Certain statements contained in this presentation are “forward-looking statements,” such as statements concerning the company’s anticipated financial results, current and future product performance, regulatory approvals, business and financial plans and other non-historical facts, as well as the pending transaction with Bayer Aktiengesellschaft (“Bayer”). These statements are based on current expectations and currently available information. However, since these statements are based on factors that involve risks and uncertainties, the company’s actual performance and results may differ materially from those described or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, among others: risks related to the pending transaction between the company and Bayer, including the risk that the regulatory approvals required for the transaction may not be obtained on the anticipated terms or time frame or at all, the risk that the other conditions to the completion of the transaction may not be satisfied, the risk that disruptions or uncertainties related to the pending transaction could adversely affect the company’s business, financial performance and/or relationships with third parties, and the risk that certain contractual restrictions during the pendency of the transaction could adversely affect the company’s ability to pursue business opportunities or strategic transactions; continued competition in seeds, traits and agricultural chemicals; the company’s exposure to various contingencies, including those related to intellectual property protection, regulatory compliance and the speed with which approvals are received, and public understanding and acceptance of our biotechnology and other agricultural products; the success of the company’s research and development activities; the outcomes of major lawsuits, including potential litigation related to the pending transaction with Bayer; developments related to foreign currencies and economies; fluctuations in commodity prices; compliance with regulations affecting our manufacturing; the accuracy of the company’s estimates related to distribution inventory levels; the recent increases in levels of indebtedness, continued availability of capital and financing and rating agency actions; the company’s ability to fund its short-term financing needs and to obtain payment for the products that it sells; the effect of weather conditions, natural disasters, accidents, and security breaches, including cybersecurity incidents, on the agriculture business or the company’s facilities; and other risks and factors detailed in the company’s most recent periodic report to the SEC. Undue reliance should not be placed on these forward-looking statements, which are current only as of the date of this presentation. The company disclaims any current intention or obligation to update any forward-looking statements or any of the factors that may affect actual results.

The information on unregistered pesticides in this presentation is for educational purposes and is not an offer to sell or use any unregistered product mentioned in this presentation.

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Monsanto's Leading R&D Pipeline Yields Record Number of Advancements

Extending leadership with proven product performance and pipeline of complementary solutions

**Value**
- Core pipeline expected to deliver up to $25B of peak net sales\(^2\), with incremental value from new platforms
- 5\(^{th}\) straight year of >20 pipeline advancements, balanced across the portfolio
- 7 projects advancing to launch

**Product Performance**
- *DEKALB* corn outperforms competitors for 12\(^{th}\) consecutive year; avg. 7-10 bu/ac yield advantage
- *Deltapine* cotton outperforms for 8\(^{th}\) consecutive year; this year avg. >79 lbs/ac yield advantage
- Targeting to increase rate of genetic gain by 30\% in corn and soybeans

**Integrated Pipeline**
- Multiple next generations of insect and weed control biotech traits
- Plans to launch several new seed treatments through 2020, including *NemaStrike* Technology and *Acceleron* B-360 ST from our BioAg Alliance
- >35 projects in Climate *FieldView* pipeline; 17 advancements in 2017

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1. The acquisition is subject to customary closing conditions, including receipt of required regulatory approvals.
2. Peak net sales reflects estimated global sales opportunity around peak penetration year for products in the core pipeline, which includes biotech, breeding and crop protection.
Year-in, Year-out Performance Confirms Overall Advantage Across DEKALB, Asgrow and Deltapine

Advancements in breeding program provides potential to increase future genetic gain

**CORN: DEKALB**

- **DEKALB** outperforms competitive products for the 12th consecutive year
- Consistent 7-10 bu/ac average yield advantage

**SOY: Asgrow**

- Asgrow outperforms competition for the 8th consecutive year
- Strong performance advantage of >2 bu/ac on average

**COTTON: Deltapine**

- Deltapine outperforms competition for 8th consecutive year
- Strong performance advantage of 79 lbs/ac on average this year

---

1. Annual yield advantage calculated each year by comparing 5 leading **DEKALB** products within each state having a minimum of 100 comparisons to national competitor products containing similar crop protection traits as of December 19, 2017. All comparisons are head-to-head using +/- 2RMs and weighted average calculated using 15% moisture.

2. Data as of December 20, 2017. Includes all pre-commercial and commercial strip trial data. All head-to-head comparisons are within +/- 0.2 day maturity. Data represents Asgrow vs Alternative Platform (a minimum of 30 comparisons per product within a state).

3. Data as of December 20, 2017. Annual yield advantage calculated comparing commercially available leading **Deltapine** products across geographies to leading commercially available competitive products with similar crop protection traits.
Opportunity To Extend Leadership in Corn With Multi-Generations of Biotech Insect Control Solutions

Monsanto’s corn traits today are on >100M acres; opportunity to deliver increased value to growers with multi-gen portfolio

**INSECT CONTROL**

**Peak Net Sales**

$1.5B - $2.0B

**CORN**

**NEAR TERM**

**LAUNCHING**

**3RD GEN ABOVE-GROUND INSECT CONTROL**

**Acre Opportunity: Segments of the Americas**

- Industry-leading protection for corn earworm
- Protection against fall armyworm, corn borers and black and western bean cutworms
- Tailored trait configurations and product name for each region

**Trecepla**  August 2017 Monsanto Trials Gadsden, TN

**3rd GEN Above-Ground Insect Control Trait**

**Non-Treated**

**3RD GEN BELOW GROUND INSECT CONTROL**

**Acre Opportunity: >100M acres across the Americas**

- 3 modes-of-action for corn rootworm control
- Novel RNAi mode-of-action
- Tailored trait configurations and product name for each region
- Initiating licensing discussions

**ADVANCING TO PHASE 3**

**4TH GEN ABOVE-GROUND INSECT CONTROL**

- Multiple modes-of-action against each key pest and durability against key lepidopteran pests, particularly for South America. Two new modes of action for fall armyworm.

**ADVANCING TO PHASE 2**

**5TH GEN ABOVE-GROUND INSECT CONTROL**

- Global product expected to offer multiple new modes-of-action against all key pests across all relevant geographies

**4TH GEN BELOW-GROUND INSECT CONTROL**

- Combines novel protein and proprietary RNAi modes-of-action
Opportunity To Extend Leadership in Corn With Multi-Generations of Biotech Weed Control Solutions

Monsanto’s corn traits today are on >100M acres; opportunity to deliver increased value to growers with multi-gen portfolio

CORN

WEED CONTROL

Peak Net Sales1
$1.5B - $2.0B

NEAR TERM

3RD GEN WEED CONTROL SYSTEM

PHASE 4

Acre Opportunity: >100 M acres across the Americas

- Tolerance to glyphosate, dicamba and glufosinate
- Submitted regulatory submissions for global approval

2017 Monsanto Trials Jerseyville, IL

4TH GEN WEED CONTROL SYSTEM

PHASE 3

- Tolerance to five herbicides - dicamba, glufosinate, glyphosate, FOPs, and 2,4-D for post-emergence control of tough grasses and broadleaf weeds

2017 Monsanto Trials Jerseyville, IL

5TH GEN WEED CONTROL SYSTEM

PHASE 1

- Adds tolerance to PPO herbicides, including new PPO in development by Sumitomo
- New formulation of the Sumitomo PPO chemistry advances to phase 1, allowing for parallel development of trait and herbicidal formulations

1. Peak net sales reflects estimated global sales opportunity around peak penetration year for products in the core pipeline, which includes biotech, breeding and crop protection.
Opportunity To Extend Leadership in Soy With Multi-Generations of Biotech Insect Control Solutions

Monsanto’s soy traits today are on >200M acres; opportunity to deliver increased value to growers with multi-gen portfolio

SOYBEANS

INSECT CONTROL

PEAK NET SALES¹
$0.5B - $1.0B

NEAR TERM

2ND GEN INSECT CONTROL – INTACTA 2 XTEND

Acre Opportunity: >100M acres

- Multiple modes-of-action to improve durability for podworm complex and expands the insect spectrum to include armyworms
- 2021 planned commercial launch

LONGER TERM

3RD GEN INSECT CONTROL

Acre Opportunity: >100M acres

- Multiple modes-of-action to provide protection against primary and secondary pests to further improve durability against an expanded spectrum of insects

2017 Monsanto Trials

- Pergamino, Argentina
- Jerseyville, IL Screenhouse

1. Peak net sales reflects estimated global sales opportunity around peak penetration year for products in the core pipeline, which includes biotech, breeding and crop protection.
Opportunity To Extend Leadership in Soy With Multi-Generations of Biotech Weed Control Solutions

Monsanto’s soy traits today are on >200M acres; opportunity to deliver increased value to growers with multi-gen portfolio

SOYBEANS

WEED CONTROL

PEAK NET SALES¹

$2.0B - $2.5B

NEAR TERM

3RD GEN WEED CONTROL SYSTEM

PHASE 4

• Component of the Roundup Ready Xtend Crop System, expect enhanced flexibility with an additional herbicide option
• Field trials demonstrate tolerance to glyphosate, dicamba & glufosinate; to be branded as XtendFlex soybeans

2017 Monsanto Field Trials Tippecanoe, IN

Non-Treated

Treated

3rd GEN Weed Control Trait

3rd GEN Weed Control Trait

LONGER TERM

4TH GEN WEED CONTROL SYSTEM

PHASE 2

• Expect enhanced flexibility with combined herbicides
• Field trials demonstrate tolerance to glyphosate, dicamba, glufosinate, HPPD and another mode-of-action
• Multiple gene vector strategy designed to improve breeding efficiency and yield performance

2017 Monsanto Field Trials Monmouth, IL

Non-Treated

4th GEN Weed Control Trait

5TH GEN WEED CONTROL SYSTEM

PHASE 1

• Adds tolerance to PPO herbicides, including new PPO in development by Sumitomo

1. Peak net sales reflects estimated global sales opportunity around peak penetration year for products in the core pipeline, which includes biotech, breeding and crop protection.
Three Advancements in Cotton Demonstrate Continued Leadership in Bringing Biotech Insect & Weed Control Solutions to Growers

FY17 Gross Profit of $1.1B from Cotton, Vegetable and Other Crops; Next-Gen Solutions Expand Opportunity

<table>
<thead>
<tr>
<th>COTTON</th>
<th>NEAR TERM</th>
<th>LONGER TERM</th>
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</thead>
<tbody>
<tr>
<td>INSECT CONTROL</td>
<td>Peak Net Sales$^1$ &lt;$.5B</td>
<td><strong>ADVANCING TO PHASE 4</strong></td>
</tr>
<tr>
<td><strong>LYGUS &amp; THRIPS CONTROL COTTON</strong></td>
<td>Acre Opportunity: &gt;10M acres in the U.S. and Australia</td>
<td>• Multiple modes-of-action against each key pest and durability against key lepidopteran pests</td>
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<tr>
<td>• Control of lygus and thrips, first-ever biotech solution for the control of piercing and sucking insect pests, improving yields and reducing insecticide use</td>
<td><strong>ADVANCING TO PHASE 2</strong></td>
<td>4TH GEN WEED CONTROL SYSTEM</td>
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<td>Thrips Control Efficacy Trial Suffolk, VA June 14, 2017</td>
<td>• Tolerance to 4-to-5 modes of action including dicamba, glufosinate, glyphosate and 1-to-2 new modes of action for pre and post-emergence control of grasses and broadleaf weeds</td>
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<tr>
<td>1. Peak net sales reflects estimated global sales opportunity around peak penetration year for products in the core pipeline, which includes biotech, breeding and crop protection.</td>
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</tbody>
</table>
Seed Applied Solution Advancements Complement Seed and Trait Technology Advantages for Growers

Targeting several product launches by 2020, in multiple crops and regions

• Novel nematode-control technology with fit on 125M acre opportunity across corn, soy, cotton and other crops
• Expect 2nd year of Ground Breakers trials in FY18
• Demonstrated yield advantage in corn, soybeans and cotton when using NemaStrike Technology vs. competitive standard.¹

¹ Results will vary based on nematode pressure in each field.

ADVANCING TO LAUNCH
Monsanto Corn Field Trials  Collinsville, IL  July 2017

Trials demonstrated enhanced corn root development with Acceleron SAS + B-360 ST² microbial treatment vs. Acceleron only

• 4 Advancements in the BioAg Alliance pipeline in 2017, including Acceleron B-360 ST to phase 4
• Several launches from the BioAg Alliance expected by 2020, including BioYield in wheat in Europe and canola in Canada
• The BioAg Alliance provides multiple microbial product offerings today; reached >80M acres in 2017

¹ Includes Acceleron B-300 SAT. Product to be branded as Acceleron B-360-ST and subject to regulatory approvals.
Climate FieldView Digital Ag Pipeline Advances Across all Focus Areas and Multiple Geographies

Climate FieldView innovation advances mission to assist farmers in sustainably increasing productivity with digital tools

Climate FieldView Global Pipeline

Combines advanced technologies such as machine learning, data analytics and predictive algorithms with the industry’s most robust seed genetic library to create new value for farmers

- Analyzes interdependencies that drive yield to provide science-driven insights to support critical season-long decisions to optimize inputs and maximize yield
- Consists of >35 projects today, with 17 advancements in 2017, including 2 to launch and 3 enhancements of existing tools

Technology Highlights

Field Insights: Disease Diagnosis & Identification

Machine learning model showing high probability of success to diagnose right disease for 9 diseases

Field Health Imagery in FieldView directs a farmer to under-performing areas of the field

Real-time diagnosis would enable farmer to take action & protect yield

Fertility: Sub-Field Nitrogen Management

Sub-Field Nitrogen Management helps growers to optimize rates and placement of nitrogen

Nitrogen Management Tool in FieldView

Nitrogen Management by Zone

ADVANCES TO PHASE 3

PHASE 4 - COMMERCIAL
Precision Genome Editing Builds Upon Existing Competencies and Expertise

Advancements in genome-editing research can offer a wide array of benefits to agriculture globally.

**GENOME ENGINEERING**
- Gene inactivation (“knock out” gene for protein production)
- Gene modification (improve or change protein activity)

**SITE-DIRECTED INTEGRATION**
- Gene insertions at specific locations (potential cost savings for breeding)

**TRANSFORMATIVE TOOLS**
Numerous agreements provide multiple tools to make genome edits

**RNA-GUIDED**
- The Broad Institute
- TargetGene Biotechnologies
- ToolGen

**NOVEL DELIVERY**
- Nomad Bioscience GmbH

**DEPLOYMENT OPPORTUNITY**

**DIVERSE GLOBAL & CROP APPLICATIONS**

**MONSANTO GENOME-EDITING RESEARCH AREAS**
1. Single Gene Edits
   - Site Directed Knock-outs
   - Core Platform Development
2. Multiple Gene Edits
   - Complex Stacks
3. 

**GENOME EDITING OFFERS NEW BENEFITS FOR AGRICULTURE**
Could unlock opportunities to:
- Accelerate speed-to-market
- Reduce costs
- Open up new markets
- Improve disease and stress tolerance; quality; plant growth and development

**TECHNOLOGY COMPLEXITY / INNOVATION**

**TARGETED GENETIC DIVERSITY**

**GENOMICS** Leading genome libraries and whole-genome sequencing capabilities

**TESTING NETWORK** Leading field testing network, wraps around the globe 2 times

**GERMLASM** Genetics central to leading brand positions in key crops, countries

**MONSANTO GENOME-EDITING RESEARCH AREAS**
1. Single Gene Edits
   - Site Directed Knock-outs
   - Core Platform Development
2. Multiple Gene Edits
   - Complex Stacks
Bayer, Monsanto Combination\textsuperscript{1} to Create Global Leader in Ag

Combination accelerates innovation and integrated solutions and expands benefits to new crops, geographies

\textbf{Expected Benefits:}

- **Increases Innovation**
  Accelerates pace of innovation and efficiency of R & D

- **Benefits Society and Consumers**
  Supports the sustainable production of improved harvests on each acre

- **Benefits Farmers**
  Enables farmers to be more productive, profitable and sustainable through broadly licensed tools expected to provide additional competitive offerings and choices

\textbf{Monsanto Chesterfield Research Facility}

- Monsanto’s newly expanded Chesterfield MO Research facility and largest yield testing location
- Bayer plans to locate the combined company’s Global Seeds & Traits and North America commercial headquarters in St. Louis

\textsuperscript{1} The acquisition is subject to customary closing conditions, including receipt of required regulatory approvals.
Core Pipeline for Corn

<table>
<thead>
<tr>
<th>R&amp;D TARGET</th>
<th>TECHNOLOGY</th>
<th>PHASE 1</th>
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<tbody>
<tr>
<td><strong>YIELD</strong>: Targeting products that help enhance yield potential.</td>
<td>$8.0B – $10.0B</td>
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<td>Yield &amp; Stress Systems*2,4</td>
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<td>• Higher-Yielding Corn</td>
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<td>• DroughtGard® Hybrids Platform Expansion</td>
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<td>• Ultra High Density Corn</td>
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<td>Insect Control**: Targeting products that help improve insect-control, durability and spectrum.</td>
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<td>• 4th–Gen Corn Rootworm</td>
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<td>• Trecepta (Lead)</td>
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<td>Acceleron Seed Applied Solutions Upgrades</td>
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<td>Weed Control**: Targeting products that help improve weed-control, durability and spectrum</td>
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<td>3rd–Gen Weed Control System</td>
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<td>4th–Gen Weed Control System</td>
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<td>5th–Gen Weed Control System</td>
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<td>Harness MAX Acetochlor Premix</td>
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<td>Improved Dicamba Formulation</td>
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<td>Improved Dicamba &amp; Glyphosate Premix</td>
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<td>Next-Gen Roundup Branded Agricultural Formulation</td>
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<td>Acetochlor+Dicamba+3rd MOA Premix</td>
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<td>Novel PPO Herbicide formulation in collaboration with Sumitomo</td>
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**R&D TARGET**

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<tr>
<th>TECHNOLOGY</th>
<th>PHASE 1</th>
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<tbody>
<tr>
<td><strong>Disease Control</strong>: Targeting products that help improve plant vigor and resistance.</td>
<td>&lt;$0.5B</td>
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<td>Plant Health Systems*</td>
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<td>• Foliar Diseases, Stalk Health, DEKALB Disease Shield</td>
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<td>Biotech Disease Control</td>
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<td>NemaStrike Technology</td>
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<td>Nimbus Novel Fungicide</td>
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<td>• Seed Applied Solution</td>
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<td>• Foliar Applied</td>
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<td>Acceleron Seed Applied Solutions Upgrades</td>
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<td>Other:</td>
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<td>Roundup Hybridization System</td>
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<td>• RHS I (Lead)</td>
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<td>• RHS II</td>
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</table>

**LEGEND**

- Arrows reflect advancement, progress or highlights tracking significant developments in R&D and commercial work.
- Breeding – applications of technology that use genomics, advanced breeding and other tools from Monsanto’s breeding pipeline.
- Biotech – applications drawing primarily from the application of genomics and biotechnology traits.
- Crop Protection – application of chemistry to develop new forms of crop protection; may take the form of seed treatments, foliar applications or pre-plant incorporation.
- Value – Value reflects global sales opportunity around peak penetration year for products in the core pipeline, which includes Biotech, Breeding and Crop Protection.

1. Phase shown represents the phase of the latest project in the family.
2. Represents category of benefits anticipated to be delivered to growers.
3. Part of the Monsanto-BASF R&D Collaboration.
4. Commercial product may be a combination of projects or the individual projects themselves.
## Core Pipeline For Soybeans

<table>
<thead>
<tr>
<th>R&amp;D TARGET</th>
<th>TECHNOLOGY</th>
<th>PHASE1</th>
<th>D</th>
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<tr>
<td><strong>YIELD2:</strong> Targeting products that help enhance yield potential.</td>
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<td>Annual Germplasm Upgrades</td>
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<td>Yield &amp; Stress Systems3,4</td>
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<td>- Next-Gen Higher-Yielding Soy</td>
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<td><strong>Insect Control2:</strong> Targeting products that help improve insect-control, durability and spectrum.</td>
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<td><strong>INTACTA RR2 PRO Pipeline</strong></td>
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<td>2nd-Gen Insect Protection</td>
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<tr>
<td><strong>Acceleron Seed Applied Solutions Upgrades</strong></td>
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<td>3rd-Gen Weed Control System</td>
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<td>4th-Gen Weed Control System</td>
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<td>5th-Gen Weed Control System</td>
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<tr>
<td>Improved Dicamba Formulation</td>
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<tr>
<td>Improved Dicamba &amp; Glyphosate Premix</td>
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<tr>
<td><strong>Next-Gen Roundup Branded Agricultural Formulation</strong></td>
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<tr>
<td>WARRANT herbicide + Dicamba Premix</td>
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<tr>
<td><strong>NEW</strong> Novel PPO Herbicide formulation in collaboration with Sumitomo</td>
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<td><strong>NEW</strong> High Load WARRANT</td>
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<tr>
<td><strong>NEW</strong> Next Gen Dicamba Premix</td>
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<tr>
<td><strong>NEW</strong> Low Volatility 2,4-D</td>
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</tbody>
</table>

### R&D TARGET | TECHNOLOGY | PHASE1 | D | 1 | 2 | 3 | 4
### Disease Control2: Targeting products that help improve disease control.
### Plant Health Systems4
\- 2nd-Gen Cyst Nematode Resistance
\- NemaStrike Technology
### Nimbus Novel Fungicide
\- Seed Applied Solution
\- Foliar Applied
### **Acceleron Seed Applied Solutions Upgrades**

### LEGEND
- **Arrows** reflect advancement, progress or highlights tracking significant developments in R&D and commercial work.
- **Breeding** applications of technology that use genomics, advanced breeding and other tools from Monsanto’s breeding pipeline.
- **Biotech** applications drawing primarily from the application of genomics and biotechnology traits.
- **Crop Protection** application of chemistry to develop new forms of crop protection; may take the form of seed treatments, foliar applications or pre-plant incorporation.
- **Value** – Value reflects global sales opportunity around peak penetration year for products in the core pipeline, which includes Biotech, Breeding and Crop Protection

---

1. Phase shown represents the phase of the latest project in the family.
2. Represents category of benefits anticipated to be delivered to growers.
3. Part of the Monsanto-BASF R&D Collaboration.
4. Commercial product may be a combination of projects or the individual projects themselves.
Core Pipeline For Complementary Crops

### R&D TARGET

<table>
<thead>
<tr>
<th>TECHNOLOGY</th>
<th>PHASE 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YIELD</strong>: Targeting products that help enhance yield potential.</td>
<td>$&lt;$0.5B</td>
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<td>$&lt;$0.5B</td>
<td>$&lt;$0.5B</td>
</tr>
<tr>
<td>Annual Germplasm Upgrades</td>
<td>(V)</td>
<td>(V)</td>
<td>(V)</td>
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</tr>
<tr>
<td>Insect Control: Targeting products that help improve insect-control, durability and spectrum.</td>
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<td>$&lt;$0.5B</td>
<td>$&lt;$0.5B</td>
</tr>
<tr>
<td>Next-Gen Insect Control</td>
<td>4th-Gen Bollgard cotton</td>
<td>(V)</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>Lygus &amp; Thrips Control Cotton</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>Acceleron Seed Applied Solutions Upgrades</td>
<td>(V)</td>
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<tr>
<td>Weed Control: Targeting products that help improve weed-control, durability and spectrum.</td>
<td>(V)</td>
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<tr>
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<td>4th-Gen Weed Control System</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>Disease Control: Targeting products that help improve plant vigor and resistance.</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>NemaStrike Technology</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td><strong>NEW</strong></td>
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<tr>
<td>Genetic Pipeline Upgrades &gt;120 Advancements to Launch, including Just Sweet pepper, Eight-Disease-Resistant Saladeño tomato, Flavor Journey Himalaya</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td><strong>NEW</strong></td>
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<tr>
<td>Plant Health Systems</td>
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<tr>
<td>Geminivirus-Resistant Tomato</td>
<td>(V)</td>
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<tr>
<td>• Downy Mildew-Resistant Lettuce</td>
<td>(V)</td>
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**PipeLine**: Targeting products that help enhance yield potential and resistance.

**Other Seeds & Traits Pipeline**

<table>
<thead>
<tr>
<th>TECHNOLOGY</th>
<th>PHASE 1</th>
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<td>Annual Germplasm Upgrade</td>
<td>(V)</td>
<td>(V)</td>
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</tr>
<tr>
<td>Weed Control: Targeting products that help improve weed-control, durability and spectrum.</td>
<td>(V)</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>DEKALB Canola with LibertyLink® Technology</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>TRUFLEX Canola with Roundup Ready technology</td>
<td>(V)</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>• TruFlex Roundup Ready (Lead)</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td>• TruFlex Roundup Ready + LibertyLink®</td>
<td>(V)</td>
<td>(V)</td>
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<tr>
<td><strong>NEW</strong></td>
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</tbody>
</table>
| **Canola**
| **LEAD** | | | | |
| Dicamba-Tolerant Canola | (V) | (V) | (V) | (V) |
| **NEW** | | | | |
| **Wheat** | | | | |
| Herbicide-tolerant Wheat I | (V) | (V) | (V) | (V) |
| Herbicide-tolerant Wheat II | (V) | (V) | (V) | (V) |

**New Seeds & Traits Pipeline**

- **NEW** | | | | |

**Legend**

- **Value** reflects global sales opportunity around peak penetration year for products in the core pipeline, which includes Biotech, Breeding and Crop Protection projects that use genomics, advanced breeding and other tools from Monsanto’s breeding pipeline.

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### Core Pipeline For Complementary Crops

- **NEW** | | | | |
- **NEW** | | | | |
- **NEW** | | | | |
- **NEW** | | | | |
- **NEW** | | | | |
- **NEW** | | | | |
- **NEW** | | | | |
**BioDirect Technology Pipeline**

Leveraging genomics for completely new modes of action with more targeted pest control

### Pipeline Highlights:

- Bee Health Varroa Control, currently in Phase 3, is expected to be first product to launch commercially from the BioDirect Technology Pipeline
  
  *Currently testing efficacy of active ingredient with commercial products as part of an integrated pest management treatment*

- Lab results for canola flea beetle RNAi solution show promise in controlling both European and North America beetle species

---

**BioDirect Technology uses RNAi**: A natural mechanism to control the expression of a gene
The BioAg Alliance Pipeline

Industry’s most advanced microbials platform and R&D capability

The BioAg Alliance: R&D Development Pipeline

<table>
<thead>
<tr>
<th>DISCOVERY:</th>
<th>PHASE 1: PROOF OF CONCEPT</th>
<th>PHASE 2: EARLY DEVELOPMENT</th>
<th>PHASE 3: ADVANCED DEVELOPMENT</th>
<th>PHASE 4: PRE-LAUNCH</th>
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<tbody>
<tr>
<td>10’s of Thousands of Microbes</td>
<td>Thousands of Candidates</td>
<td>Hits</td>
<td>Confirmed Hits / Commercial Leads</td>
<td>Commercial Candidates</td>
</tr>
</tbody>
</table>

- Corn, Soy and Wheat BioYield Pipeline
- BioControl Pipeline

Pipeline Highlights:

- Corn BioYield 2 – Expected to be approved in 2018 for sale in 2019; to be branded as Acceleron B-360 ST
- Corn BioYield 3 strains progress in Phase 2 with broader testing, fermentation and formulation development
- Soy BioYield 2 inoculants advanced for North and South America, providing new longer life rhizobium and easier handling benefits

Commercial Highlights

Biological products like Acceleron B-300 SAT can increase nutrient availability, which can lead to enhanced root and shoot development, supporting stress tolerance, increased yield potential and ability to absorb and store carbon.

Two Products Launched in 2017:

- Corn BioYield 1: Acceleron B-300 SAT in the U.S. with global expansion opportunity
- Soy BioYield 1: Acceleron B-200 SAT for soybeans in the U.S.

Collaborative partnerships and research are driving innovative solutions to produce food in a sustainable way.

Our technologies are on >80M acres today.

1. Subject to regulatory approvals. To be stacked with B-300 SAT.
# Climate FieldView Digital Ag Pipeline

## FOCUS AREA

### PLATFORM: PRODUCT DELIVERABLE

<table>
<thead>
<tr>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
<th>PHASE 4</th>
<th>PHASE 5</th>
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<tbody>
<tr>
<td><strong>FERTILITY</strong></td>
<td><strong>SEEDS &amp; PLANTING</strong></td>
<td><strong>FIELD INSIGHTS</strong></td>
<td><strong>MEASUREMENTS</strong></td>
<td><strong>YIELD ANALYTICS</strong></td>
</tr>
<tr>
<td>Whole-Field Nitrogen Monitoring</td>
<td>Advanced Seed Scripting, Population by Field Zone</td>
<td>Crop Expansion: Field Health Monitoring</td>
<td>Climate FieldView Digital HUB</td>
<td>Yield Analysis</td>
</tr>
<tr>
<td>Grid Soil Test Data Ingest and Layers Visualization (OM, CEC, pH, P, K)</td>
<td>Additional Zone Sources</td>
<td>Enhanced Directed Scouting</td>
<td>Climate FieldView Gauge for Enhanced Precipitation</td>
<td>Yield Analysis (Cotton)</td>
</tr>
<tr>
<td>Sub-Field Nitrogen Monitoring</td>
<td>Regionally-Based Seed Selection (Corn)</td>
<td>Corn Disease Vulnerability (GLS, NLB)</td>
<td>Climate FieldView Soil Moisture and Temperature Probe</td>
<td>Automated Experiments</td>
</tr>
<tr>
<td>P&amp;K Scripting (Corn)</td>
<td>Field-Specific Seed Selection</td>
<td>Stress Identification</td>
<td>Nitrate Sensor</td>
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</tr>
<tr>
<td>P&amp;K Scripting (Soy, Canola, Wheat, Cotton)</td>
<td>Seed Portfolio Optimization</td>
<td>Advanced Irrigation Recommendations</td>
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<tr>
<td>Advanced Nitrogen Scripting</td>
<td>Brazil - Advanced Seed Scripting (Corn)</td>
<td>International Expansion: Field Health &amp; Scouting Insights</td>
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<tr>
<td>Advanced Scripting with Sensors &amp; Imagery</td>
<td>Europe - Advanced Seed Scripting (Corn)</td>
<td>Disease Diagnosis &amp; Identification (Soybeans)</td>
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<td></td>
</tr>
<tr>
<td>Whole Field Nitrogen Monitoring (Canola, Wheat)</td>
<td>Advanced Seed Scripting (Soybeans)</td>
<td>Disease Diagnosis &amp; Identification (Wheat)</td>
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<td><strong>SEEDS &amp; PLANTING</strong></td>
<td>Regionally-Based Seed Selection (Soybeans)</td>
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<tr>
<td><strong>FIELD INSIGHTS</strong></td>
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<tr>
<td><strong>YIELD ANALYTICS</strong></td>
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</table>

DENOTES PRODUCT ADVANCEMENT (2 ADVANCEMENTS NO LONGER TRACKED ON PIPELINE CHART)

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**Climate FieldView Digital Ag Pipeline**

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**Climate FieldView Digital HUB**

**Climate FieldView Gauge for Enhanced Precipitation**

**Climate FieldView Soil Moisture and Temperature Probe**

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**Nitrate Sensor**

---

**Yield Analysis**

**Yield Analysis (Cotton)**

**Automated Experiments**

**Yield Evaluation & Diagnostics**