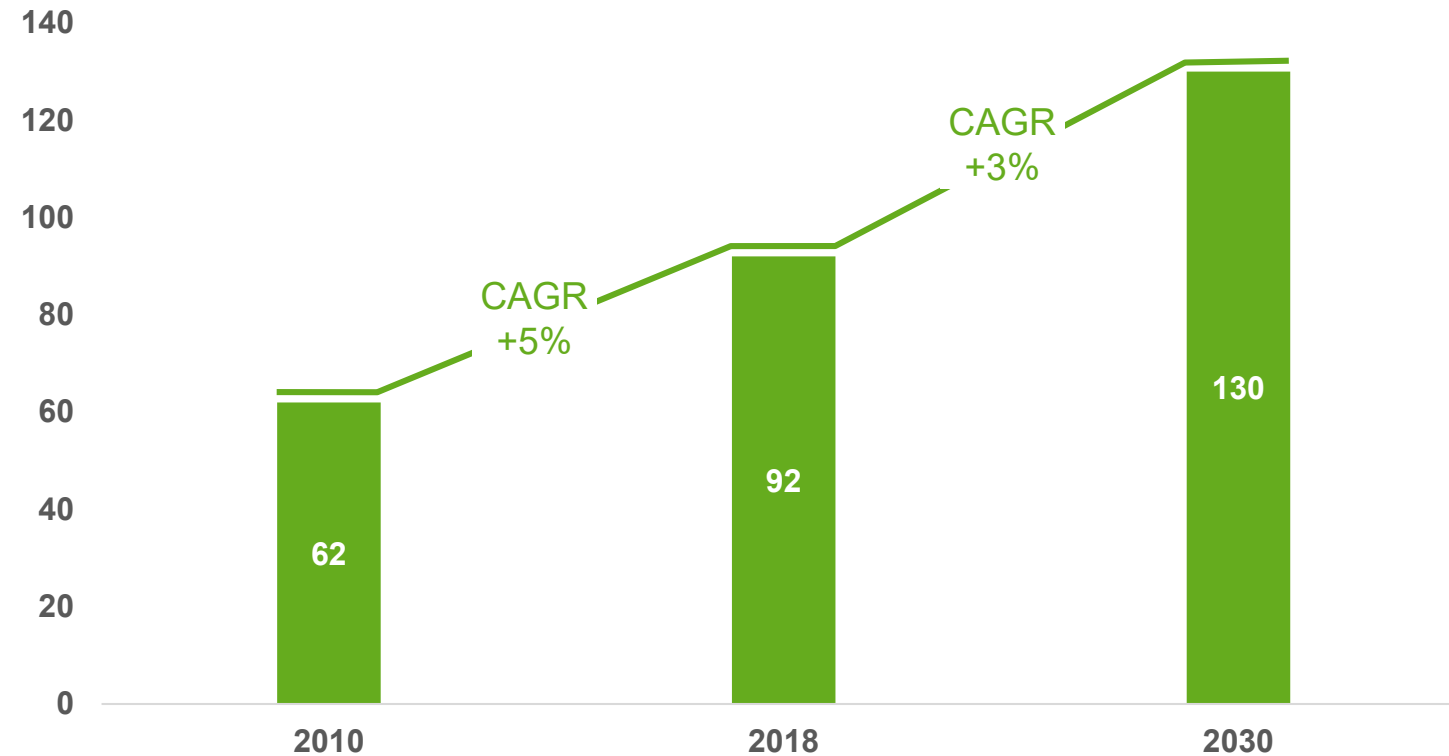
Strong demand for
novel modes
of action

Increased farm
professionalization

Strong focus on
digitalization and
farm management
systems

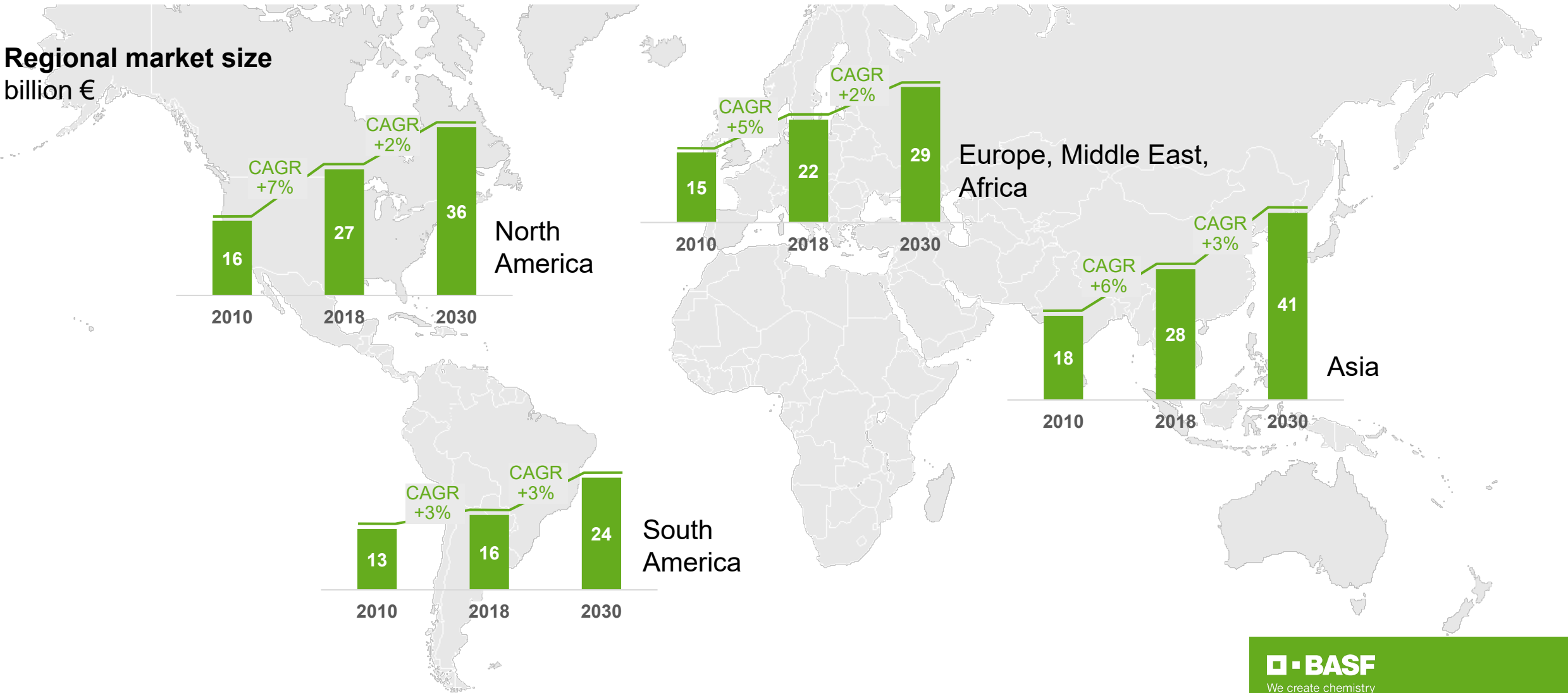
Agricultural solutions is an attractive market driven by increasing demand for food

Market size
billion €



- Crop protection and seeds continue to grow
- Main drivers are increasing yields and growing technology adoption
- Lower growth in crop protection products due to higher regulatory pressure and increasing application of precision farming tools
- Digital applications market grows rapidly, potentially reaching €10 billion by 2030
- Farmers will look to combine crop protection, seeds, digital and application technologies while fulfilling societal requirements

All regions are of significant size and will contribute to market growth



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Agricultural Solutions is strongly contributing to BASF's purpose “We create chemistry for a sustainable future”

~5%

Sales to 3rd parties
CAGR 2012 – 2018¹
(organic growth +3%)

~23%

Average EBITDA
margin before
special items
2012 – 2018¹

~13%

Average return on
capital employed
2012 – 2018¹

~€2.3 billion

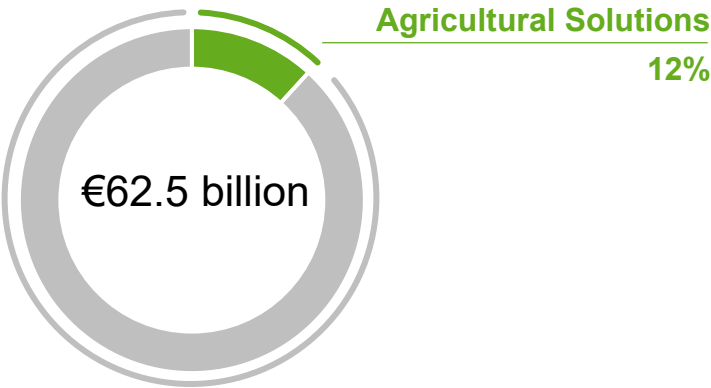
Average annual sales
with products on the
market for less
than 5 years
2012 – 2018

€6 billion

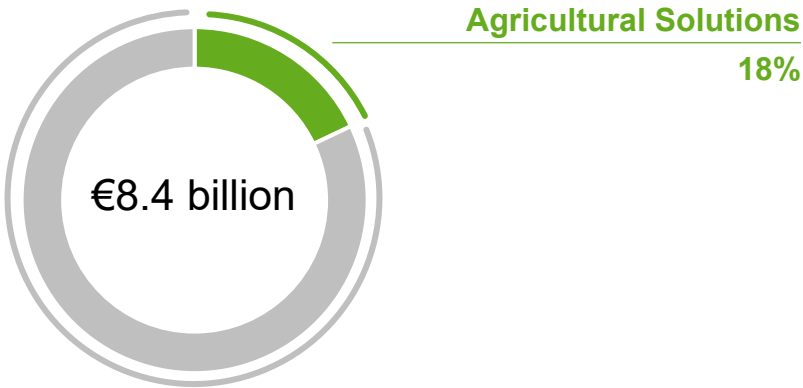
Peak sales potential
of innovation pipeline
2018 – 2028

Agricultural Solutions is a major earnings contributor to BASF Group

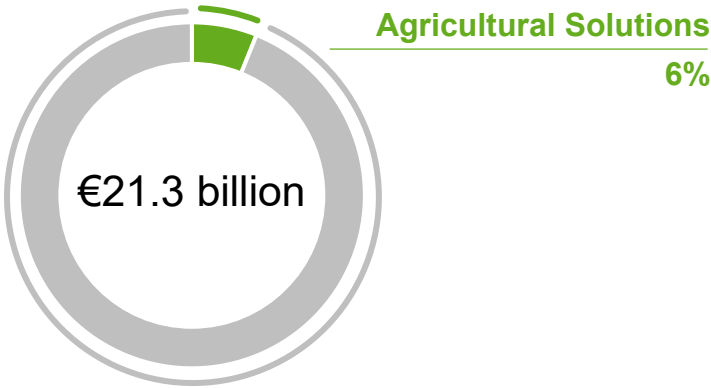
Sales, last 12 months¹
billion €



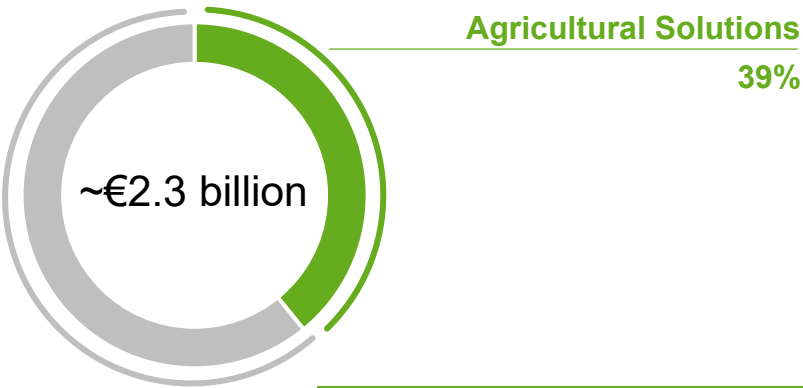
EBITDA before special items, last 12 months¹
billion €



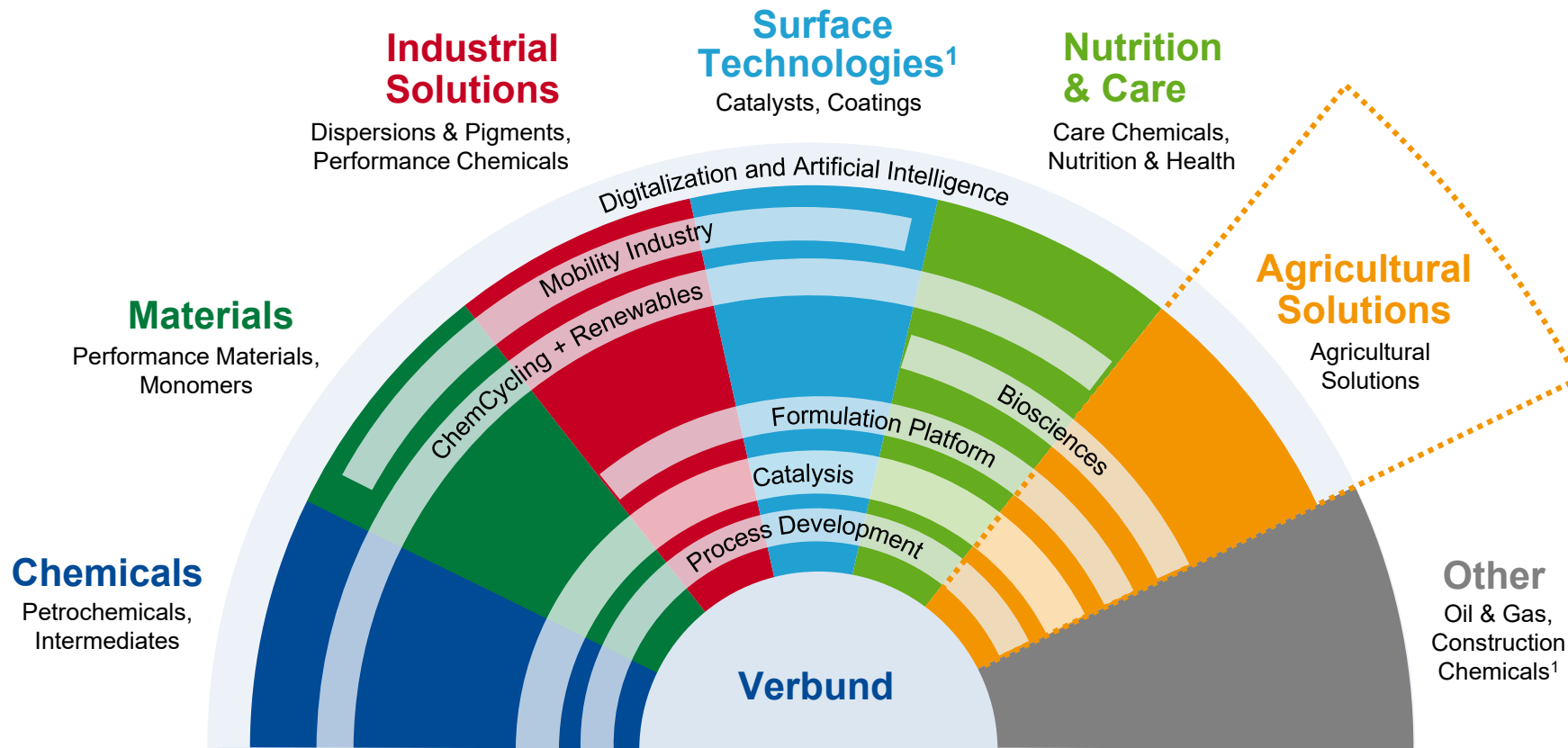
Capex budget 2019–2023



Expected annual R&D expenditures
billion €



Agricultural Solutions is a focus area of BASF and benefits from the integration into the production and know-how Verbund



- Agricultural Solutions sources ~25% of its raw materials, formulation components and catalysts from other BASF businesses
- Integrated biotechnology research platform
- Formulation know-how and development platform
- Synergies in digitalization

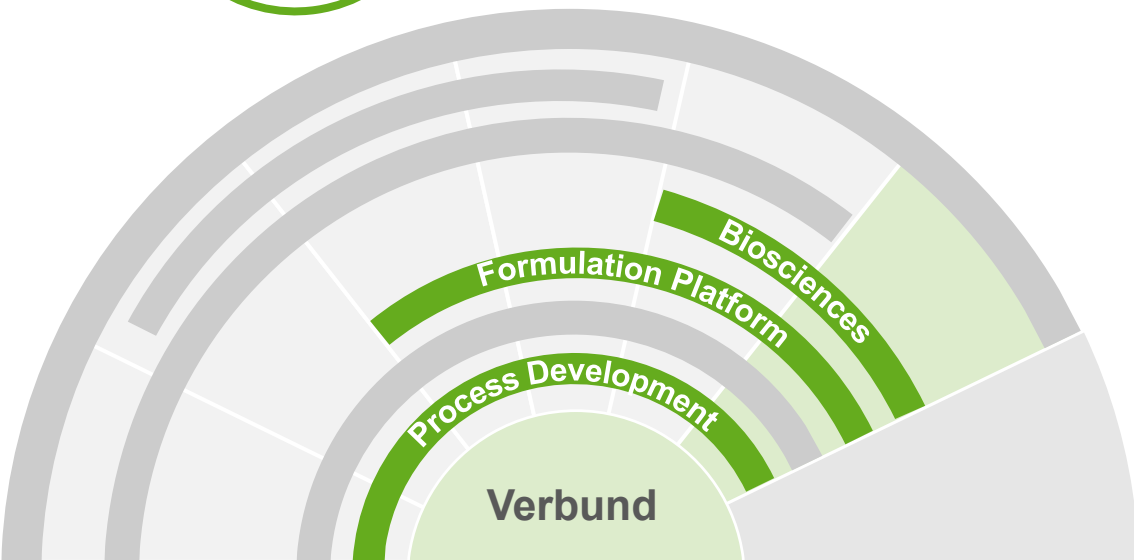
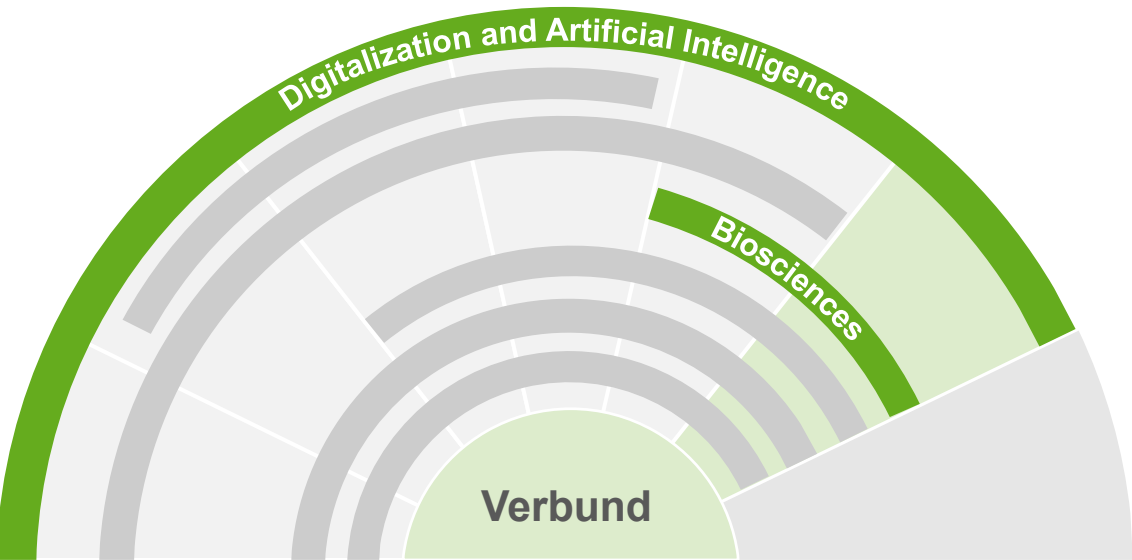
BASF Verbund is key success factor to accelerate development, registration and launch of innovative crop protection products



Revysol®
> €1 billion
estimated peak sales potential



Inscalix®
Low triple digit million euro
estimated peak sales potential



Providing innovative solutions that enable agricultural productivity, environmental protection and value to society

Societal requirements

CO₂-neutrality



Ability to cope with extreme weather events



Maintain and increase biodiversity



Foster trust in science



Contribution of BASF Agricultural Solutions

- Optimized crop production and higher yield (lower inputs, higher outputs)
- High-yield and stress-tolerant crops
- Digital technologies for targeted applications
- Sustainability in practice
- Industry-leading sustainability criteria
- Increased transparency

AgBalance™ – supporting farmers in measuring, demonstrating and improving their sustainability performance

- Holistic method for life-cycle assessment in agricultural and food value chain production processes
- Enables assessment of all three sustainability pillars (ecology, society and economy)
- Helps farmers make informed decisions to improve sustainability of farming practices
- AgBalance™ has been used to improve sustainable cultivation of crops such as oilseed rape/canola, corn, soybean, wheat and vegetables

Example:
Application of urease inhibitor
Limus® in wheat farming
in Germany

- Greenhouse gas emissions -4%
- Acidification -40%
- Eutrophication -8%





Finding the **right balance** for **success**

for **farmers, agriculture**
and **future generations**

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Structural integration of acquired businesses and assets successfully completed

Business continuity from **Day 1** onwards

Around **€2 billion** sales in 12 months after closing

More than **4,500** colleagues integrated

All **key personnel** joined BASF

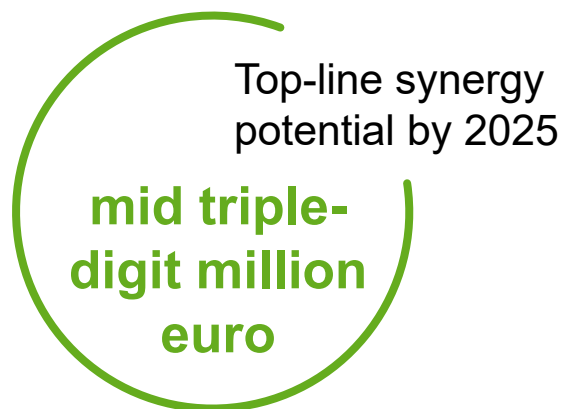
200 sites in **60** countries integrated

Complementary portfolios of products and services

Enhanced **R&D** pipeline, capabilities and scale

ERP system migration completed

Following structural integration, the focus is now on realizing synergies and measures to further increase competitiveness



Focus on realization of top-line synergies

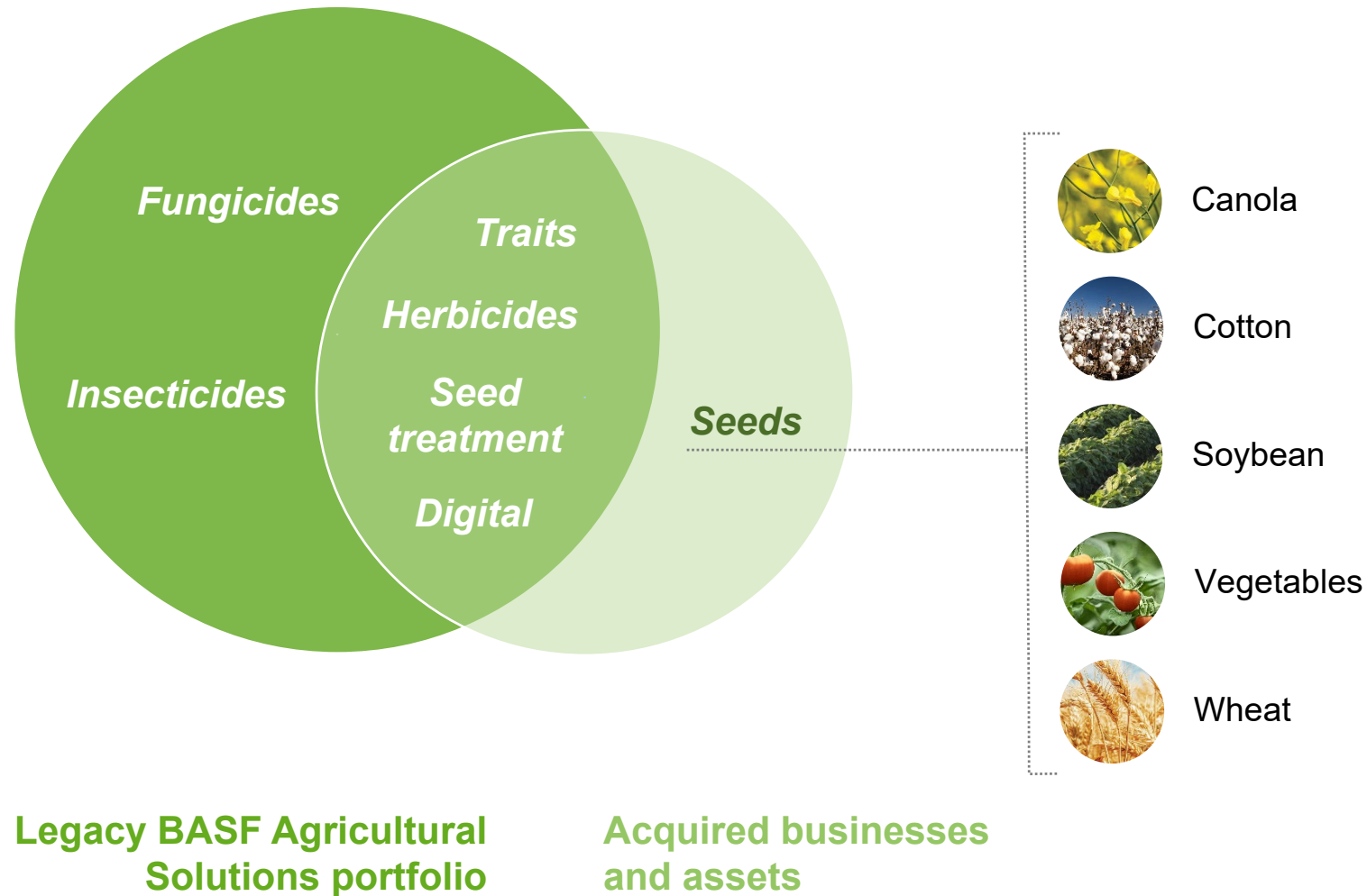
- Significant contribution in North America expected from combining seeds and crop protection products
- Brazil is aiming for synergies from seeds business
- Asia and Europe to contribute to synergies through connected offers and new customers
- Realization of synergies in 2019 on track



Measures to increase efficiency and commercial excellence

- More than 350 measures identified in the areas of commercial excellence, R&D and regulatory, inventory and capital expenditures, procurement and organizational efficiency
- Improving performance short-term, strengthening BASF in agriculture for long-term success

BASF transformed from a crop protection company into a provider of agricultural solutions



New competitive position

- Ability to provide connected offer of crop protection products, seeds and digital solutions in selected crops
- Global number 3 position in crop protection strengthened (e.g., in herbicides, seed treatment)
- Relevant number 4 position in seeds with leading position in canola and, in future, hybrid wheat

Following the acquisition, BASF is fully enabled to offer innovative solutions with strong brands in all indications and sectors¹

Seeds & traits



Seed treatment



Crop protection



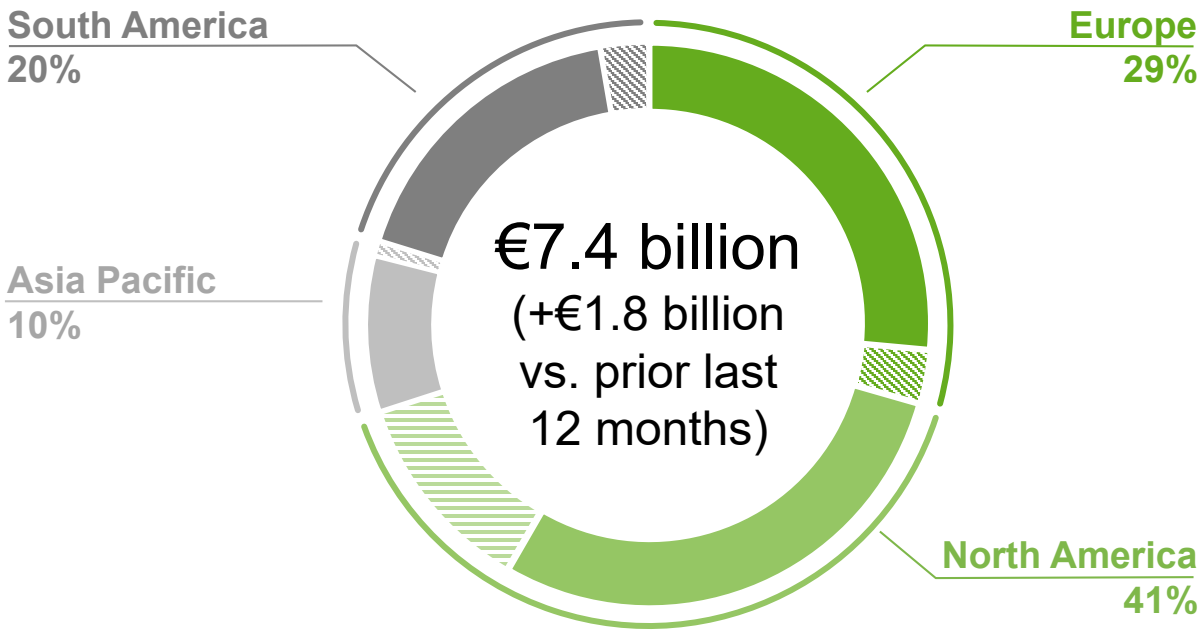
Digital farming



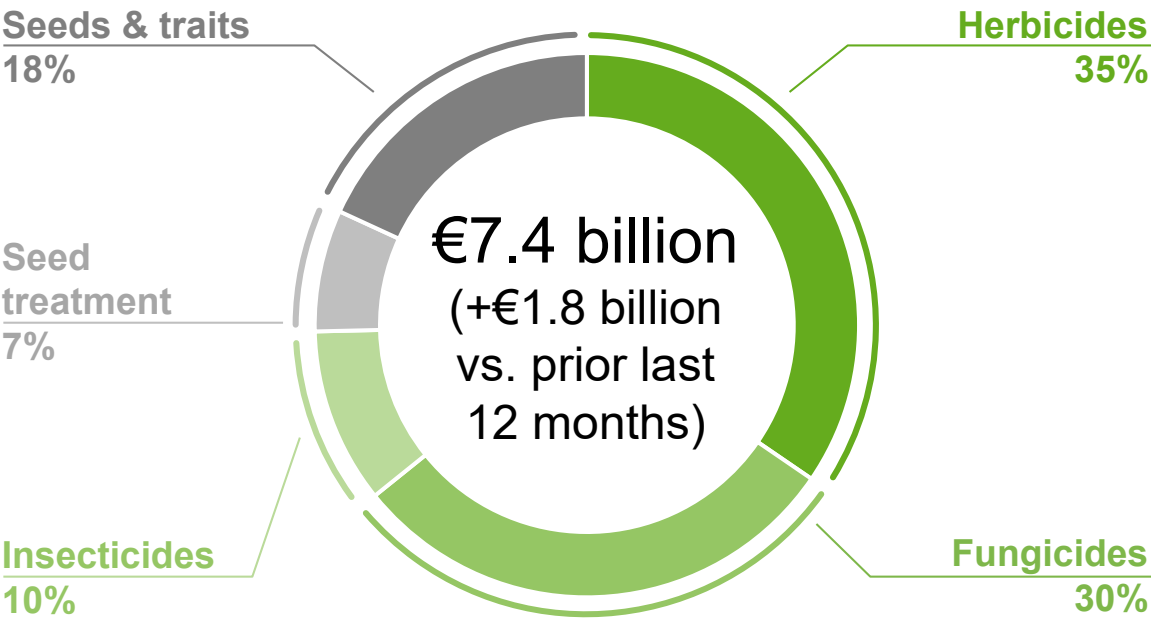
● Fungicides ● Herbicides ● Insecticides

Well-balanced portfolio with significant presence in all regions, indications and sectors

Sales by region, last 12 months¹
%



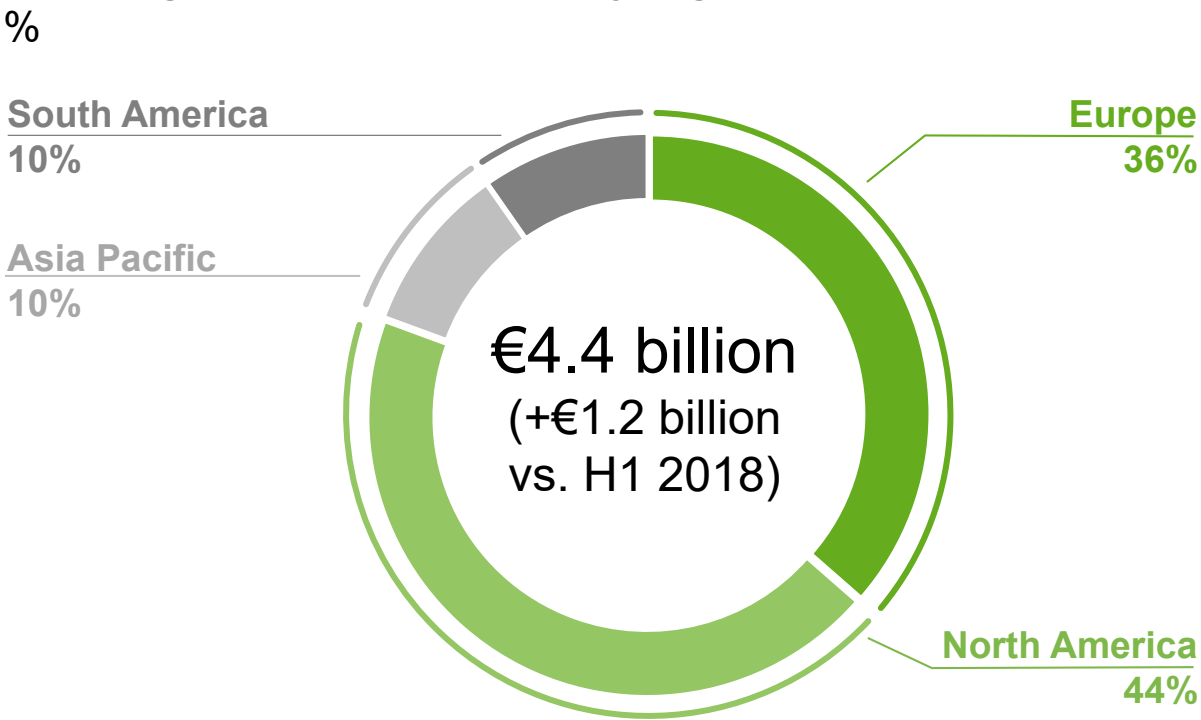
Sales by indication and sector, last 12 months¹
%



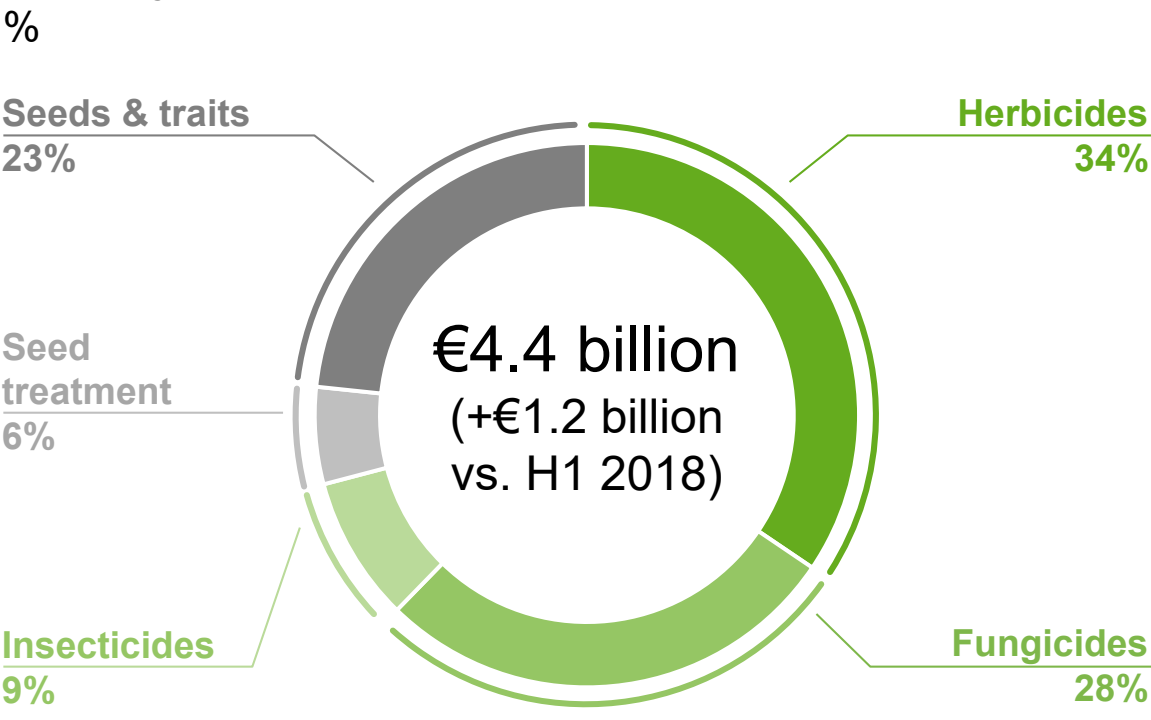
■ Crop protection
■ Seeds & traits

Acquired seeds business with record sales in canola, cotton and vegetables in H1 2019

Sales Agricultural Solutions by region, H1 2019



Sales by indication and sector, H1 2019



Legacy crop protection business impacted by adverse weather conditions and trade conflicts in H1 2019



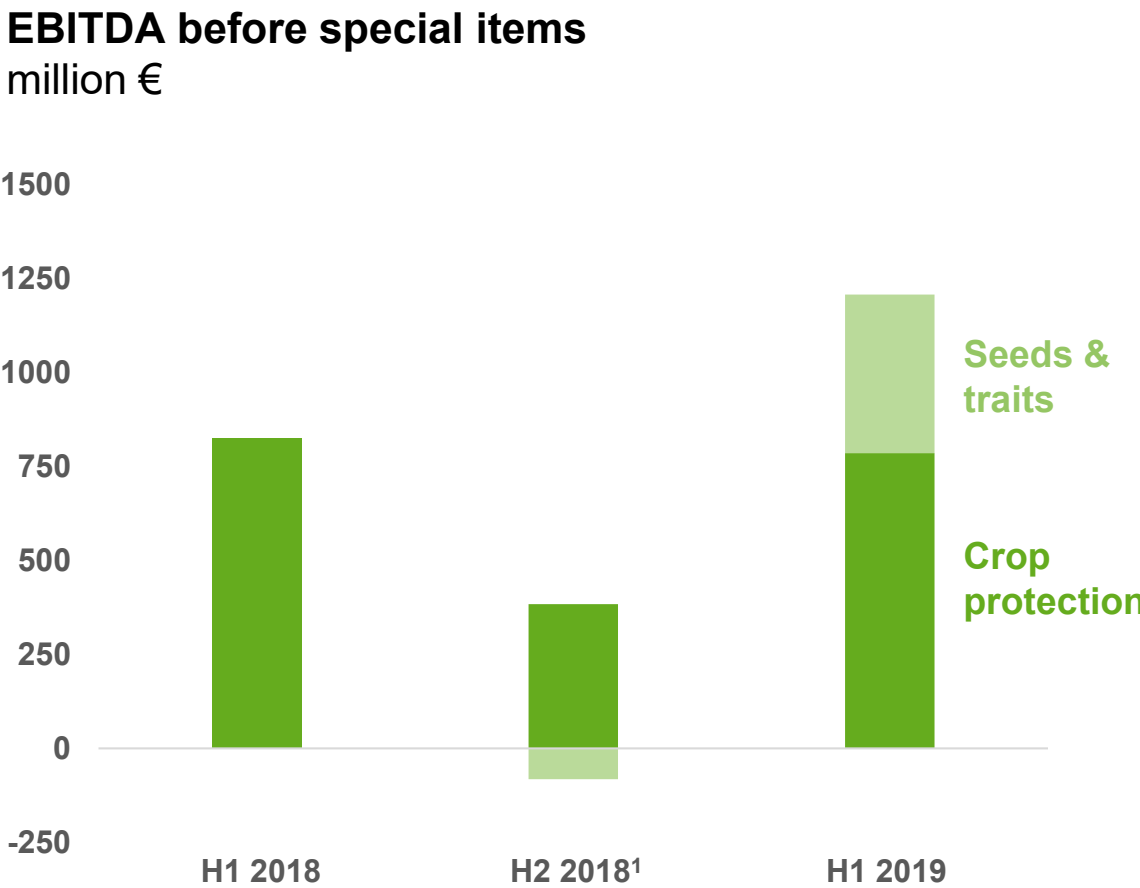
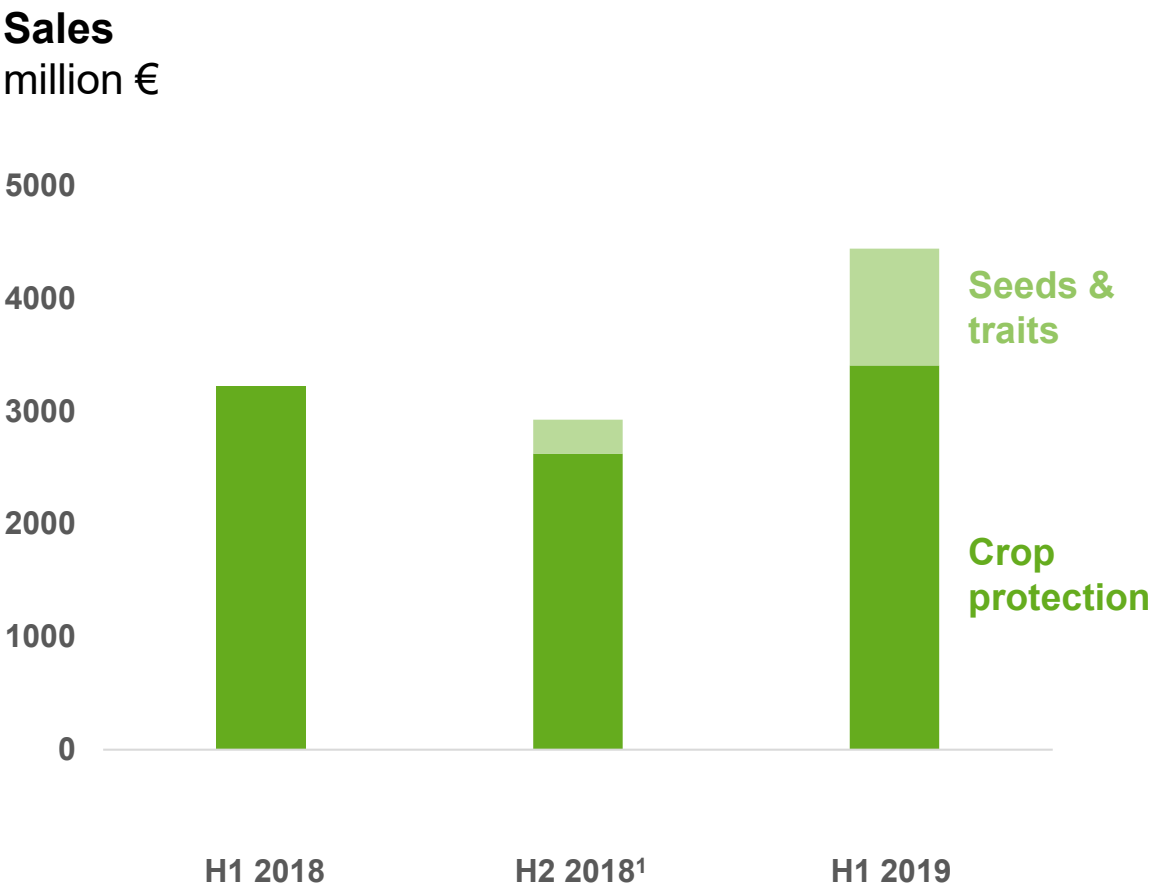
Challenging season in North America

- Global trade conflicts impacted market development
- Severe drought in Canada burdened fungicides business
- Delayed planting and unfavorable crop conditions in the U.S. due to adverse weather conditions and flooding
- Negative mix effect due to weak demand for crop protection products and less soybean acres
- Substantial destocking by distributors; BASF managed to reduce channel inventories

Good business development in South America

- Good start into the season 2019/2020 with low channel inventories
- Above-market growth expected, particularly in Brazil

Strong profitability of Agricultural Solutions with distinct seasonality

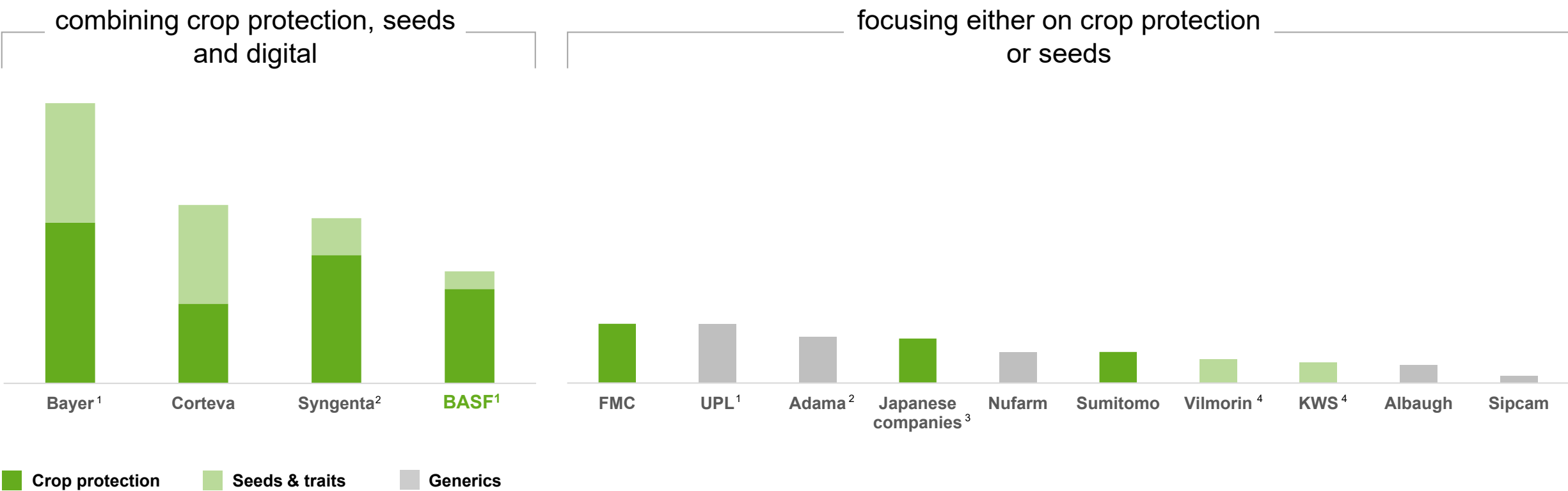


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BASF is well positioned in the group of market-leading companies

Competitive landscape, sales 2018



¹ Proforma sales; BASF Agricultural Solutions: legacy plus acquired business (FY) based on internal estimates ² Part of ChemChina
³ R&D-driven Japanese companies within TOP 30 AgChem companies and sales <€1bn; ⁴ incl. 50/50 AgReliant Genetics JV split; Source: AgbioInvestor 2018

BASF Agricultural Solutions to strategically focus on four crop systems, covering ~70% of the total market



Crop system
soybean – cotton – corn

in the Americas **30%**

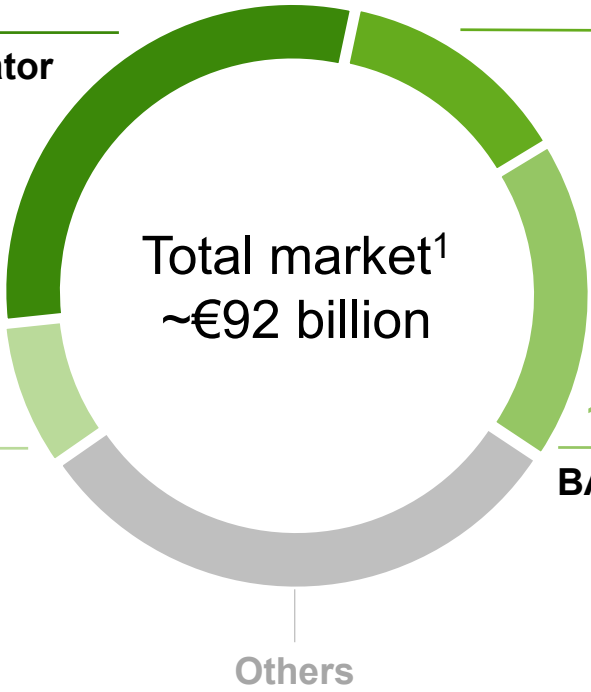
BASF ambition: Strong innovator



Crop system
rice

in Asia **8%**

BASF ambition: Recognized player in Asia



Crop system
wheat – canola – sunflower

12% in Europe, North America

BASF ambition: Market leader



Crop system
fruit and vegetables

18% in all regions

BASF ambition: Global number 3



Farmers manage their land in an integrated approach to optimize yield, earnings and the use of natural resources

Farmer benefits from growing different crops

- Maximize farm profitability
- Balance risks within a season, e.g., weather
- Optimize farm management and workload distribution
- Maintain soil quality season after season

Crops are managed in a system to

- Minimize pest and weed pressure
- Increase yield with crop rotation
- Improve nitrogen and soil management
- Optimize equipment usage
- Address societal challenges, e.g., biodiversity



crop systems

BASF's **connected offers** across...

- Seeds
- Crop protection
- Digital
- Sustainability

... **integrated into the farmers' operations and practices driven by their crop system**

Crop systems approach enables BASF to support farmers in selected crops and geographies



**soybean
cotton
corn**



**wheat
canola
sunflower**



**fruit and
vegetables**



rice

Key challenges for farmers

- Profitability and income volatility
- Pests, weeds, diseases resistant to existing technologies
- Secure farm profitability and efficient farm operations
- Address socio-political requirements, e.g., EU greening policy
- Higher quality standards from food value chain and consumers, e.g., low residues
- Capture crop value during seasonal price volatility
- Farm modernization and automation due to labor shortage or higher costs

BASF contribution

- Differentiated traits in soybean and cotton
- New active ingredients in crop protection
- Best agronomic data-based digital recommendations
- R&D pipeline in crop protection and wheat traits
- Launch hybrid wheat
- Digital tools to address farmer needs
- Customer-consumer approach for food value chain orientation in seeds
- Superior digital tools addressing farmer and food value chain requirements
- Educate farmers about BASF's offerings
- Use sustainability to promote new, innovative crop protection technologies

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BASF will differentiate versus peers with four strategic levers



Innovation



Digital



Sustainability



Customer experience

BASF will differentiate versus peers with four strategic levers



Innovation



Digital

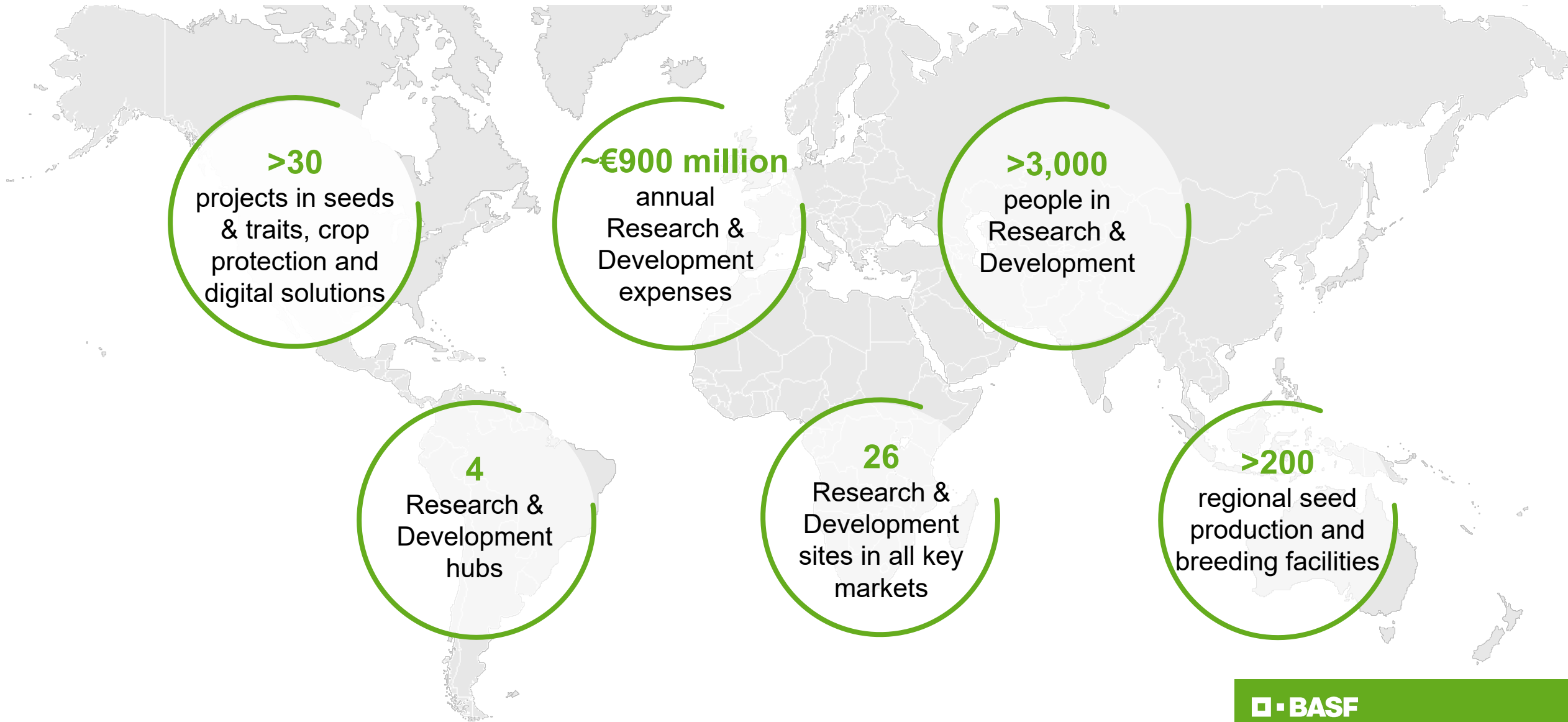


Sustainability

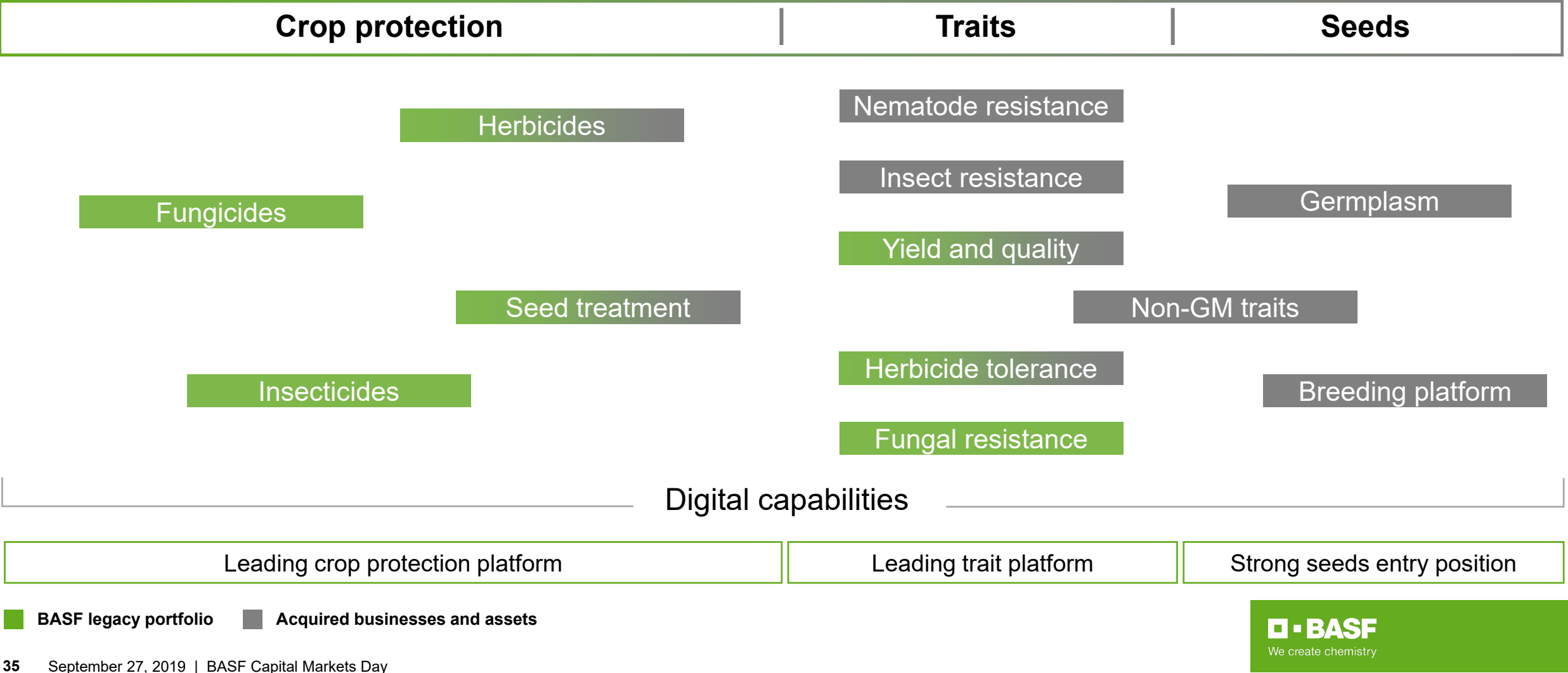


Customer experience

Strong global R&D platform with locations in all key markets

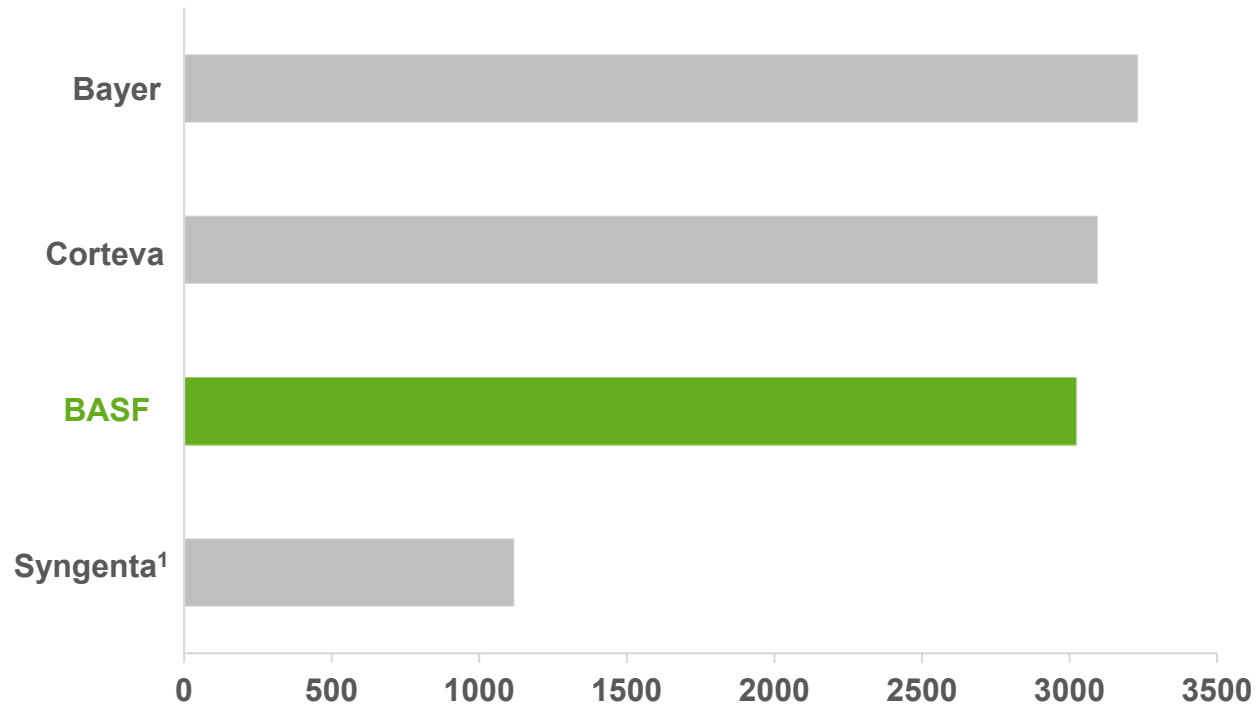


A comprehensive set of capabilities enables market-leading R&D platform



BASF has one of the strongest and most innovative traits portfolios

Patent asset index™ traits



- Our strong traits pipeline complements our leading crop protection portfolio providing farmers with systems solutions for weed, pest and disease management
- Our trait portfolio is positioned to deliver innovative solutions for each crop system
- Differentiated and proprietary traits create value in own seed products and open up licensing opportunities

BASF fosters an open innovation system with research institutes and partners from industry

Technologies and know-how

BASF
We create chemistry

Market access



Canola – Omega-3
together with Cargill

Sustainable plant-based
source of omega-3 fatty
acids in canola



Corn & Soy – Yield & Stress
together with Bayer

Short Stature Corn for plants
with improved stability,
greater flexibility of in-season
crop inputs and nutrient use

More than 100 collaborations with academia and industry globally


BASF
We create chemistry

Strong pipeline with peak sales potential of >€6 billion¹ (1/2)

Crops	In launch	Development (2020 – 2025)	Advanced research (launch after 2025)	Early research
 <p>Soybean Cotton Corn</p>	<p>Engenia®</p> <p>Revysol®</p> <p>Inscalix®</p>	<p>Tirexor®</p> <p>Pavecto®</p> <p>Broflanilide</p> <p>Two in development</p> <p>Pavecto® seed treatment</p> <p>Teraxxa™</p>	<p>●</p> <p>●</p> <p>●</p>	<p>●</p> <p>●</p> <p>●</p>
	<p>LibertyLink®GT27™</p> <p>xarvio™ SCOUTING</p> <p>xarvio™ FIELD MANAGER</p>	<p>Herbicide tolerance trait</p> <p>xarvio™ SCOUTING</p> <p>xarvio™ FIELD MANAGER</p> <p>xarvio™ HEALTHY FIELDS</p>	<p>●</p>	<p>●</p>
 <p>Rice</p>	<p>Provisia™ herbicide</p> <p>Revysol®</p> <p>Inscalix®</p>	<p>Luximo®</p> <p>One in development</p>		<p>●</p> <p>●</p> <p>●</p>
	<p>Provisia™ rice trait system</p> <p>xarvio™ SCOUTING</p>	<p>xarvio™ SCOUTING</p> <p>xarvio™ FIELD MANAGER</p>		<p>●</p>

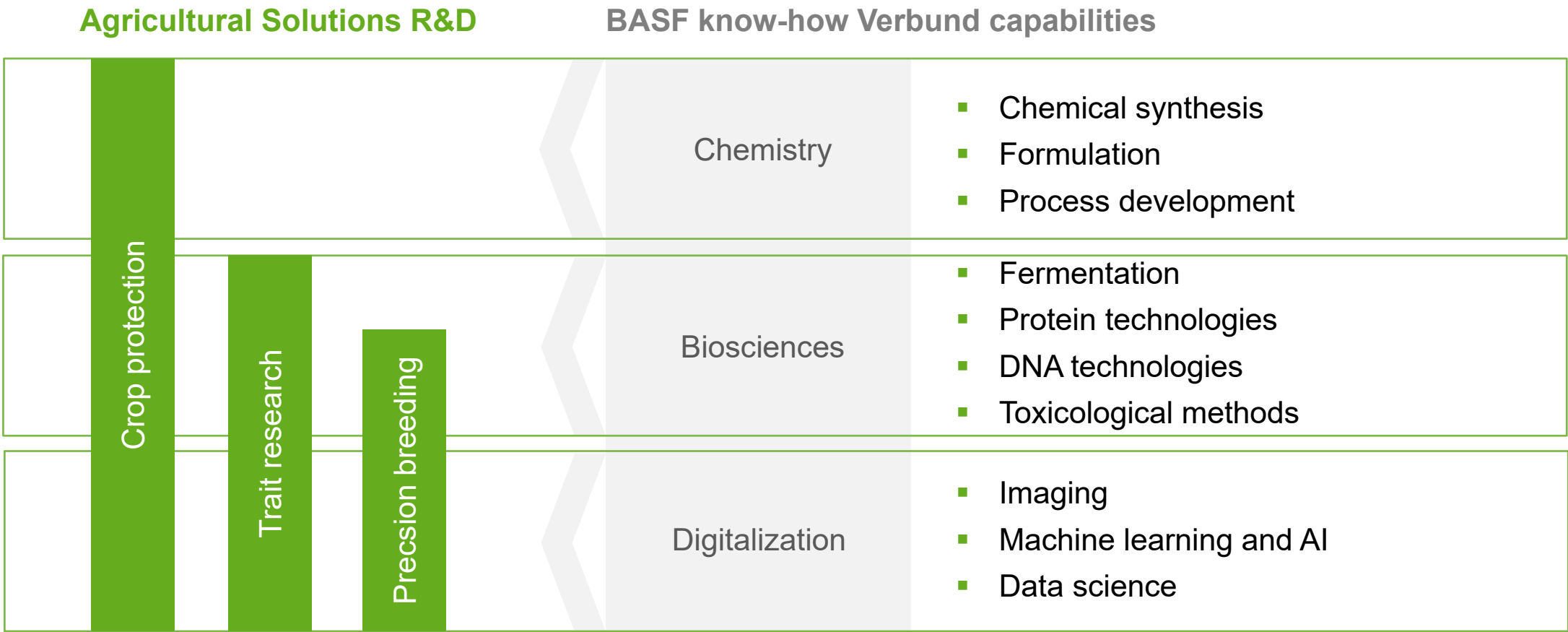
Herbicide Fungicide Insecticide Seed treatment Seeds & traits Digital

Strong pipeline with peak sales potential of >€6 billion¹ (2/2)

Crops	In launch	Development (2020 – 2025)	Advanced research (launch after 2025)	Early research
 <p>Wheat Canola Sunflower</p>	<p>Revysol®</p> <p>Relenya™</p> <p>InVigor® podshatter reduction InVigor® clubroot</p> <p>xarvio™ SCOUTING xarvio™ FIELD MANAGER</p>	<p>Luximo®, Tirexor® Pavecto® Broflanilide One in development</p> <p>Pavecto® seed treatment Teraxxa™</p> <p>Hybrid wheat LibertyLink® yellow canola PUFA</p> <p>xarvio™ SCOUTING xarvio™ FIELD MANAGER xarvio™ HEALTHY FIELDS</p>	<p>● ●</p>	<p>● ● ● ● ●</p>
	<p>Revysol®</p> <p>Inscalis®</p> <p>Vegetable seeds innovations xarvio™ SCOUTING</p>	<p>Tirexor® Pavecto® Broflanilide; one in development</p> <p>Pavecto® seed treatment Teraxxa™</p> <p>Vegetable seeds innovations xarvio™ SCOUTING xarvio™ FIELD MANAGER</p>	<p>● ● ●</p>	<p>● ● ● ● ●</p>

Herbicide
Fungicide
Insecticide
Seed treatment
Seeds & traits
Digital

Leveraging the BASF know-how Verbund gives a competitive advantage in Agricultural Solutions



Crop protection innovations with societal and regulatory requirements in focus are powered by the BASF Verbund



> **€1 billion**
estimated peak sales
potential

Revysol® fungicide

designed to meet the highest level of regulatory standards

The BASF Verbund advantage:

- De-risking through interdisciplinary approach of chemical, toxicological and regulatory sciences
- Proven expertise in computational modelling and machine learning to reduce off-target effects
- Parallel optimization of activity and minimization of unwanted secondary effects



**Low triple digit
million euro**
estimated peak sales
potential

Inscalis® insecticide

derived from fermentation with favorable environmental profile

The BASF Verbund advantage:

- Derived from a biotechnological approach through smart fermentation process development
- Innovative formulation technology drives efficacy
- Low use rates with minimal impact on beneficial arthropods and pollinators

Blockbuster technologies give soybean growers new options

Weed management: new herbicides and herbicide tolerance
Multiple new resistance-breaking herbicides linked with herbicide tolerance traits



Disease management: fungicides and fungal resistance
New fungicide solutions paired with novel, robust multiple mode of action fungal resistance trait technology



Pest management: nematicide seed treatment and nematode resistance
Leading nematicide seed treatments with new, broadest, most reliable nematode control trait technology



Soybean cyst nematode resistance trait

Hybrid wheat is an attractive blue ocean opportunity that benefits farmers and society



Wheat market demand requires game changing innovation

- Hybridization in wheat to follow the success stories of other hybridized crops
- BASF holds a strong position with hybrid wheat varieties
- We are in for the “long-play” with significant future value from breeding first, followed by traits for improved performance



Profitability

- Increase yield performance
- Higher return of investment



Risk management

- Yield stability and consistency
- Durable resistance by pest and disease control traits



Sustainability

- Increasing efficiency (water and nitrogen use)
- Drought and stress tolerance (climate change)
- Environmental benefits (less land use)

BASF will differentiate versus peers with four strategic levers



Innovation



Digital



Sustainability



Customer experience

Investments into digital products support growth in crop protection and seeds, new income streams will be established

Smartening crop protection and seeds

- Digitally enabled product launches
- Stewardship (e.g., Engenia® tool)
- Digitally enabled sales force

Enhanced digital market access

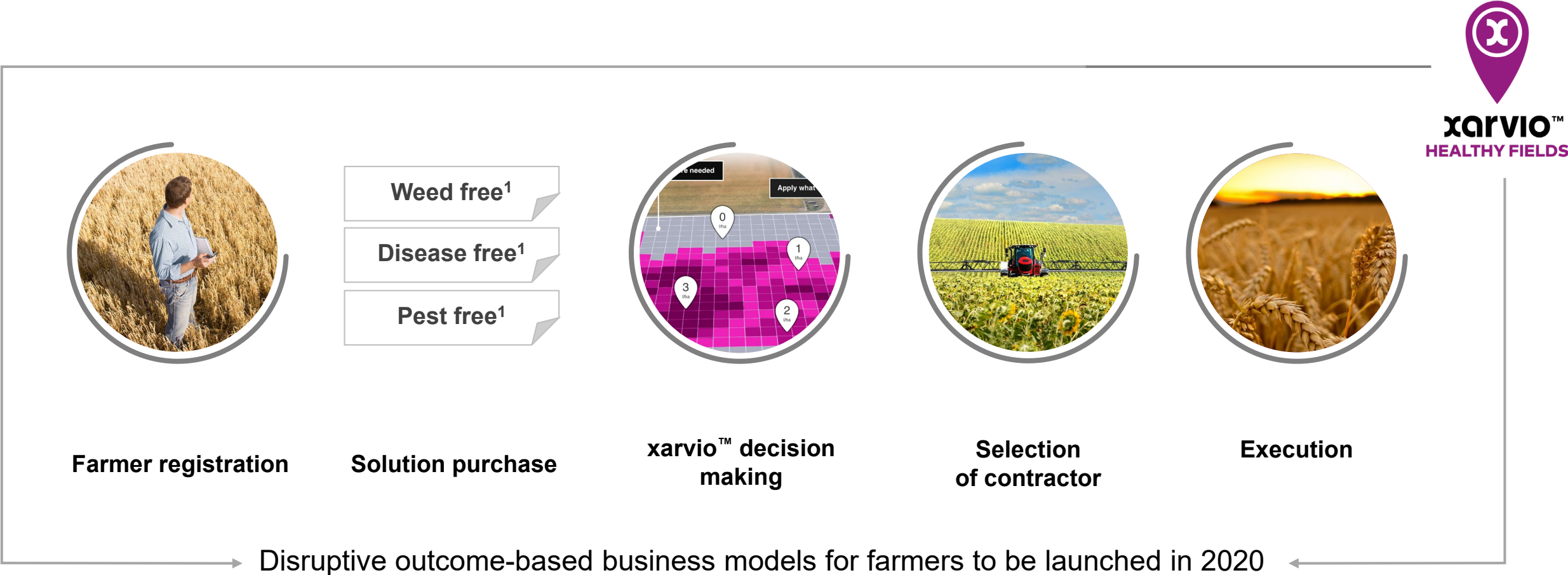
- Establish data relationships with growers and channel partners
- 1.2 million users today in >100 countries

New digital business models

- xarvio™ SCOUTING
- xarvio™ FIELD MANAGER
- xarvio™ HEALTHY FIELDS (launch 2020)



Combination of unique agronomic system with high-resolution plant protection allows for disruptive business models



Building on channel partnerships to reach more farmers faster with xarvio™



BASF collaborates with Nutrien Ag Solutions™ to provide their customers with xarvio™ products



AgroStar – a leading Asian e-commerce provider for agricultural inputs – uses xarvio™ products to help small-holders understand what is happening on their fields

BASF will differentiate versus peers with four strategic levers



Innovation



Digital



Sustainability



Customer experience

Sustainable Solution Steering: Accelerator product examples in Agricultural Solutions



Revystar®
Revysol®-based fungicide

Best foundation for farmer income and optimized farm management

- Satisfies the highest approval standards
- Essential tool for resistance management
- Outstanding biological performance



Vault® HP

Biological seed treatment system

- Improves root nodulation for more nitrogen-fixation potential
- Improved root architecture and nutrient uptake
- Greater plant vigor and optimized yield



Sharpen®

Burndown herbicide in key row crops

- Lower use rates
- Very effectively controlling resistant weeds
- Increased yield and resource efficiency

Smart Stewardship: Digital farming technologies will contribute to sustainability in agriculture



Use of digital technologies for **targeted applications**



Ensure **good agricultural practices**



Consider **current environmental conditions**



Online documentation and **transparency of application**

Example: Buffer zone tool

- Automatic mapping and consideration of no-spray buffer zones to sensitive areas (e.g., water bodies)
- Automated control of spraying equipment (e.g., avoiding vulnerable areas)
- Responsible application of crop protection products

BASF will differentiate versus peers with four strategic levers



Innovation



Digital



Sustainability



Customer experience

Customer feedback¹: BASF is a reliable, approachable and consistent partner for farmers

R&D,
technical
expertise
for high-quality
products

Strong
credibility as
an innovator

High-quality
people,
willing to listen

Reliable,
honest,
trustworthy

Vision,
experience,
expertise for
new products
that work

We want to strengthen customers' experience even further based on listening, dialog, respect and mutual trust



Crop system example: Why Western Canadian canola and wheat farmers choose BASF

High yields

- Top yielding seeds
- Competitiveness in the global grains market
- Quality and strict grading standards

Seasonal challenges

- Safeguard yield
- Risk management
- Establish strong, healthy crop
- Control difficult/resistant diseases, weeds and pests
- Maintain crop quality

BASF's connected offer to keep market leadership...

InVigor® hybrid canola
Hybrid wheat (in future)

xarvio™ FIELD MANAGER
xarvio™ SCOUTING



Heat® herbicide
Tirexor® herbicide
Nexicor® fungicide
Caramba® fungicide
Broflanilide insecticide

Heat® LQ
CleanFARMS®
Sustainability in Practice
Pod Shatter
Reduction technology

... integrated into the farmers' operations
and practices driven by their crop system

Wide range growing conditions

- Agronomic decision support
- Application optimization

Shifting the way of farming

- Greater harvest flexibility, manage workload during busy harvest season
- Tighter rotations
- High-performing production practices
- Sustainability and environmental protection

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Achievement of defined milestones will drive strong performance during the next decade

Innovation

- Implement crop systems approach
- Launch eight crop protection active ingredients
- Launch new soybean trait platform
- Launch hybrid wheat (by mid 2020s)

Digital

- Enable existing business with digital tools
- Establish data relationships with customers
- Introduce and grow outcome-based digital business models

Sustainability

- Introduce Revysol®-based products with excellent sustainability profile
- Connect digital tools and crop protection to improve sustainability

Customer

- Meet evolving customer needs based on continuous dialogue
- Provide winning offers based on results of systematic use of CRM and customer feedback tools

Efficiency

- Mid triple-digit million euro sales synergies to be realized by 2025
- Efficiency program started in 2019, to contribute ~€200 million by 2022

Key measures

Major investments include R&D, production assets for new active ingredients, resources for digital offerings and acquisitions

	Annual expense (estimate)	Future	Drivers
R&D	<ul style="list-style-type: none"> ▪ €900 million 	<ul style="list-style-type: none"> ▪ Slight increase, depending on market conditions 	<ul style="list-style-type: none"> ▪ Innovation in crop protection ▪ Innovation in seeds & traits
Capital expenditures	<ul style="list-style-type: none"> ▪ €260 million 	<ul style="list-style-type: none"> ▪ Increase, depending on market conditions 	<ul style="list-style-type: none"> ▪ In-house production of key active ingredients and intermediates
Customer-facing digital offerings	<ul style="list-style-type: none"> ▪ €70 million 	<ul style="list-style-type: none"> ▪ Considerable increase (to ~2% of sales over time) 	<ul style="list-style-type: none"> ▪ New digital business models ▪ Digitalization and automation ▪ Digital tools to enable crop protection and seeds
M&A relevance		<ul style="list-style-type: none"> ▪ Medium to high 	<ul style="list-style-type: none"> ▪ Seeds ▪ Digital technologies ▪ Individual active ingredients

BASF Agricultural Solutions is an attractive partner and will leverage its position to accelerate growth and strengthen profitability

Portfolio

- Enhance soybean seeds portfolio, germplasm and traits
- Example Pavecto®
 - ▶ Joint development framework with Sumitomo
 - ▶ Development of novel fungicide

Market access

- Improve customer access and market footprint
- Increase footprint with selected partners in Asia
- Example sunflower seeds
 - ▶ Distribution agreement with Euralis Semences

New business models

- Expand ecosystem to increase value capture
- Example xarvio™
 - ▶ HEALTHY FIELDS

Digital

- Enhance technologies and features
- Strengthen customer and data access
- Example xarvio™
 - ▶ Scouting application as part of Nutrien Ag Solutions™ digital platform

Agenda

- 1 Market environment
- 2 Agricultural Solutions – focus area of BASF
- 3 The new BASF in agriculture in 2019
- 4 Target markets
- 5 Differentiators
- 6 Key measures
- 7 Targets**

Agricultural Solutions contributes strongly to achieving BASF Group's targets

BASF targets

Grow sales volumes faster than global chemical production every year

Increase EBITDA before special items by 3% to 5% per year

Achieve a return on capital employed (ROCE) considerably above the cost of capital percentage every year

Achieve €22 billion in Accelerator sales by 2025

Grow CO₂-neutrally until 2030

Contribution of Agricultural Solutions

- Grow one percentage point above market to increase market share
- Increase sales by 50% by 2030
- Grow EBITDA before special items by on average 5% per year
- Restore EBITDA before special items margin level of ~23% within next years with high R&D intensity
- ROCE currently impacted by asset step up after acquisition
- Restore ROCE above the cost of capital percentage
- R&D pipeline with peak sales potential of >€6 billion¹
- Accelerators account for approximately half of the R&D pipeline
- CO₂-optimized production processes
- Offer solutions to reduce CO₂-emissions in agricultural production

BASF Agricultural Solutions – Success for farmers, agriculture and future generations

Unique customer experience based on crop systems approach

Best-in-class R&D pipeline

Sustainability as a key differentiator

Major contributor to BASF Group's profitable growth



We create chemistry



Appendix

Overview crop system soybean – cotton – corn



soybean – cotton – corn
farmers

Key characteristics

Market size

- ~€27 billion¹

Key regions

- North America
- South America

Expected market growth 2018-2030

- CAGR ~2.5%¹

Growth drivers

- Increasing global demand for meat-based protein diet
- Significant productivity increase with limited agricultural land expansion

Key challenges for farmers

- Profitability and income volatility
- Pests, weeds, diseases resistant to existing technologies

BASF ambition

- Strong innovator

Key measures

- Differentiated traits in soybean and cotton
- New active ingredients in crop protection
- Best agronomic data-based digital recommendations

R&D pipeline: crop system soybean – cotton – corn



Activity	Herbicide	Fungicide	Insecticide	Seed Treatment	Seeds & Traits	Digital
In launch	Engenia®	Revysol®	Inscalis®		LibertyLink®GT27™	<ul style="list-style-type: none"> xarvio™ SCOUTING xarvio™ FIELD MANAGER
Development (2020 – 2025)	Tirexor®	Pavecto®	<ul style="list-style-type: none"> Broflanilide Two in development 	<ul style="list-style-type: none"> Pavecto® seed treatment Teraxxa™ 	Herbicide tolerance trait	<ul style="list-style-type: none"> xarvio™ SCOUTING xarvio™ FIELD MANAGER xarvio™ HEALTHY FIELDS
Advanced research (launch after 2025)	●	●	●		●	
Early research	●	●	●	●	●	

Overview crop system wheat – canola/oilseed rape – sunflower



wheat – canola/oilseed rape –
sunflower farmers

Key characteristics

Market size

- ~€12 billion¹

Key regions

- Europe
- North America

Expected market growth 2018-2030

- CAGR 2.0%¹

Growth drivers

- Increasing demand for yield and quality
- Need for innovation driven by regulatory pressure on existing technologies

Key challenges for farmers

- Secure farm profitability and efficient farm operations
- Address socio-political requirements, e.g., EU greening policy

BASF ambition

- Market leader

Key measures

- R&D pipeline in crop protection and wheat traits
- Launch hybrid wheat
- Digital tools to address farmer needs
- Actively shape sustainability in agriculture

R&D pipeline: crop system wheat – canola/oilseed rape – sunflower



Activity	Herbicide	Fungicide	Insecticide	Seed Treatment	Seeds & Traits	Digital
In launch		Revysol®		Relenya™	<ul style="list-style-type: none"> InVigor® podshatter reduction InVigor® clubroot 	<ul style="list-style-type: none"> xarvio™ SCOUTING xarvio™ FIELD MANAGER
Development (2020 – 2025)	<ul style="list-style-type: none"> Luximo® Tirexor® 	Pavecto®	<ul style="list-style-type: none"> Broflanilide One in development 	<ul style="list-style-type: none"> Pavecto® seed treatment Teraxxa™ 	<ul style="list-style-type: none"> Hybrid wheat LibertyLink® yellow canola PUFA 	<ul style="list-style-type: none"> xarvio™ SCOUTING xarvio™ FIELD MANAGER xarvio™ HEALTHY FIELDS
Advanced research (launch after 2025)	●	●				
Early research	●	●	●	●	●	

Overview crop system fruit and vegetables



fruit and vegetables
farmers

Key characteristics

Market size

- ~€16 billion¹

Key regions

- Asia
- Europe
- North America
- South America

Expected market growth 2018-2030

- CAGR 2%¹

Growth drivers

- Increasing demand for high-quality fruit and vegetables all year long
- Strong professionalization of production

Key challenges for farmers

- Higher quality standards from food value chain and consumers, e.g., traceability, low residues
- Capture crop value during seasonal price volatility

BASF ambition

- Global number 3

Key measures

- Customer-consumer approach for food value chain orientation in seeds
- Superior digital tools addressing farmer and food value chain requirements, e.g., residue minimization

R&D pipeline: crop system fruit and vegetables



Activity	Herbicide	Fungicide	Insecticide	Seed Treatment	Seeds & Traits	Digital
In launch		Revysol®	Inscalis®		Vegetable seeds innovations	xarvio™ SCOUTING
Development (2020 – 2025)	Tirexor®	Pavecto®	<ul style="list-style-type: none"> ▪ Broflanilide ▪ One in development 	<ul style="list-style-type: none"> ▪ Pavecto® seed treatment ▪ Teraxxa™ 	Vegetable seeds innovations	<ul style="list-style-type: none"> ▪ xarvio™ SCOUTING ▪ xarvio™ FIELD MANAGER
Advanced research (launch after 2025)	●	●	●			
Early research	●	●	●	●	●	

Overview crop system rice



Key characteristics

Market size

- ~€7 billion¹

Key region

- Asia

Expected market growth 2018-2030

- CAGR 3%¹

Growth drivers

- Increasing demand for yield
- Adoption of modern and sustainable technologies (e.g., drone application)

Key challenges for farmers

- Farm modernization and automation due to labor shortage or higher costs

BASF ambition

- Recognized player in Asia

Key measures

- Educate farmers about BASF's offerings
- Use sustainability to promote new, innovative crop protection technologies
- Multichannel approach

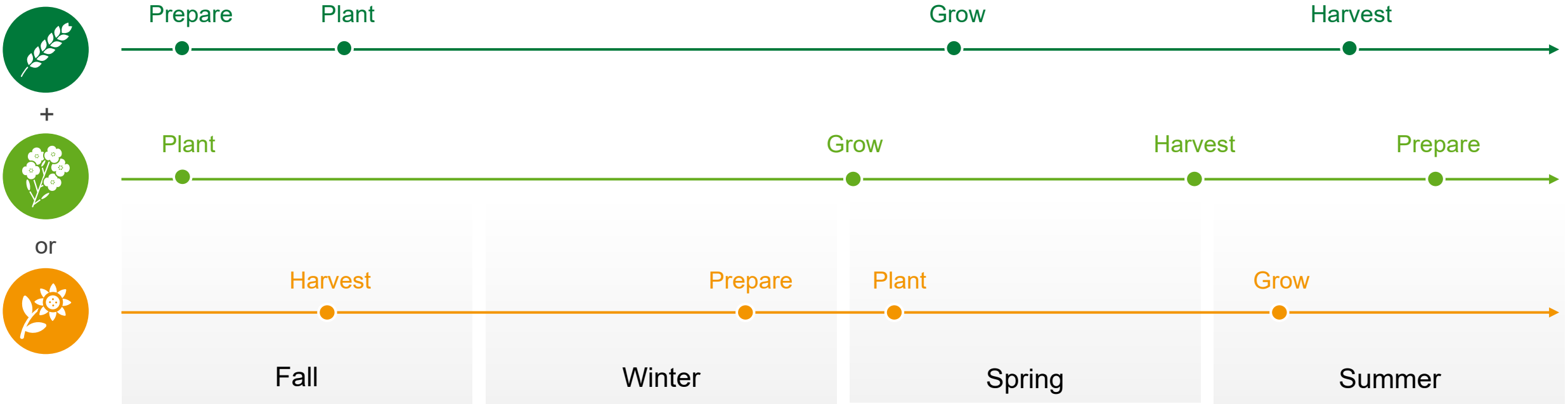
R&D pipeline: crop system rice



Activity	Herbicide	Fungicide	Insecticide	Seed Treatment	Seeds & Traits	Digital
In launch	Provisia™ herbicide	Revysol®	Inscalis®		Provisia™ rice trait system	xarvio™ SCOUTING
Development (2020 – 2025)	Luximo®		One in development			<ul style="list-style-type: none"> xarvio™ SCOUTING xarvio™ FIELD MANAGER
Advanced research (launch after 2025)						
Early research	●	●	●	●	●	

Seasonal patterns are the basis for crop systems

Example: Wheat – canola / wheat – sunflower crop system



Crop systems
enable
long-term yield

- **Optimize:** deployment and availability of labor and machinery
- **Minimize risks:** climate, weed/pest pressure, price fluctuations
- **Maximize:** yields and profits in the combination of all crops