ACCELERATING THE FUTURE OF AGRICULTURE

MONSANTO’S 8TH WHISTLE STOP INVESTOR FIELD TOUR

August 17-18, 2016
## Event Agenda

### DAY ONE: CHESTERFIELD RESEARCH CENTER

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 11:00 a.m. | Investors Arrive/Box Lunches  
AA Café                                                                                     |
| 12:00 p.m. | Welcome & Agenda  
Laura Meyer, IR Lead                                                                                     |
| 12:05 p.m. | Opening Remarks: Hugh Grant, Chairman & CEO  
and Brett Begemann, President & COO  
Executive Panel Q & A                                                                                     |
| 1 p.m. | VIP Behind-the-Scenes Tour Stops:  
Insect Control – RNAi  
Yield – Breeding  
Climate FieldView  
Seed Applied Solutions  
Disease Control  
Weed Control  
Insect Control – Biotech                                                                                     |
| 5:00 p.m. | Re-Assemble in AA Lobby  
Travel to Chandler Hill Winery                                                                                     |
| 5:30 p.m. | Cocktail Hour and Dinner:  
Chandler Hill Winery  
Grower Panel                                                                                     |
| 7:45 p.m. | Transportation to Hotel                                                                                     |

### DAY TWO: JERSEYVILLE, IL AGRONOMY CENTER

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 6:15 a.m. | Breakfast – Ritz Carlton  
(Outside Ritz Auditorium)                                                                                     |
| 7:00 a.m. | R & D Presentation - Ritz Auditorium – 2nd Floor  
Dr. Robb Fraley, Executive Vice President & CTO  
R & D Panel                                                                                     |
| 8.00 a.m.-9:15 a.m. | Travel to R&D Research Farm:  
Jerseyville, IL                                                                                     |
| 9:15 a.m. | Assemble at Jerseyville for Site & Safety Overview  
Zach Martin, Jerseyville Site Lead  
**Jerseyville Field Plot Demonstrations**  
Climate FieldView  
Weed Control  
Yield  
Disease Control/Seed Applied Solutions  
Insect Control                                                                                     |
| 11:45 p.m. | Closing Remarks: Hugh Grant                                                                                     |
| 11:45 a.m. | Box Lunches  
Buses Depart for STL Airport & Ritz Carlton                                                                                     |
Certain statements contained in this release 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. 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: 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; developments related to foreign currencies and economies; the impact of exploring, responding to, entering into or consummating potential acquisitions or other transactions and proposals; 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 and expected higher levels of indebtedness; 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 release. 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.

**Trademarks**

Trademarks owned by Monsanto Company and its wholly-owned subsidiaries are italicized in this presentation. All other trademarks are the property of their respective owners.

© 2016 Monsanto Company

**Fiscal Year**

References to year, or to fiscal year, are on a fiscal year basis and refer to the 12-month period ending August 31.
INDUSTRY LEADING PIPELINE
ACCELERATING THE FUTURE OF AGRICULTURE

Dr. Robb Fraley, Executive Vice President and Chief Technology Officer
Monsanto's Leading R&D Pipeline

Delivering Value Through Innovation

Core pipeline expected to deliver up to $25B of peak net sales, with incremental value from new platforms

- Pipeline value increased by more than 35% in the past 5 years
- Leveraging data science across R&D organization with breeding transformation and integrated approach to field testing drives new value
- Innovation underpins long-term EPS growth drivers

Proven Product Performance

2015 performance data reinforces breeding advantage across crops and platforms

- DEKALB Platform outperforms competitors for 10th consecutive year
- Roundup Ready 2 Yield Platform outperforming competitor Roundup Ready, >4 bu/ac advantage
- Roundup Ready 2 Xtend Soybeans delivers enhanced weed control plus increased yield potential in pre-commercial varieties

Industry-Leading Integrated Pipeline

Targeted approaches to enable precise product placement delivering integrated solutions

- 55 pipeline projects advanced in the portfolio over the last two years
- Tracking toward the 4th straight year of >20 pipeline advancements
- Growth platforms showing strong early progress with transformational opportunity across crops

Extending leadership with proven product performance and integrated pipeline, expected to deliver up to $25 billion in peak net sales
Increasing Risk-Adjusted Pipeline Value

Risk-adjusted core pipeline NPV increased in the past 5 years, with incremental value from new platforms

Increasing Core Risk-Adjusted Pipeline Value

Portfolio net present value indexed (2012-2016)

In Past 5 Years, Pipeline Value has Grown by >35%

Pipeline Value Increasing:
With expanding platforms, increasing global technology opportunities, and our ability to leverage R&D further, Monsanto continues to lead with the most valuable, deepest and broadest integrated pipeline in the industry

In Past 5 Years, Pipeline Value has Grown by >35%

2012 2016

Risk-Adjusted Pipeline Present Value (Index based on 2012 expected value)

Pipeline Summary

New innovation drives long-term growth to sustain competitive advantage

Peak Sales

- Overall pipeline peak net sales expected to reach up to $25 billion opportunity

Diversification

- Expanded focus on solutions to target grower needs

(1) Estimated non risk-adjusted net present value.
Monsanto’s leading innovation platforms deliver integrated solutions, leveraging both internal and external innovation and expertise.

### Innovation Platforms

- **Biotechnology**
- **Chemistry**
- **Data Science**
- **Plant Breeding**
- **Biologicals**
- **Integrated Solutions**

### Technologies Utilized

- Nucleic Acid Delivery Technologies
- Water & Soil Management
- Novel Business Models in Agriculture
- Ag Biologicals
- Crop Protection
- Biotechnology, Breeding, Traits & New Crops
- Software, Remote Sensing & Measurements
- Robotics & Automation
- Information Technology Solutions

### Methods to Deliver Innovation

#### Internal R&D Expertise
- Approximately 4,500 employees spanning 40 countries; a field testing network wrapping around the globe 2X

#### Partnerships & Collaborations
- Currently have thousands of active technology alliances - ranging from academics to public and private sector entities

#### Venture Capital
- Over 300 opportunities reviewed last year, with investments initiated in 20+ organizations
Uniquely Positioned to Address Grower Requirements with Digitally Integrated Solutions

Industry’s leading technology platforms and digital integration are addressing evolving grower needs

**BREEDING**
Leading germplasm positions in corn, soybeans, cotton and vegetables enhanced by cutting edge breeding technology to widen gap

**BIOTECH**
Industry leader with broadly licensed biotech traits reaching >350M acres globally in corn, soybeans, cotton, canola. Multi-generation of traits in pipeline to provide new modes of action.

**BIOLOGICALS**
BioAg Alliance with Novozymes; industry leader in fermentation technology

**DATA SCIENCE**
Leading platform with >92M acres of penetration and leading connectivity, retail & equipment partnerships

**CHEMISTRY**
Herbicide leader with glyphosate; partner of choice for new molecule development

**DIGITALLY INTEGRATED SOLUTIONS**
Precision Genome Editing Is An Important New Technology for Our Seeds and Traits Business

Development of gene-editing technologies can simplify breeding, drive genetic gain

INDUSTRY-LEADING RESOURCES
- Broad database of crop genetics
- Extensive database of crop genomes
- Demonstrated R&D discovery capabilities
- Largest field-testing network of integrated solutions
- Proven regulatory know-how

ACCELERATING INSIGHTS
- Unlocks new capabilities across global plant breeding and biotechnology portfolio
- Nuclease applications
  - Single knock out
  - Single-trait editing
  - Multi-trait editing

IMPORTANCE OF PRECISION GENOME EDITING
- Opportunity to accelerate speed-to-market with new traits and stacks
- Opportunity to reduce costs due to faster regulatory timelines and streamlined trait integration
- Opportunity to open up new markets

RECENT GENOME EDITING AGREEMENTS

Nomad Bioscience GmbH
- Proprietary technology which enables more efficient development of edited traits.
- May be applied across a broad range of genome-editing technologies and project types.
- Novel approach holds the promise to accelerate the development of improved products.

TargetGene
- Innovative genome-editing company using RNA-guided gene-editing techniques.
- Global license to proprietary genome-editing technologies.
**Corn Gross Profit Growth Drivers**

Innovation across seeds, traits, crop protection and digital ag further strengthen leading share position

### Pipeline Highlights: Corn

#### Peak Net Sales

- **YIELD**
  - Annual Germplasm Upgrade
  - Higher-Yielding Corn
  - High Density Corn
  - $7.0B – $10.0B

- **INSECT CONTROL**
  - SmartStax PRO
  - Trecepta
  - Acceleron Upgrades
  - $1.5B - $2.0B

- **WEED CONTROL**
  - 3rd-Gen Weed Control System
  - Next-Gen Acetochlor Premix
  - $1.0B - $1.5B

- **DISEASE CONTROL**
  - Anthracnose Stalk Rot Resistance
  - NEMASTRIKE Technology
  - Acceleron Upgrades
  - Acceleron Seed Treatment Products – Enhanced Fungicides Offering
  - <$0.5B

- **OTHER**
  - Roundup Hybridization System I
  - <$0.5B

#### Climate FieldView Digital Agriculture Platform

- Annual Germplasm Upgrade

#### Global Corn Gross Profit Foundation

- $3.6 billion in FY15 from >140M² corn acres globally containing at least one Monsanto technology

#### Next-Gen Seed Treatments

- Biologicals – Acceleron B300 SAT, NEMASTRIKE³ Technology

#### Weed Control

- Future generations of herbicide tolerance weed control systems

---

1. Represents Phase 3 and Phase 4.
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.
3. Pending regulatory approvals.
Revolutionizing Plant Breeding

Fundamentally changing plant breeding approach; targeting to increase current genetic gain by 30%

Key Breeding R&D Advantages

- **Global Plant Genetic Database**
- **Leading Discovery Technologies**
- **Testing Capability and Scale**

Leveraging the Power of Genotypic and Phenotypic Data

---

**Pipeline Transformation**

Expected Increases In New Hybrid Testing Through Genome Wide Selection

- **STAGE 1**
  - Field Baseline
  - 2014 Lab
  - 2018F Lab
  - Next Decade

- **STAGE 2**

Incorporating Data Analytics In Every Step of the Pipeline Provides New Insights In Plant Breeding to Deliver Targeted Increases In Genetic Gain

STAGE 1: Utilization of seed chipping on Double Haploids with Genome Wide Selection

STAGE 2: Innovation via new technologies

---

Plant Breeding Continues Rapid Transformation to Drive Genetic Gain, Powered By: Improved Breeding Methods, Advanced Analytics, Precise Product Placement and Protected Culture
Breeding 3.0 Drives Performance Step Changes Across Breeding Pipeline

Estimated North America 105 to 115 relative maturity (RM) corn pipeline performance – strong yield improvement

By 2020 50% of products are projected to be derived from advanced marker technologies and 75% targeted to be derived from double haploids.¹

(1) Monsanto Internal Estimates
SmartStax PRO Corn

Next-gen corn rootworm protection; industry’s first 3 modes-of-action product for below-ground insect control

2015 Monsanto Field Trials – July 2015 – Massena, IA

Control  VT Triple PRO Corn  SmartStax Corn
**Trecepta Corn**

*Only product expected to offer three effective built-in modes-of-action against corn earworm*

**2015 Monsanto Field Trials – August 2015 – Scott, MS**

<table>
<thead>
<tr>
<th>Control</th>
<th>Trecepta</th>
<th>Control</th>
<th>Trecepta</th>
</tr>
</thead>
</table>
Innovation Driving Future Generations of Novel Insect Protection Traits in Corn

**SmartStax PRO**

**PHASE 4**

TARGET: >100M ACRES ACROSS THE AMERICAS

- Industry’s 1st 3 modes-of-action product for CRW control
- Reduced risk of trait resistance due to novel RNAi mode-of-action
- Licensing structure in place to allow for broad commercial access

- *JULY 2015 - MASSENA, IA*

  **SmartStax PRO** trials clearly showing significant root protection to help maximize yield & late season standability

- **4TH-GENERATION PHASE 2**

  - Targeting to combine novel protein and proprietary RNAi modes-of-action for increased root protection and durability

- **New novel protein and RNAi targets demonstrate root protection under high insect pressure**

**Trecepta**

**PHASE 4**

TARGET: COASTAL US & S. AMERICA

- Only product with 3 modes-of-action against corn earworm
- Designed to enhance protection against fall armyworm & corn borers with expanded control of cutworm
- Continue regulated field trials in 2016 and *Ground Breaker* trials planned in 2017

- **8U AUGUST 2015 - SCOTT, MS**

  **Trecepta** demonstrates significant reduced ear damage vs. control for maximum protection of yield potential

- **4TH-GENERATION PHASE 2**

  - Targeting to offer increased control and durability against key lepidopteran pests – with multiple modes-of-action against each key pest

- **Protein 1 + Protein 2**
Broad Spectrum Nematode Control with *NEMASTRIKE*¹ Technology Helps Protect Yield Potential

Novel nematode-control technology with a fit on 125M acres of opportunity across corn, soy and other crops

**Project Highlights:**

- Proprietary nematicide to be branded as *NEMASTRIKE* technology is currently in Phase 4
- Licensing structure in place to allow for broad commercial access
- Planning for launch in the U.S. in 2018¹

**2015 Monsanto Field Trials – Average Yield Advantage**

**CORN**

- Competitive Standard
- Acceleron SAS² + NEMASTRIKE TECHNOLOGY

**SOY**

- Competitive Standard
- Acceleron SAS² + NEMASTRIKE TECHNOLOGY

**NPV OPPORTUNITY OF ~$1B**

- Corn represents greatest opportunity area
- Followed closely by soybeans
- Value also exists for other crops
- Improved yield potential derived from reduced root damage

**BLOCKBUSTER PRODUCT ESTIMATED $1B IN NPV³**

1. Product is subject to regulatory approvals and is expected to be branded as *NEMASTRIKE* Technology
2. Acceleron SAS = Acceleron Seed Applied Solutions
3. Estimated non-risk-adjusted value
Broad Spectrum Nematode Control Resulting in Improved Yield Protection with NEMASTRIKE Technology

Below-Ground Corn Root Research Results from Illinois – July 20, 2016

NEMASTRIKE Technology

Competitive Standard 1

Competitive Standard 2
## Soybean Gross Profit Growth Drivers

Innovation across seeds, traits, crop protection and digital ag further strengthen leading share position

### Pipeline Highlights: Soybeans

<table>
<thead>
<tr>
<th>Category</th>
<th>Peak Net Sales</th>
<th>Near-Term</th>
<th>Longer-Term 2021+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yield</strong></td>
<td>$1.5B – $2.0B</td>
<td>$0.5B – $1.0B</td>
<td></td>
</tr>
<tr>
<td>Annual Germplasm Upgrade</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Insect Control**: Intacta RR2 PRO Pipeline: 2nd-Gen Insect Protection, Acceleron SAS Upgrades

**Weed Control**: Roundup Ready 2 Xtend, New Dicamba and Warrant Formulations, 3rd-Gen Weed Control System

**Disease Control**: 2nd-Gen Cyst Nematode Resistance, NEMASTRIKE Technology, Acceleron SAS Upgrades

**Other**: SDA Omega-3, Vistive Gold

(1) Represents Phase 3 and Phase 4.

(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.

(3) Pending regulatory approvals

### Next-Gen Seed Treatments

- Biologicals, Acceleron Upgrades, NEMASTRIKE Technology

### Climate FieldView Digital Agriculture Platform

- Next-Gen Seed Treatments: Roundup Ready 2 Xtend, Future generations of herbicide tolerance weed control systems

### Insect Control: Intacta RR2 PRO

### Annual Germplasm Upgrade

### Global Soybean Gross Profit Foundation

$1.5 billion FY15 from >200M soybean acres globally containing at least one Monsanto technology
Innovation Sets Up Next Waves of Upgrades in the Industry’s Largest Weed Control Platform

Multi-gen integrated weed control solutions pipeline

**SOYBEAN TRAITS**

<table>
<thead>
<tr>
<th>3RD-GENERATION</th>
<th>PHASE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPETITIVE SYSTEM</td>
<td>ROUNDPUR XTEND CROP SYSTEM + RR PLUS² SYSTEM</td>
</tr>
<tr>
<td><strong>UNTREATED</strong></td>
<td><strong>TREATED</strong></td>
</tr>
</tbody>
</table>

**FUTURE GENERATIONS**

- Tolerance to glyphosate, dicamba, glufosinate, HPPD, PPO and an additional mode of action

**ROWNUP READY XTEND SOYBEANS**

- Tolerance to glyphosate & dicamba

**FOUNDATIONAL HERBICIDES**

**ADVANCING TO LAUNCH²**

- Proprietary formulations with new VaporGrip technology offer new easy-to-use, low volatility solutions

**WARRANT HERBICIDE + DICAMBA PREMIX**

**PHASE 3**

- Convenient premix will deliver multiple modes of action for trait & chemistry durability
- Efficient, broad acre – can be applied pre- & post-emergence
- Up to 4 weeks of strong residual control of small seeded broadleaf weeds and grasses

- Higher concentration will offer significant grower convenience, reduced transportation footprint and packaging waste
- Improved compatibility with other agricultural products

1. USDA deregulation received. Awaiting EPA approval for in-crop use of dicamba.  
2. RR PLUS = Roundup Ready PLUS

---

**DICAMBA FORMULATION II**

**PHASE 3**

- UNTREATED
- NEW PREMIX

---

**Relative volatility, %**

- Banvel
- Clarity
- VaporGrip
BENEFITS OF ‘PARALLEL DEVELOPMENT’ INNOVATION:

- Enables Monsanto’s future generation multi-herbicide tolerance trait stacked products
- Expected to be commercially available in the next decade
- Controls many PPO resistant weeds
- Controls grasses as well as broadleaves

PRODUCT CONCEPT HIGHLIGHTS:

- **PPO Herbicide Candidate Shows Excellent Weed Control In Trials**
  - Monsanto Greenhouse Test #238
  - June 2016 - Creve Coeur, MO
  - June 2016 – Jerseyville, IL

- **Check**
- **Competitive Standard**
- **New Herbicide**

1. Pending regulatory approval
2ND-GENERATION
Innovation Driving Next-Gen Soy Insect Control Pipeline

2ND-GENERATION CURRENTLY PHASE 4

• Multiple modes-of-action to improve durability and expand the insect spectrum to include armyworm and podworm complexes
• Key region of focus South America; North America under evaluation
• 2019-2020 planned commercial launch

3RD-GENERATION CURRENTLY PHASE 2

• 3rd-gen insect protection product would provide multiple modes-of-action to primary and secondary pests to further improve durability against an expanded spectrum of insects
• Multiple new active leads identified for armyworm, loopers, podworm and velvetbean caterpillar

KEY MILESTONES:
• Penetrated 35M Acres in FY16; targeting 45-55M acres in FY17
• 2016 marks third year of > 4 BU/AC yield advantage in Brazil; similar in Argentina

Number of Distinct Modes-of-Action:

<table>
<thead>
<tr>
<th>Soybean looper</th>
<th>Intacta RR2 PRO</th>
<th>2nd-Gen</th>
<th>3rd-Gen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velvetbean caterpillar</td>
<td>1</td>
<td>3</td>
<td>3-4</td>
</tr>
<tr>
<td>Bean shoot moth</td>
<td>1</td>
<td>3</td>
<td>3-4</td>
</tr>
<tr>
<td>Southern armyworm</td>
<td>0</td>
<td>1</td>
<td>2-3</td>
</tr>
<tr>
<td>Black armyworm</td>
<td>0</td>
<td>1</td>
<td>2-3</td>
</tr>
<tr>
<td>Podworm complex (including Helicoverpa)</td>
<td>1</td>
<td>2</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Intacta RR2 PRO soybean pipeline is deep and provides a long runway of insect protection and durability for farmers. This is important because in the South American market insect pressure is high and insects are constantly evolving.

First combination of Roundup Ready 2 Yield soybeans & above ground insect protection for South America

Second generation of Intacta RR2 PRO is already in Phase 4
Complementary Crops Gross Profit Growth Drivers

Innovation across seeds, traits, crop protection and digital ag further strengthen leading share position

<table>
<thead>
<tr>
<th>PIPELINE HIGHLIGHTS: COTTON¹</th>
<th>Peak Net Sales²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YIELD</strong></td>
<td>&lt;$0.5B</td>
</tr>
<tr>
<td>Annual Germplasm Upgrade</td>
<td></td>
</tr>
<tr>
<td><strong>INSECT CONTROL</strong></td>
<td>$0.5B – $1.0B</td>
</tr>
<tr>
<td>Bollgard 3</td>
<td></td>
</tr>
<tr>
<td>Cotton Lygus Control</td>
<td></td>
</tr>
<tr>
<td>Acceleron SAS Upgrades</td>
<td></td>
</tr>
<tr>
<td><strong>WEED CONTROL</strong></td>
<td>&lt;$0.5B</td>
</tr>
<tr>
<td>Bollgard II XtendFlex</td>
<td></td>
</tr>
<tr>
<td>New Dicamba and Warrant Formulations</td>
<td></td>
</tr>
<tr>
<td><strong>DISEASE CONTROL</strong></td>
<td>&lt;$0.5B</td>
</tr>
<tr>
<td>NEMASTRIKE³ Technology</td>
<td></td>
</tr>
<tr>
<td>Acceleron SAS Upgrades</td>
<td></td>
</tr>
</tbody>
</table>

Vegetable R&D Pipeline $1.5B to $2.0B

Other Seeds & Traits R&D Pipeline $1.0B to $1.5B

Canola, Wheat, Sorghum, Alfalfa
Annual Germplasm Upgrades, TruFlex Roundup Ready Canola

Vegetables: Annual Germplasm Upgrades; Disease Resistance Packages

Cotton: New Trait Introductions – Bollgard II XtendFlex, Bollgard 3, Cotton Lygus

Cotton: Annual Germplasm Upgrades

Cotton, Vegetable and Other Crops Gross Profit Foundation: $1.2 billion FY15

NEAR-TERM

LONGER-TERM 2021+

(1) Represents Phase 3 and Phase 4.
(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.
(3) Pending regulatory approvals
Innovation Driving Future Generations of Novel Insect Protection Traits

Next-generation insect control demonstrates high-level field efficacy against lygus, thrips and fleahoppers

**COTTON LYGUS CONTROL CURRENTLY PHASE 3**

**TARGET REGIONS:** U.S., WITH POTENTIAL IN AUSTRALIA & BRAZIL

- Expected to be stacked with Bollgard 3 XtendFlex cotton
- Trials demonstrate excellent yield protection demonstrated by high-level field efficacy against lygus, thrips and fleahoppers - estimated yield losses and control costs nearly $200 million
- Would provide growers an additional tool beyond chemical insecticides

**UNIVERSITY OF TENNESSEE THRIPS TRIAL IMAGES**

2016 - JACKSON, TN

Control

Trated

Lygus Event Provides Thrips Protection Beyond That Available from Seed Treatments

**UNIVERSITY OF TENNESSEE THRIPS TRIAL IMAGES**

2016 - JACKSON, TN

Control

Trated

**Bollgard 3**

**NEW: PLANNED 2017 COMMERCIAL LAUNCH IN AUSTRALIA**

**TARGET REGIONS:** U.S. & AUSTRALIA, WITH POTENTIAL IN BRAZIL

- Builds on the superior Bollgard II technology to deliver effective insect management with multiple modes of action against key lepidopteran pests
- Supports our commitment to sustainable and durable insect resistance management programs

**Bollgard 3 shows improved control against key lepidopteran pests under high insect pressure**

**2014-2015 MONSANTO FIELD TRIALS**

Control

Bollgard II

Bollgard 3

**4TH-GEN BOLLGARD CURRENTLY PHASE 1**

- Next-generation developed to provide season-long protection with multiple modes of action against key lepidopteran pests
- Novel modes of action designed to allow for refuge flexibility, increased durability and enhanced yield protection

1. Mississippi State University Research Study, 2014
2. Seed was treated with imidacloprid at standard commercial rate, Ratings taken 31 days after planting
Leading Position Makes Monsanto the Partner of Choice in Developing Next-Gen Crop Protection

Leveraging the leading global weed control platform, proven development capabilities and broad commercial reach accelerates partnership opportunities as Monsanto expands integrated crop protection solutions.

**Proven Development Capabilities**
- Genomics Capability
- Integrated Field Testing Network

**Broad Commercial Reach**
- Global Seed & Trait Footprint ~400M Acres
- *Roundup* Branded Agricultural Herbicides
- *Acceleron SAS*³ Portfolio ~75M Acres

**New Partnership**
- Accelerated development of new integrated system for PPO inhibitor herbicide
- Supports Monsanto’s future generation multi-herbicide tolerance trait stacked products
- Expected to be commercially available in the next decade
- Controls many PPO resistant weeds¹
- Controls grasses as well as broadleaves

---

¹ Pending regulatory approvals.
² *Acceleron SAS = Acceleron Seed Applied Solutions*
³ Awaiting EPA approval for in-crop use of dicamba
The BioAg Alliance

Pipeline progress and integrated field testing network support 250-500M 2025 acre target

Seed Care: Microbials

Sales Opportunity

Microbial products have the potential to replace or complement traditional chemistry products.

Acre Opportunity

- In FY15 our products were on 65M acres
- Targeting 250-500M acres with new, high value technology upgrades by 2025

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>
</tr>
</thead>
<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>

- BioControl strains advanced from Discovery to Phase 1 for disease and insect control earlier this year
- Enhanced-Corn Inoculant suitable for both upstream and downstream applications advanced from Phase 2 to Phase 4 earlier this year
- New corn hits >4 BU/AC and soy >1.5 BU/AC average yield advantage

(2) MarketLine and Phillips McDougal market data; All figures in USD.
BioAg Alliance Poised for Near-Term Growth

2025 Target Microbials: 250-500 Million Acres in New Crop Protection Solutions

Phase 2: Long Life Inoculant (LLI) for Soybeans
Targeted for Brazil

- **Product Benefits**: Enhances yield potential by producing biologically available nitrogen from air.
- **Product Opportunity**: Improve formulation to enable seed treatment by multipliers rather than farmers.

Phase 4: Next-Gen Microbial
**Acceleron B-300 SAT**: New corn breakthrough

- **Product Benefits**: Enhances yield potential by increasing phosphate availability.
- **Product Opportunity**: Improve formulation and on-seed viability for compatibility with seed manufacturing specifications.

**Launched: Optimize XC for soybeans**
Higher concentration, better user experience

- **Product Benefits**: Enhances yield potential by producing biologically available nitrogen from air.
- **Product Opportunity**: Increase microbial concentration to simplify seed treatment by multiplier.

First BioAg Alliance Upstream
Microbial Seed Treatment for Corn

Trials demonstrated significant corn root development with **Acceleron SAS¹** + Microbial treatment vs **Acceleron SAS only**

1. **Acceleron SAS** = **Acceleron Seed Applied Solutions**
Growers are focused on solutions that integrate new technology and are seeking whole-farm approaches.
Digital Pipeline Drives Breakthroughs for Ag

Delivering connectivity and actionable insights to farmers to unlock yield potential and productivity

<table>
<thead>
<tr>
<th>Core R&amp;D Focus Areas</th>
<th>Research &amp; Development</th>
<th>Commercial Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds &amp; Planting</td>
<td>Automated Scripts</td>
<td>Script Creator&lt;br&gt;Increase productivity with simple, easy-to-use script creation tool</td>
</tr>
<tr>
<td></td>
<td>Automated Scripts with Seed Data</td>
<td></td>
</tr>
<tr>
<td>Fertility</td>
<td>Sub-Field Nitrogen</td>
<td>Nitrogen Advisor&lt;br&gt;Nitrogen Advisor identifies ~$1 Billion Opportunity to improve productivity in US corn 2</td>
</tr>
<tr>
<td></td>
<td>Crop Expansion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variable Rate Nitrogen</td>
<td></td>
</tr>
<tr>
<td>Field Insights</td>
<td>Enhanced Imagery</td>
<td>Field Health Advisor&lt;br&gt;In-season and historical field imaging to evaluate and identify issues before they impact yield</td>
</tr>
<tr>
<td></td>
<td>Advanced Insights</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yield Analytics</td>
<td></td>
</tr>
<tr>
<td>Data Capture &amp; Visualization</td>
<td>Third Party Data Integration &amp; API’s</td>
<td>Climate FieldView Drive&lt;br&gt;Enable seamless data collection, sharing &amp; visualization</td>
</tr>
<tr>
<td></td>
<td>Ongoing Environmental Data Upgrades</td>
<td></td>
</tr>
</tbody>
</table>

Measurements:

- Soil and Environmental Sensors
- Connected Field

- Enabling data platform will drive improved measurements yielding enhanced grower insights

1. Wireless Data Server
2. Representative and random sample of >3,800 Nitrogen Advisor Fields where main Nitrogen application was mineral fertilizer. Assumes $4 / bushel corn, $0.40 /lb-N fertilizer costs and average yield of 168 bushels per acre
Leading Share Position and Innovation Drives Strong Long-Term Earnings Power

**Leading Share Positions**

- **Corn**: Global germplasm refresh, footprint expansion & next-gen traits
- **Soybeans**: Intacta RR2 PRO & Roundup Ready 2 Xtend expansion & next-gen traits
- **Complementary Crops**: Bollgard II XtendFlex cotton, next-gen cotton traits, and vegetables
- **Ag Productivity**: Next-Gen Crop Protection

**2025 Technology Upgrade Acreage Targets**

**CORE PLATFORMS: >800M ACRES**
- **Corn**: ~240M in Seed and Trait Upgrades
- **Roundup Ready Xtend Crop System**: ~300M Acres of Upgrades
- **Intacta RR2 PRO Soybeans**: ~145M Acres in Trait Upgrades
- **NEMASTRIKE Technology**: ~125M Acres Seed Applied Solutions

**NEW PLATFORMS: 550-900M ACRES**
- **Biologicals** – BioAg: 250-500M Acres
- **Climate FieldView** Paid Acres: 300-400M Acres

---

1. Acre targets reflect Monsanto’s internal estimates of new technology penetration by 2025 (less 2015 actual penetration for technologies recently launched). The core platforms highlighted are not a full representation of the pipeline; this is a subset of key drivers nearing commercialization, many likely before the end of the decade, or recently launched.
R&D Q&A Panel

DR. ROBB FRALEY
Executive Vice President and Chief Technology Officer

TOM ADAMS
Global Biotechnology Lead

SAM EATHINGTON
Climate Chief Scientist

MIKE GRAHAM
Global Breeding Lead

SHANNON HAUF
Cotton, Wheat and Specialty Crops Technology Lead

BOB MCCARROLL
Global Chemistry Lead
JERSEYVILLE AGRONOMY CENTER

• Farm consists of 264 acres
• Research conducted on site since 1984
• Employ 23 full-time, up to 120 seasonal and contract
• Programs/Teams: North America Breeding, Trait Delivery, Trait Testing
• 450 Hours of Community Service Last Year
Jerseyville Visitor Safety Guidelines

- Safety glasses must be worn in designated areas including greenhouses, laboratories, seed processing areas and fields
- All plant and seed material should be considered regulated. Plant material may not be removed. Avoid any accidental removal by checking shoe soles and trouser cuffs before leaving.
- Smoking is permitted only in designated areas
- In case of a fire, we will congregate in the area north of B Building
- In case of severe weather, we will relocate to the conference room just inside the main entrance of Building A

Please report any injury or illness no matter how slight to a Monsanto Employee
Jerseyville Field Tour

CLIMATE
FIELDVIEW

WEED CONTROL: MULTI-GEN. TRAIT AND CHEMISTRY PIPELINE

YIELD

DISEASE CONTROL, SEED APPLIED SOLUTIONS

INSECT CONTROL: SMARTSTAX PRO & TRECTA

INSECT CONTROL: INTACTA RR2 PRO 2 & 3
<table>
<thead>
<tr>
<th></th>
<th>Speaker(s)</th>
</tr>
</thead>
</table>
| **FERTILITY & INTEGRATION** | Sam Eathington, Chief Scientist, Climate  
John Raines, VP, Commercial Lead, Climate |
| **WEED CONTROL**  | Calvin Treat, Global Corn and Soybean Technology Lead  
Lisa Safarian, North America Commercial Lead |
| **YIELD**        | Mike Graham, Global Breeding Lead  
Tom Eickhoff, NA Agronomic Systems Lead  
JD Rossouw, NA Breeding Lead |
| **DISEASE CONTROL & SAS** | Matt Helms, Global Ag Productivity Technology Lead  
Juan Ferreira, Crop Protection and Seed Applied Solutions Lead |
| **INSECT CONTROL** | Tom Adams, Global Biotechnology Lead  
Rodrigo Santos, South America Commercial Lead  
John Chambers, North America Tech Development & Agronomy Lead |
CLIMATE FIELDVIEW: DIGITALLY INTEGRATED PLATFORMS

THE FUTURE OF DIGITAL AGRICULTURE

Sam Eathington
John Raines
Climate Stop Overview

1. Nitrogen Advisor: Overview and demo of nitrogen advisor that provides farmers enhanced ability for maximizing this key farm input

Sensor System Advancements: Expansion of measurement capabilities with new field sensor system in Climate FieldView Platform provides more customized insights to maximize farm profit

2. Field Health: Enhanced satellite imagery supports in-season decision making
Digital Pipeline Drives Breakthroughs for Ag

Delivering connectivity and actionable insights to farmers to unlock yield potential and productivity

### Core R&D Focus Areas

#### Seeds & Planting
- **Early Stage**: Automated Scripts
- **Late Stage**: Automated Scripts with Seed Data

#### Fertility
- **Early Stage**: Crop Expansion
- **Late Stage**: Variable Rate Nitrogen

#### Field Insights
- **Early Stage**: Enhanced Imagery
- **Late Stage**: Advanced Insights

#### Data Capture & Visualization
- **Early Stage**: Third Party Data Integration & API’s
- **Late Stage**: Ongoing Environmental Data Upgrades

### Commercial Highlights

#### Script Creator
- *LAUNCHED*
- Increase productivity with simple, easy-to-use script creation tool

#### Nitrogen Advisor
- *UPGRADED*
- Nitrogen Advisor identifies ~$1 Billion Opportunity to improve productivity in US corn

#### Field Health Advisor
- *UPGRADED*
- In-season and historical field imaging to evaluate and identify issues before they impact yield

#### Climate FieldView Drive
- *LAUNCHED*
- Enable seamless data collection, sharing & visualization

### Measurements
- Soil and Environmental Sensors
- Connected Field

### Core R&D

1. Wireless Data Server
2. Representative and random sample of >3,800 Nitrogen Advisor Fields where main Nitrogen application was mineral fertilizer. Assumes $4 / bushel corn, $0.40 /lb-N fertilizer costs and average yield of 168 bushels per acre
Nitrogen is a key farm input with a significant impact on yield. Maximizing nitrogen effectiveness requires optimal timing and application amount.

2015 PROOF POINTS

Model Tested Across Thousands of Fields

- Shortfall
  - More than 10% of fields experienced yield loss due to insufficient nitrogen
  - Average impact of yield loss for this group is $54 / acre

- Surplus
  - More than 40% of fields could benefit from optimizing their inputs
  - Average savings opportunity for this group is $13 / acre

1 Representative and random sample of >3,800 Nitrogen Advisor Fields where main Nitrogen application was mineral fertilizer. Assumes $4 / bushel corn, $0.40 /lb-N fertilizer costs and average yield of 168 bushels per acre.
# Nitrogen Demonstration

<table>
<thead>
<tr>
<th>Plot</th>
<th>Lbs/Ac Applied</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>Low Nitrogen Fertility</td>
</tr>
<tr>
<td>2</td>
<td>200</td>
<td>Grower Practice</td>
</tr>
<tr>
<td>3</td>
<td>300</td>
<td>N Advisor - Planting</td>
</tr>
<tr>
<td>4</td>
<td>200</td>
<td>N Advisor - Planting + early</td>
</tr>
<tr>
<td>5</td>
<td>200 75</td>
<td>N Advisor - Planting + late</td>
</tr>
</tbody>
</table>

The diagram illustrates the growth stages of corn (VE, V1, V3, V7, VT, R1, R6) and the corresponding nitrogen application rates.
Sub-Field Nitrogen Advisor Enables Optimization Within the Field

Launching sub-field nitrogen management will give growers the opportunity to manage at a sub-field level.

**TODAY: FIELD BY FIELD**

- 37 lbs N/ac Deficit
- 3 lbs N/ac Deficit
- 18 lbs N/ac Deficit
- 26 lbs N/ac Remaining
- 30 lbs N/ac Remaining
- 7 lbs N/ac Deficit

**2017: SUB-FIELD**
Sensor Network will Connect “The Field” Like We Connected “The Cab”

Provides more temporal and spatial data and insights into one consolidated platform

**Climate Soil Probe**
- Soil Temp and Moisture
- Nitrate
- Other Innovations

**Climate FieldView**
Hub and rain gauge

**3rd Party Field Sensors**
- CO2 / O2
- Canopy Temperature
- Leaf area index

**R&D Focus**
Cab Connection
SupraSensor Nitrate Sensor Technology Creates a Network that Connects the Field

Sensor is field-durable and as accurate as lab testing during prototype testing

Performs within accuracy targets 95% of the time relative to soil nitrate testing

Proprietary chemistry coating that selects for nitrate

Accuracy of SST vs. FIA in 3:1 Soil Slurries

1. SST = SupraSensor Technology, FIA = Flow Injection Analysis during soil nitrate lab testing, ppm = parts per million
Climate FieldView Product Evolution Drives Imagery Enhancements

Continue to integrate additional data layers of information to improve our algorithms and advisors.

- Boundary
- Elevation
- Slope
- CTI
- Sampling
- OM
- P
- K
- pH
- CEC
- Historic Yield
- SSURGO

Remote Sensing
- Trial Layout
- Seeding Zones
- Prescription
- Planted RbR
- Harvest Points
- Scouting
- Yield Analysis

Up to 55 data layers possible
REMOTE SENSING DEMO: FIELD HEALTH IMAGERY
WEED CONTROL SOLUTIONS

MULTIGENERATIONAL INTEGRATED PIPELINE
TARGETING 300M IN ACRE UPGRADES BY 2025

Lisa Safarian & Calvin Treat
Grower’s Perspective: Evolution of Soybean Weed Control Over The Last 20 Years

1996 – 2006

*Roundup Ready/Roundup Ready 2 Yield Soybeans: Unprecedented Rate of Adoption: Convenience, Efficacy & Crop Safety*

Glyphosate Off-Patent 2000: Glyphosate Progressively Lower Cost per Acre

“Roundup Alone”

2006 - 2016

Weed Resistance Proliferates Across Herbicide Groups

Increased Number of Herbicides and Applications (*Roundup Ready PLUS System Drives Residual Use*)

---

1. International Survey of Herbicide Resistant Weeds, GFK Agrotrak and Traitrak Data
Competitive System Comparison: *Roundup Xtend Crop System* provides effective, broad spectrum weed control and flexibility

*Roundup Ready PLUS Crop Solutions*: Industry leading established platform providing platform durability

*VAPORGRIP Technology*: Proprietary technology minimizing off-target movement providing applicators confidence in successful on-target application
Proprietary technology minimizing volatility providing applicators confidence in successful on-target application

**VAPORGRIP Technology Field Demonstration**

**IMAGE 1:** Covered non-tolerant Roundup Ready 2 Yield Soybeans and sprayed a section in the middle of the field with Xtendimax with VAPORGRIP Technology

**IMAGE 2:** You can see when the tarp was lifted only the section sprayed in the middle was impacted displaying successful on-target application
YIELD: EXTENDING OUR COMPETITIVE ADVANTAGE

LEVERAGING ADVANCED AUTOMATION AND UNIQUE SENSING TECHNOLOGIES TO BETTER CHARACTERIZE PRODUCTS

Mike Graham, JD Rossouw & Tom Eickhoff
Revolutionizing Field Testing: Deployment of robotic zone planters and advanced imaging devices provides new product insights prior to launch.

Precise Product Placement: Imaging and mobile data collection technology allows for characterization of sub-field environmental conditions, further accelerating our research decisions driven by data science.

Delivering Products: *DEKALB Disease Shield Hybrids* – exclusive combination of genetics with enhanced protection against the most common, yield-robbing corn diseases.
Global Plant Breeding Team

Primary objective: improving genetic gain and protecting yield

Innovation and Yield Focus

120+ locations in 25+ countries

Six Row Crops

Corn    Soybean    Cotton    OSR/Canola    Sorghum    Wheat
Robust R&D Pipeline Targeting Yield Improvement

Innovation across breeding & biotechnology leveraging data analytics to further strengthens leading position in delivering yield

**YIELD**

**PEAK NET SALES**\(^1\) $10.5B - $14.5B

Continued leadership and collaborative partnerships are driving innovative solutions to produce food in a sustainable way

Targeted Technology Updates in Corn by 2025:

~140 Million Acres

### R&D Pipeline

<table>
<thead>
<tr>
<th>Crop</th>
<th>Technology Updates</th>
<th>Peak Net Sales(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORN</strong></td>
<td>• <strong>ANNUAL GERMPLASM UPGRADES</strong></td>
<td>$7.0B – $10.0B</td>
</tr>
<tr>
<td></td>
<td>• <strong>HIGHER-YIELDING CORN</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>DROUGHTGARD PLATFORM EXPANSION</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>2ND-GEN HIGHER-YIELDING CORN</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>HIGH DENSITY CORN</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>ULTRA HIGH DENSITY CORN</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SOYBEANS</strong></td>
<td>• <strong>ANNUAL GERMPLASM UPGRADES</strong></td>
<td>$1.5B – $2.0B</td>
</tr>
<tr>
<td></td>
<td>• <strong>NEXT-GEN HIGHER-YIELDING SOY</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COTTON</strong></td>
<td>• <strong>ANNUAL GERMPLASM UPGRADES</strong></td>
<td>&lt;$0.5B</td>
</tr>
<tr>
<td><strong>COMPLEMENTARY CROPS</strong></td>
<td>• <strong>ANNUAL GERMPLASM UPGRADES</strong></td>
<td>$1.5 - $2.0B</td>
</tr>
</tbody>
</table>

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.
2. Part of the Monsanto-BASF R&D Collaboration.
Breeding 3.0 Drives Performance Step Changes Across Breeding Pipeline

Estimated North America 105 to 115 relative maturity (RM) corn pipeline performance – strong yield improvement

By 2020 50% of products are projected to be derived from advanced marker technologies and 75% targeted to be derived from double haploids¹

1. Monsanto Internal Estimates.
Our goal is to fully characterize every hybrid at every location.

1. Characterization of soil environments in field
2. Robotic zone planters optimize planting for specific environments
3. Field imaging rovers collect more accurate data on product performance
4. Imaging drives new product insights
DISEASE CONTROL AND SEED APPLIED SOLUTIONS

Matt Helms and Juan Ferreira
Disease Control and Seed Applied Solutions
Stop Overview

1. A Growing Segment and Platform Overview: Value in disease control and seed applied solutions

2. Addressing the Challenges Growers Face: 360° video

3. Cut-Away Displays: NEMASTRIKE Technology and Acceleron B-300 SAT microbial for corn

4. Powerful Product Combinations: Combining multiple products and disciplines to offer farmers compelling products for their farms; in-field demonstration of DeKalb Disease Shield hybrids
Core Disease Control and Microbial Seed Applied Solutions Pipeline

Innovation across platforms further strengthens disease control and seed applied solutions portfolio

Core Disease Control R&D Pipeline

<table>
<thead>
<tr>
<th>CORN</th>
<th>Peak Net Sales(^1)</th>
<th>&lt;$0.5B</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PLANT HEALTH SYSTEMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ANTHRACNOSE STALK ROT RESISTANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• STALK ROT COMPLEX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• FUSARIA STALK ROT RESISTANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GIBERELLA STALK ROT RESISTANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• DIPLODIA STALK ROT RESISTANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BIOTECH DISEASE CONTROL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NEMASTRIKE TECHNOLOGY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIMBUS NOVEL FUNGICIDE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ACCELERON SAS UPGRADES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ACCELERON SAS ENHANCED FUNGICIDES OFFERING</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOYBEANS</th>
<th>Peak Net Sales(^1)</th>
<th>&lt;$0.5B</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PLANT HEALTH SYSTEMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 2(^{ND}) GEN CYST NEMATODE RESISTANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NEMASTRIKE TECHNOLOGY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIMBUS NOVEL FUNGICIDE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ACCELERON SAS UPGRADES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COTTON AND COMPLEMENTARY CROPS</th>
<th>Peak Net Sales(^1)</th>
<th>&lt;$0.5B</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NEMASTRIKE TECHNOLOGY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ACCELERON SAS UPGRADES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seed Care: Microbials

**Biologicals**

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

Fast growing market with roughly $2.6B in annual sales\(^1\)

---

(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.

---

**Sales Opportunity**

- Microbial products have the potential to replace or complement traditional chemistry products.

**Acre Opportunity**

- In FY15, our products were on 65M acres
- BioYield, including inoculants, hold significant opportunity for market expansion
- Targeting 250-500M acres with new, high value technology upgrades by 2025

---

(2) MarketLine and Phillips McDougall market data; All figures in USD.

(3) Monsanto estimates of Ag biologicals industry based on a combination of research data from DunhamTrimmer, Agrow, MarketsandMarkets, Frost & Sullivan, Boston Consulting Group, BCC Research, Philips McDougall, Global Industry Analysts.
Multi-Prong Approach to Disease Control in Corn

Systems approach combines disease resistance + differentiated seed treatments for season-long protection

Pipeline remains best in class delivering high-yielding hybrids with business-leading disease ratings for diseases of economic importance to growers including ASR, GLS, GW and NCLB.

R&D Progress Targeting to Increase Disease Tolerance Ratings:

<table>
<thead>
<tr>
<th>Pipeline</th>
<th>ASR²</th>
<th>GLS³</th>
<th>GW⁴</th>
<th>NCLB⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESISTANT</td>
<td>SUSCEPTIBLE</td>
<td>RESISTANT</td>
<td>SUSCEPTIBLE</td>
<td>RESISTANT</td>
</tr>
</tbody>
</table>

ACCELERON SEED APPLIED SOLUTIONS—ENHANCED DISEASE CONTROL OFFERING

Phase 4

- Provides early to mid-season disease control due to the reduction of infections by Rhizoctonia, Fusarium and Colletotrichum
- Potential to increase yield disease rating scores

Two new fungicides for corn growers; in collaboration with Bayer

Enhanced Disease Control Offering Provided ~3.0 BU/ACRE Avg Yield Increase

2015 FIELD TRIALS

Collinsville, IL – June 2015

Greater vigor and advanced growth stages demonstrated in 2015 field trials
**Acceleron** B-300 SAT Improves Yield Potential and Nutrient Uptake

First alliance upstream microbial seed treatment for corn

**Project Highlights:**
Key regions are U.S. and Canada with subsequent global expansion plans

Enhanced formula delivers high on-seed stability and secures convenient upstream microbial application

Microbial growth along plant roots improves nutrient access enhancing root and shoot development unlocking yield potential

Pending state regulatory approvals, planning for 2017 launch in the U.S.

---

**2015 U.S. Field Testing Results**

**IMPROVING NUTRIENT ACCESS:**
Yield data across 40+ locations supports >4 BU/AC average yield advantage, with >65% win rate

<table>
<thead>
<tr>
<th>BUSHEL PER ACRE</th>
<th>Acceleron SAS¹ Control</th>
<th>Acceleron SAS¹ + Acceleron B-300 SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BU/AC</td>
<td>205</td>
<td>215</td>
</tr>
</tbody>
</table>

Trials demonstrated significant corn root development with Acceleron SAS¹ + microbial treatment vs. Acceleron only

Blockbuster *NEMASTRIKE* Technology Targets 125M Acre Opportunity\(^1\), Estimated $1B in NPV\(^2\)

Broad spectrum nematode control to help protect yield potential

**Project:** *NEMASTRIKE* Technology  
**Status:** Phase 4

**Project Highlights:**

- Novel nematode-control technology with a fit on 125M acres of opportunity across soy, cotton and corn acres
- Licensing structure in place to allow for broad commercial access
- Planning for launch in the U.S. in 2018\(^2\)

---

**2015 Monsanto Trials**

**Corn**

- Competitive Standard
- Acceleron SAS w/ NEMASTRIKE Technology

**Soy**

- Competitive Standard
- Acceleron SAS w/ NEMASTRIKE Technology

**June 2015 - St. Jacob, IL**

Early season results for soybeans treated with new nematicide show nearly 2X height differential

**Acceleron Seed Applied Solutions demonstrate strong in-field performance advantage vs. competitive standards across crops in second year of expanded broad acre field testing.**

---

(1) Product in Phase 4 and subject to regulatory approvals, and is expected to be branded as NEMASTRIKE Technology.

(2) Estimated non risk-adjusted value
INSECT CONTROL SOLUTIONS

John Chambers, Tom Adams & Rodrigo Santos
Insect Control Stop Overview

1. Insect Control Pipeline: New growth opportunities with expanded spectrum, multiple modes of action and geography expansion

2. **Smartstax Pro Corn**: Next generation of corn rootworm protection, first product with three modes of action for below-ground insect control

3. **Trecepta Corn**: Newest trait development for above-ground insect control in corn; highest level of control against the broadest spectrum of lepidopteran pests

4. **Next Generation Intacta Upgrades**: Designed to improve the control and durability of soybean insect control, adding new modes of action against primary and secondary pests
Robust R&D Pipeline in Insect Control

Innovation Across seeds, traits and crop protection further strengthen leading position in insect control

**INSECT CONTROL**

**PEAK NET SALES** $2.5B - $4.0B

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

Targeted Technology Updates by 2025:

~200M Million Acres

~200M Acres Global Seed & Trait Upgrades

**R&D Pipeline**

<table>
<thead>
<tr>
<th>CORN</th>
<th>Peak Net Sales(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SMARTSTAX PRO TECHNOLOGY</td>
<td>$1.5B – $2.0B</td>
</tr>
<tr>
<td>• TRECEPTA TECHNOLOGY</td>
<td></td>
</tr>
<tr>
<td>• ACCELERON TECHNOLOGY UPGRADES</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOYBEANS</th>
<th>Peak Net Sales(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• INTACTA RR2 PRO PIPELINE: 2(^{ND}) AND 3(^{RD}) GEN INSECT PROTECTION</td>
<td>$0.5B – $1.0B</td>
</tr>
<tr>
<td>• ACCELERON TECHNOLOGY UPGRADES</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPLEMENTARY CROPS</th>
<th>Peak Net Sales(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BOLLGARD 3 COTTON</td>
<td>$0.5B – $1.0B</td>
</tr>
<tr>
<td>• COTTON LYGUS CONTROL</td>
<td></td>
</tr>
<tr>
<td>• ACCELERON TECHNOLOGY UPGRADES</td>
<td></td>
</tr>
</tbody>
</table>

1. Peak net sales reflects estimated global sales estimated opportunity around peak penetration year for products in the core pipeline, which includes biotech, breeding and crop protection.
**SmartStax PRO Corn**

Next generation of corn rootworm protection; industry’s first three modes-of-action product for below-ground insect control

<table>
<thead>
<tr>
<th>Project:</th>
<th>SmartStax PRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status:</td>
<td>Phase 4</td>
</tr>
</tbody>
</table>

**Project Highlights:**

**Target: >100m Acres Across the Americas**

- First product to have three modes-of-action for corn rootworm control
- Designed to reduce risk of trait resistance due to novel RNAi mode-of-action
- Stronger full-season control designed with improved control of corn rootworm larvae at all stages of development
- Licensing structure in place to allow for broad commercial access
- Received full approvals in Canada and single trait approvals in the United States, with EPA registration on-track for SmartStax PRO corn
- Advancing approvals in import countries
- Targeting stewarded Ground Breakers trials in 2018 with launch by the end of the decade, pending regulatory approvals

---

**2015 Monsanto Field Trials**

**July 2015 – Massena, IA**

<table>
<thead>
<tr>
<th>Control</th>
<th>VT Triple PRO corn</th>
<th>SmartStax corn</th>
</tr>
</thead>
</table>

**SmartStax PRO corn clearly showing significant root protection in 2015 field trials to help maximize yield and late season standability.**

The information in this slide is for educational purposes only and is not an offer to sell or use any unregistered pesticides.
Trecepta Corn

Only product with three effective built-in modes-of-action against corn earworm

Project: Trecepta
Status: Phase 4

Project Highlights:

Target Regions: Southern US & S. America

Designed to provide:

• Industry leading protection with three modes-of-action against corn earworm
• Enhanced protection against fall armyworm and corn borers with expanded control of cutworms
• Unparalleled combination of insect control and resistance management
• Provides flexibility and increased confidence in planting decision even during late planting or high pest pressure
• Full approvals received in both United States and Canada, advancing approvals in import countries
• Ground Breaker trials planned in 2017, launch in 2018 pending regulatory approvals

2015 Monsanto Field Trials
August 2015 - Scott, MS

Trecepta demonstrates significantly reduced ear damage vs. control for maximum protection of yield potential

2015 Trait Development Trials
Field Data Across TX, MS, GA, NC & TN
INTACTA RR2 PRO Soybeans: Strong Performance; Targeting 45-55M Acres in FY17

FIELD PERFORMANCE: MATO GROSSO, BRASIL

Benefits of Intacta RR2 PRO:

- Productivity gains from less insecticide use
- Visible difference in insect protection
- Clear and consistent yield benefits

INSECT DAMAGE ON UNTREATED ROUNDUP READY SOYBEAN PODS
Project: Second Generation Insect Protection
Status: Phase 4

Project Highlights:

Target: >100M Acres
- Field trials confirm excellent insect control with Second Generation Soybean Insect Protection
- Multiple modes-of-action to improve durability and expand the insect spectrum to include armyworm and podworm complexes
- Reduces insect damage, thereby protecting yield potential
- Key region of focus South America; North America under evaluation
- Next steps: Pending Regulatory Submissions
- 2019-2020 Planned Commercial Launch

2015 Monsanto Field Trials
March 2015 - La Cocha, Argentina

Confirmed efficacy in expanded germplasm
Third Generation Soybean Insect Protection

Designed to increase trait durability and improve yield protection

Project: Third Generation Insect Protection
Status: Phase 2

Project Highlights:

Target: >100M Acres

- Third-generation insect-protected product designed to provide multiple modes of action to primary and secondary pests to further expand durability against an expanded spectrum of insects
- Multiple new active leads identified for armyworm, loopers, podworm and velvetbean caterpillar
- Soybean looper screenhouse trials demonstrate effective protection as compared to the non-traited control
- Key region of focus South America; North America under evaluation
- Next steps: Commercial Events Selection

2015 Monsanto Field Trials

2015 Soybean Podworm Trials – Union City, TN

2015 Soybean Looper Screenhouse Trials
Jerseyville, IL

% Max Defoliation

- Negative Check
- Protein 1
- Protein 2
- Protein 3
- Protein 4

15% (economic threshold)