Arcadia BIOSCIENCES

# Morgan Stanley Global Chemicals and Agriculture Conference

November 9, 2015

# Forward-looking statements

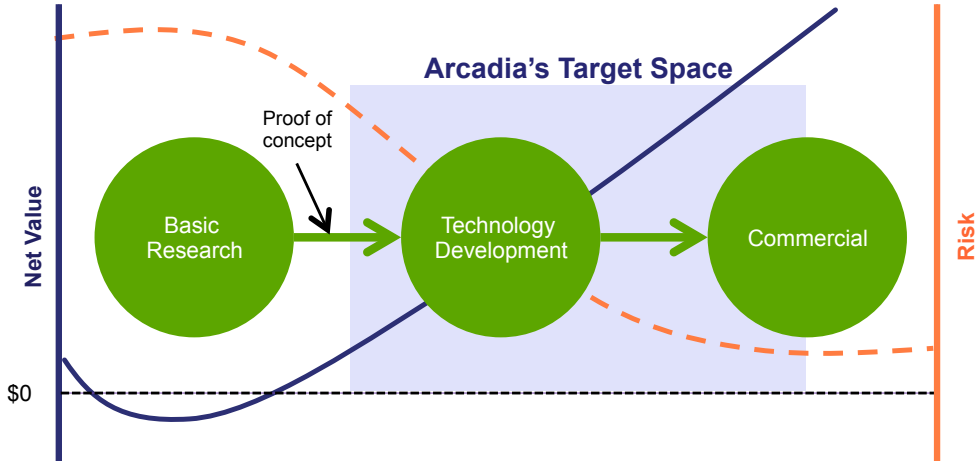
"Safe Harbor" statement under the Private Securities Litigation Reform Act of 1995: This presentation contains forward-looking statements about the company and its products, including statements relating to components of the company's long-term financial success; the company's traits, commercial products, and collaborations; the company's ability to manage the regulatory processes for its traits and commercial products; the company's anticipated financial results; current and future products under development; additional collaboration agreements; the regulatory process; business and financial plans; and other non-historical facts.

Forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially, and reported results should not be considered as an indication of future performance. These risks and uncertainties include, but are not limited to: the company's and its partners' ability to develop commercial products incorporating its traits and complete the regulatory review process for such products; continued competition in seed traits and other products; the company's compliance with laws and regulations that impact the company's business, and changes to such laws and regulations; the company's reliance on its collaborators to commercialize products incorporating its seed traits; the company's future capital requirements and ability to satisfy its capital needs; the company's exposure to various contingencies, including those related to intellectual property protection, success of field trials, regulatory compliance, the speed with which regulatory approvals are received, and public acceptance of biotechnology products; developments related to foreign governmental regulations, political climate, currencies and economies; successful operation of the company's joint ventures; fluctuations in commodity prices; the company's ability to obtain a significant portion of the increased value to farmers from products that incorporate its traits; and the effect of weather conditions, natural disasters and accidents on the agriculture business or the company's facilities.

Further information on these and other factors that could affect the company's financial results are included in filings it makes with the Securities and Exchange Commission from time to time, including the section entitled "Risk Factors" in the company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2015. These documents are or will be available on the SEC Filings section of the Investor Relations pages of the company's website at www.arcadiabio.com. All information provided in this presentation and in the attachments is as of the date hereof, and Arcadia Biosciences, Inc. undertakes no duty to update this information.

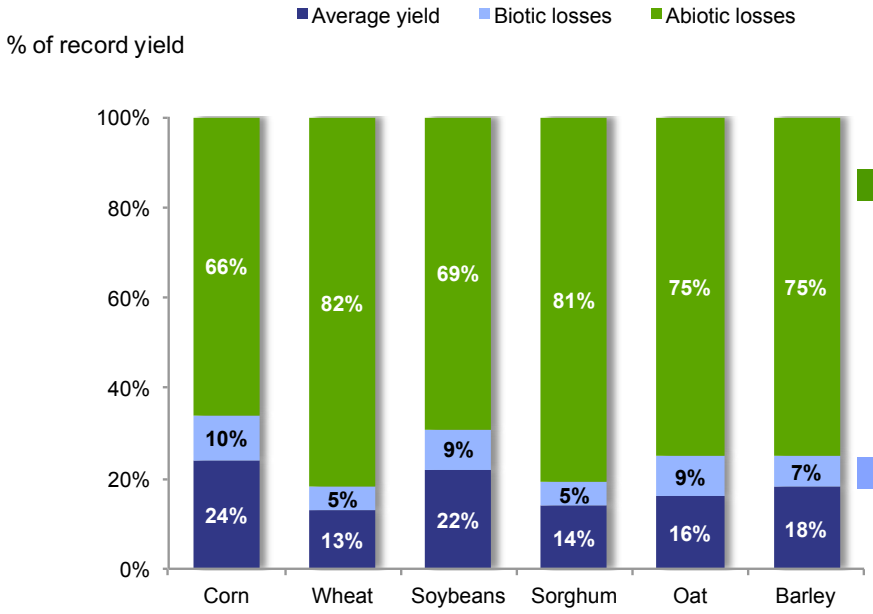
# Arcadia is creating next wave of value in untapped agricultural markets

- Leading ag-biotech trait company with more than a decade of global experience developing GM and non-GM traits
- Catalytic role: We bridge and de-risk the gap between basic research and commercial development
- Diversified portfolio of late-stage yield and product quality traits
  - 13 products in Phase 3 or greater
  - Approximately 160 issued or pending patents worldwide owned or exclusively controlled
- Partnered with market leaders in target crops
- Clear path to sustained financial growth



# Significant growth potential exists from next wave of abiotic stress traits

## Abiotic stress accounts for 66-82% of lost yield




## Addressing yield losses caused by abiotic stresses represents untapped growth opportunity

**Limited number of commercially available abiotic stress solutions on the market:**

Agrisure Artesian · genuity DROUGHTGARD HYBRIDS · Optimum AQUAmax

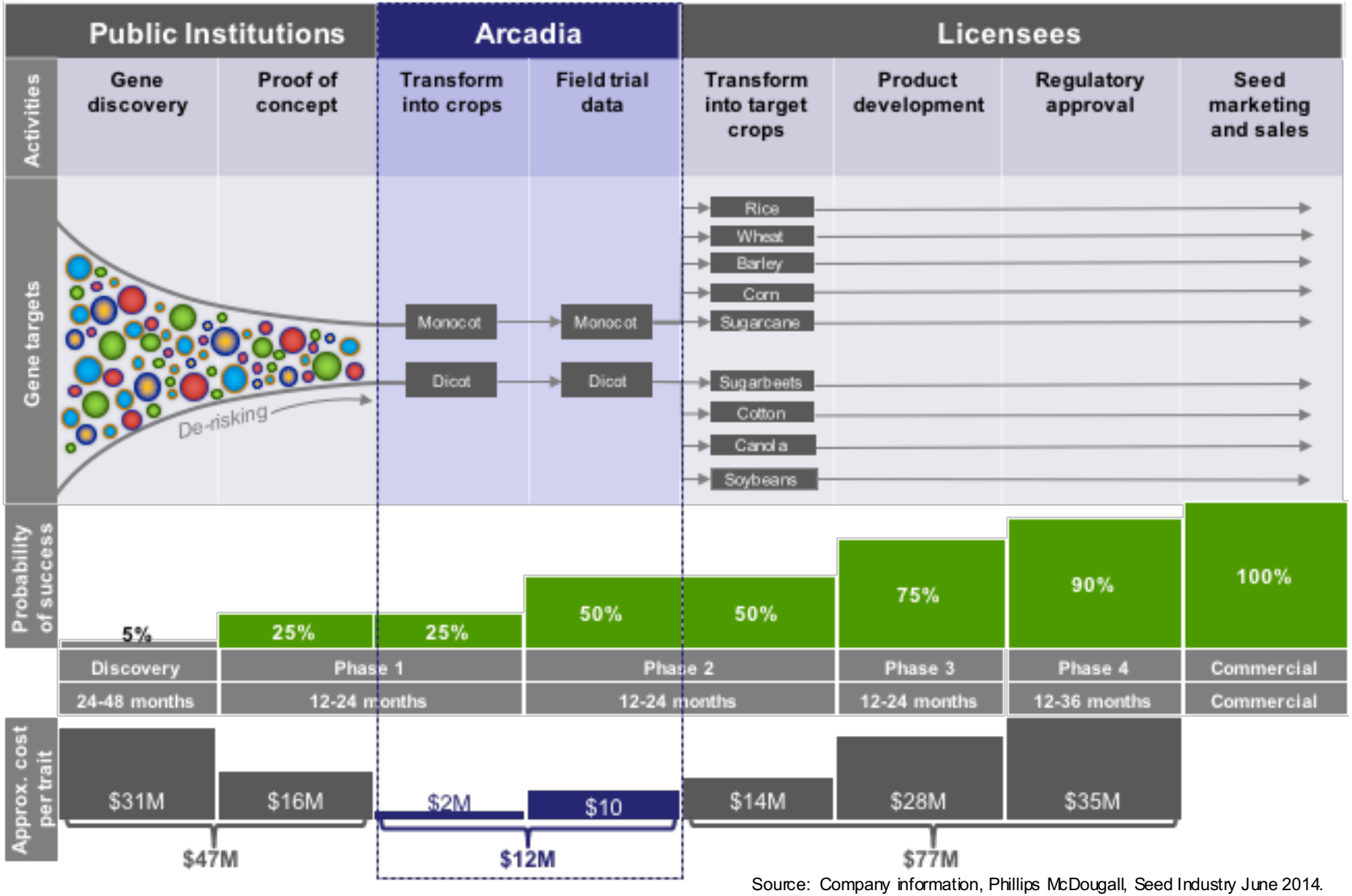
**Multiple commercially available biotic stress solutions (partial list):**

HERCULEX Insect Protection · Enlist Soybeans · TwinLink · Optimum Intrasect · Optimum Leptra · LIBERTY LINK · POWERCORE · Roundup Ready CORN 2 · AgrisureDuracade · SmartStax · REFUGE ADVANCED · genuity ROUNDUP READY 2 YIELD SOYBEANS

- GM seed market of approximately $20B based primarily on biotic stress management – highly competitive, multiple products; zero-sum play
- Abiotic stress management has greater value potential, minimal current products, and opportunity for major market expansion

Source: Biochemistry and Molecular Biology of Plants, Buchanan, Gruissem, Jones, American Society of Plant Physiologists, 2000

# Open architecture maximizes technology access and global market penetration




Source: Company information, Phillips McDougall, Seed Industry June 2014.

# Clear path to sustained financial growth with 50 products in development

| PROGRAM | Crop | Collaborator(s) | Phase D | 1 | 2 | 3 | 4 | 5 | Key Markets |
|---|---|---|---|---|---|---|---|---|---|
| **PRODUCTIVITY TRAITS** | | | | | | | | | |
| **Nitrogen Use Efficiency (NUE)** | Wheat | Limagrain, Mahyco, CSIRO, ACPFG | ■ | ■ | ■ | ■ | | | Global |
| | Rice | Mahyco, AATF | ■ | ■ | ■ | ■ | | | Asia |
| | Soybean | Verdeca | ■ | ■ | | | | | Americas, Asia |
| | Corn | - | ■ | ■ | | | | | Global |
| | Cotton | Mahyco | ■ | ■ | ■ | | | | Americas, Asia |
| | Canola | - | ■ | ■ | ■ | ■ | | | N. America, Asia |
| | Sugarcane | US Sugar, SASRI, Mahyco | ■ | ■ | ■ | | | | S. America, Asia |
| | Barley | - | ■ | ■ | ■ | ■ | | | N. America, Australia |
| | Turf | Scotts | ■ | ■ | ■ | | | | N. America |
| | Tree Crops | Arborgen, Futuragene | ■ | ■ | | | | | Brazil, N. America |
| | Vegetables | Mahyco | ■ | ■ | | | | | Asia |
| **Water Use Efficiency (WUE) Drought Tolerance (DT)** | | | | | | | | | |
| | Wheat (WUE) | Limagrain | ■ | ■ | ■ | | | | Global |
| | Wheat (DT) | Bioceres | ■ | ■ | ■ | ■ | | | Global |
| | Rice (WUE) | Mahyco | ■ | ■ | ■ | | | | Asia |
| | Soybean (DT) | Verdeca | ■ | ■ | ■ | ■ | ■ | | Americas, Asia |
| | Corn (WUE) | Genective | ■ | ■ | | | | | Global |
| | Cotton (WUE) | Mahyco | ■ | ■ | ■ | | | | Americas, Asia |
| | Canola (WUE) | - | ■ | ■ | ■ | | | | N. America, Asia |
| | Sugarcane (WUE) | US Sugar, SASRI, Mahyco | ■ | ■ | | | | | S. America, Asia |
| | Sugar Beets (WUE) | SES Vanderhave | ■ | ■ | | | | | N. America |
| | Tree Crops (WUE) | Arborgen, Futuragene | ■ | ■ | ■ | | | | Brazil, N. America |
| | Vegetables (WUE) | Mahyco | ■ | ■ | | | | | Asia |
| **Salinity Tolerance (ST)** | Wheat | Mahyco | ■ | ■ | ■ | | | | Global |
| | Rice | Mahyco | ■ | ■ | ■ | ■ | | | Asia |
| | Cotton | Mahyco | ■ | ■ | ■ | | | | Americas, Asia |
| | Canola | Mahyco | ■ | ■ | | | | | N. America, Asia |
| | Sugarcane | Mahyco | ■ | ■ | | | | | S. America, Asia |
| | Vegetables | Mahyco | ■ | ■ | | | | | Asia |
| **Herbicide Tolerance*** | Wheat | Confidential | ■ | ■ | ■ | ■ | | | Global |
| **Heat Tolerance** | Wheat | USAID, CIMMYT | ■ | | | | | | Global |
| **Trait Stacks** | | | | | | | | | |
| NUE/WUE/ST | Rice | AATF | ■ | ■ | ■ | ■ | | | Asia |
| NUE/DT | Wheat | Bioceres | ■ | ■ | ■ | | | | Global |
| NUE/WUE | Wheat | Limagrain | ■ | ■ | ■ | | | | Global |
| NUE/WUE | Canola | - | ■ | ■ | ■ | | | | N. America, Asia |
| **PRODUCT QUALITY TRAITS** | | | | | | | | | |
| **GLA Oil** | Safflower | Abbott | ■ | ■ | ■ | ■ | ■ | ■ | N. America, Asia |
| **Resistant Starch*** | Wheat | - | ■ | ■ | ■ | ■ | ■ | | Global |
| **Post Harvest Quality*** | Tomato | Bioseed | ■ | ■ | ■ | ■ | | | Asia, N. America |
| **ARA Oil** | Safflower | Abbott, DuPont Pioneer | ■ | ■ | ■ | ■ | | | N. America, Asia |
| **Grain Quality*** | Wheat | Ardent Mills | ■ | ■ | ■ | | | | Global |
| **Low Gluten*** | Wheat | - | ■ | | | | | | Global |

Phase: D=Discovery; 1=Proof of Concept; 2=Greenhouse / Early Field Trials; 3=Additional Field Trials / Product Development; 4=Regulatory / Pre-Commercial; 5=Commercialized
* Non GM

# Late-stage portfolio with 13 products in Phase 3 of development or later

| Phase | D | 1 | 2 | 3 | 4 | C |
|---|---|---|---|---|---|---|
| Months | 24-48 | 12-24 | 12-24 | 12-24 | 12-36 | |
| Success[1] | 5% | 25% | 50% | 75% | 90% | |

**Productivity traits: Designed to increase crop yields and income through improved input efficiency and environmental stress tolerance**

| Program | Crop | Collaborator(s) | Key markets |
|---|---|---|---|
| **Nitrogen Use Efficiency (NUE)** | Wheat | Limagrain, Mahyco, CSIRO, ACPFG | Global |
| | Rice | Mahyco, AATF | Asia |
| | Canola | - | North America, Asia |
| | Barley | - | North America, Australia |
| **Water Use Efficiency (WUE) and Drought Tolerance (DT)** | Soybean (DT) | Verdeca JV: GDM Seeds, TMG | Americas, Asia |
| | Wheat (DT) | Bioceres | Global |
| **Salinity Tolerance (ST)** | Rice | Mahyco | Asia |
| **Herbicide Tolerance[2]** | Wheat | Confidential | Global |
| **Trait Stacks** | | | |
| **NUE/WUE/ST** | Rice | AATF | Asia |

**Product quality traits: Designed to increase the value of harvested products**

| | | | |
|---|---|---|---|
| **GLA Oil** | Safflower | Abbott | North America, Asia |
| **Resistant Starch[2]** | Wheat | - | Global |
| **Post Harvest Quality[2]** | Tomato | Bioseed | Asia, North America |
| **ARA Oil** | Safflower | Abbott, DuPont Pioneer | North America, Asia |

Note: Phase: D=Discovery; 1=Proof of Concept; 2=Greenhouse / Early Field Trials; 3=Additional Field Trials / Product Development; 4=Regulatory / Pre-Commercial; C=Commercialized

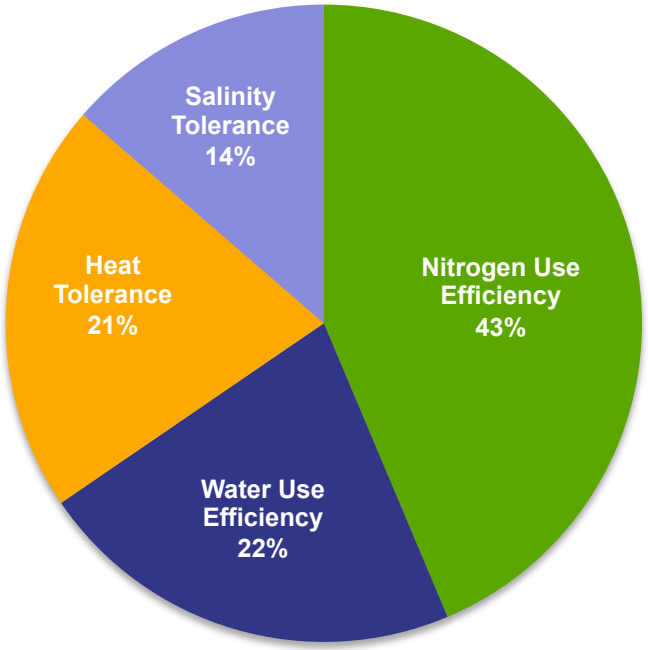
[1] Based on industry standard probabilities

[2] Non-GM

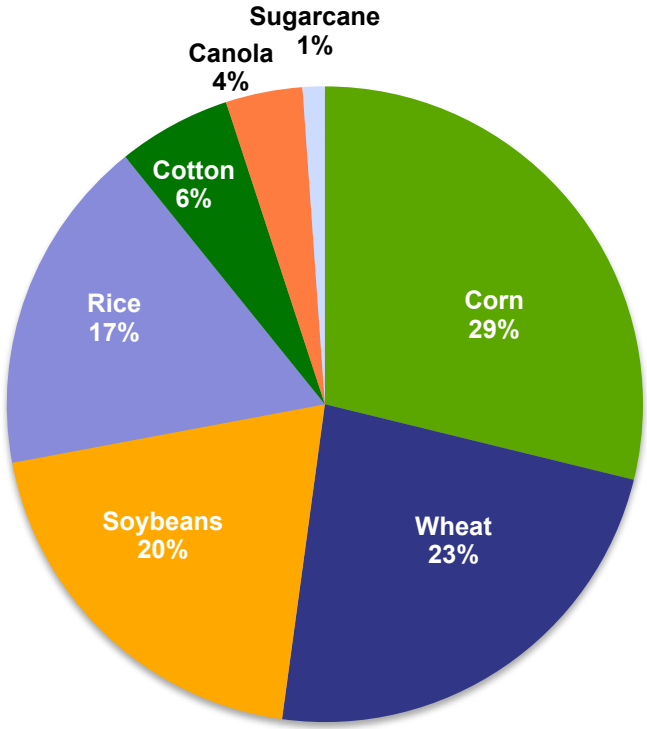
# Top four traits represent significant revenue opportunity in major global crops

**Annual Trait Revenue Opportunity Approximately $9B-$14B**

## By Trait




## By Crop




Source: Phillips McDougall Analysis, 2015

# Partnered with leaders in target crops, markets and geographies

| | | | |
|---|---|---|---|
| Soybeans | BIOCERES | • Owned by 200+ of largest soybean farmers in South America | • Verdeca JV partner<br>• Commercial partner |
| | DOW | • Leader in crop protection traits<br>• Development and regulatory expertise | • Development and commercial partner |
| | GDM SEEDS | • Leading South American seed company | • Development and commercial partner |
| | TMG Tropical Melhoramento & Genética | • Brazilian soybean seed company representing ~35% of sales in South America | • Development and commercial partner |
| Wheat | Limagrain from earth to life | • Leading global wheat seed breeder and marketer<br>• Fourth largest global seed company overall | • Investor<br>• JV partner<br>• Commercial partner |
| Rice, Cotton, Wheat | Quality Seed mahyco® Seed | • Biotech trait leader in Southeast Asia<br>• Cotton trait leader in India | • Commercial partner |
| Nutritional Oils | Abbott | • Leading nutrition and medical foods company | • Commercial partner |
| Grain Quality | Ardent Mills | • Leading global grain miller | • Commercial partner |

*Partial list*

- Commercial agreements enable and incentivize sub-licensing and stacking to maximize trait market share
- Arcadia provides traits and services to achieve high value capture
- Licenses generally extend for 20 years from commercial launch, with value shared independent of patent life

# Regulatory approvals, commercial partnerships and patents continue to advance pipeline

## Regulatory approvals

Regulatory process completed for stress tolerant soybeans in Argentina; approved by both CONABIA and Ministry of Agriculture, Livestock and Fisheries

US FDA Early Food Safety Evaluation for NUE trait in all crops

US FDA approval of GLA safflower oilseed meal in animal feed

US FDA Early Food Safety Evaluation for HB4 trait in all crops

## Commercial partnerships

Verdeca collaboration with TMG to advance breeding of stress tolerant soybeans in South America

Verdeca collaboration with Dow AgroSciences to advance yield traits in soybeans in South America

Phytola research partnership to develop soybean varieties with increased oil content

Verdeca collaboration with TMG to develop non-GM agronomic and quality traits in soybeans

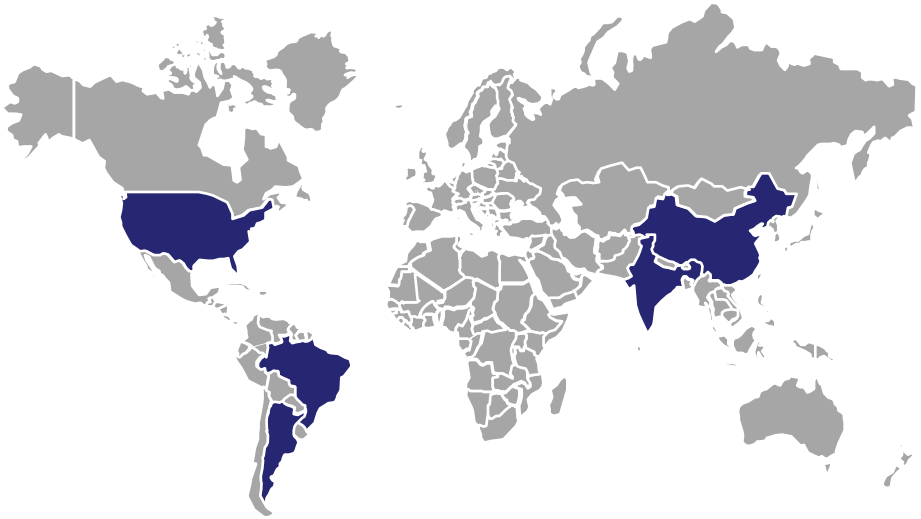
## Patent advancements

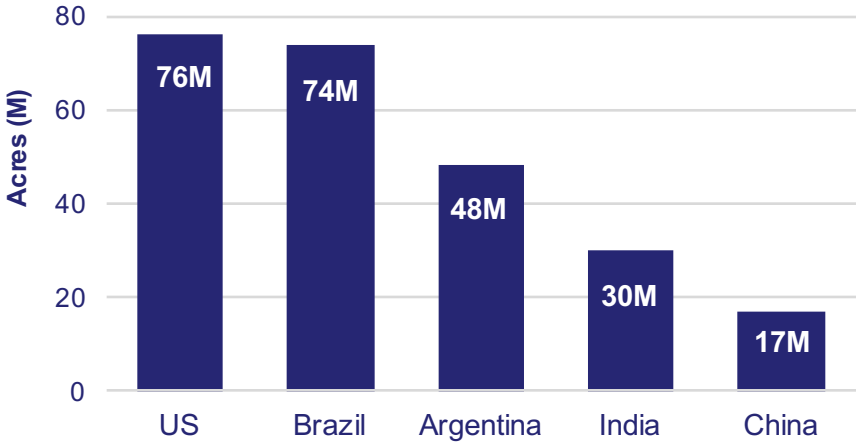
US patent issued for Arcadia's non-GM Resistant Starch Wheat

European patent issued for Arcadia's Water Use Efficiency trait technology

# Trait opportunity for HB4 Stress Tolerant soybeans is 25% – 35% of South American acres

## Top five soybean producing countries






## HB4 commercial launch status

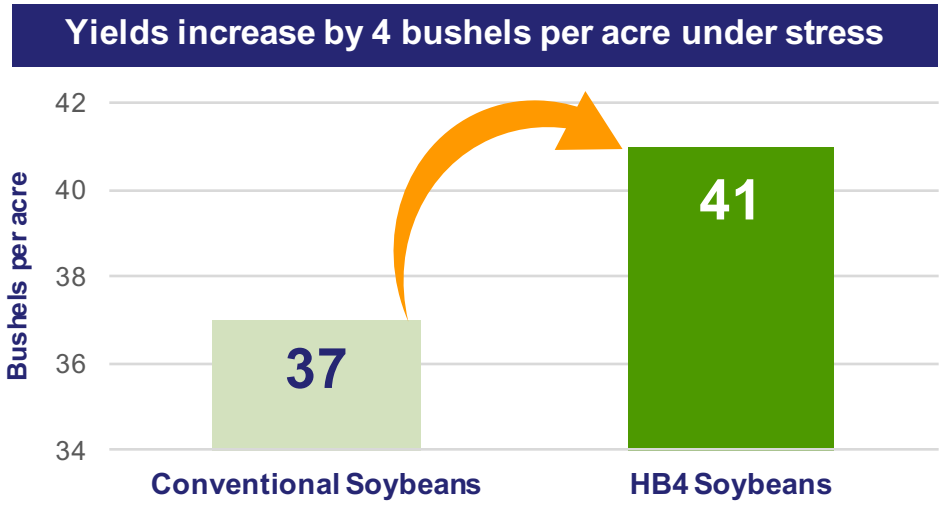
- Regulatory approvals complete in Argentina
- US FDA Early Food Safety Evaluation completed
- Submissions for production and import approvals underway in other countries

## Initial launch in South America

- South America soybean market: **136M acres**
- Estimated trait market share: **25% – 35%**

Source: USDA Foreign Agricultural Service, Company information

# HB4 Stress Tolerant soybeans lift grower revenue and significantly reward entire value chain




Value created for farmer: 100%
($40 per acre)

Value retained by farmer: 60% – 65%
($24 – $26 per acre)

Value to seed company: 35% – 40%
($14 – $16 per acre)

Value to Verdeca JV: 50% – 65%
($7 – $10 per acre)

Estimated annual revenue opportunity for Verdeca JV: **$240M – $475M**

Source: USDA Foreign Agricultural Service, Company information

# NUE rice demonstrates average yield increase of up to 30%

## Nitrogen Use Efficiency – Rice

| DEVELOPMENT PHASE / PROBABILITY OF SUCCESS | | | | | |
|---|---|---|---|---|---|
| D | 1 | 2 | 3 | 4 | C |
| 24-48 mo | 12-24 mo | 12-24 mo | 12-24 mo | 12-36 mo | |
| 5% | 25% | 50% | 75% | | |

## Market Potential

- Global: 400M acres
- Most valuable global crop
- 3rd largest global crop by acres
- Focus: Asia

## Value Creation

- Each 10% yield increase creates added value of $75 per acre, ~$30B globally
- Trait share potential: High

## Market Channel

- Major seed company and trait leader in India

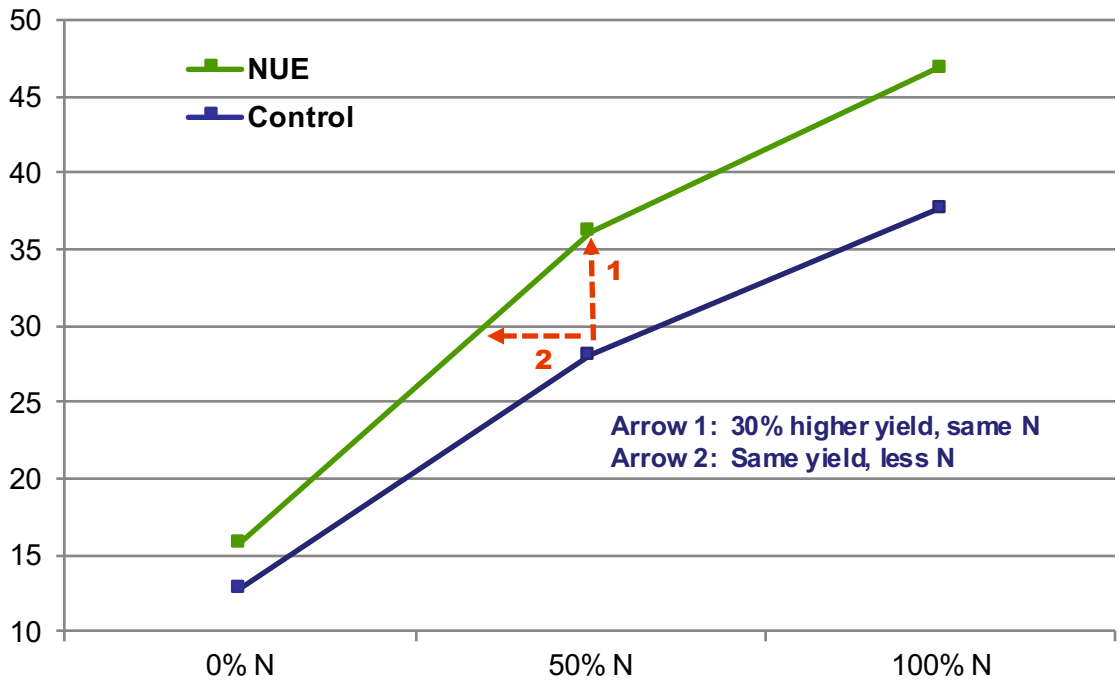
mahyco® EVERY SEED COUNTS

- NUE trait has completed US FDA Early Food Safety Evaluation

## Data Notes

- Multiple independent field tests demonstrate double-digit yield increases in all major types of rice
- 30% average yield increase based on 4 years and multiple environments at CIAT in Colombia
- 19% average yield increase based on 2 years and multiple environments in Ghana and Uganda

## NUE Rice Field Trials




Source: FAO, CIAT, African Agricultural Technology Foundation, Company information

# Key patent issued for non-GM Resistant Starch wheat that improves health qualities of wheat

## Resistant Starch Wheat (non-GM)

| DEVELOPMENT PHASE / PROBABILITY OF SUCCESS | | | | | |
|---|---|---|---|---|---|
| D | 1 | 2 | 3 | 4 | C |
| 24-48 mo | 12-24 mo | 12-24 mo | 12-24 mo | 12-36 mo | |
| 5% | 25% | 50% | 75% | 90% | |

## Market Potential

- Global
- $2B market opportunity

## Value Creation

- Based on delivery of greater total dietary fiber in wheat products
- Trait share potential: Medium

## Market Channel

- Multiple major milling and consumer product companies (in development)

## Data Notes

- Resistant starch increases dietary fiber, benefitting health and decreasing glycemic index; important in diabetes mitigation
- Pasta made from Resistant Starch Wheat achieved highest consumer preference rankings in tests carried out by a major consumer products company
- Bread made with 50% Resistant Starch Wheat achieved multiples higher total dietary fiber than bread made from standard wheat
- US patent issued for wheat with increased resistant starch levels

## Resistant Starch Wheat Consumer Preference


Source: MarketsandMarkets, Company information

# Contractual milestones provide near-term revenue and visibility on progress

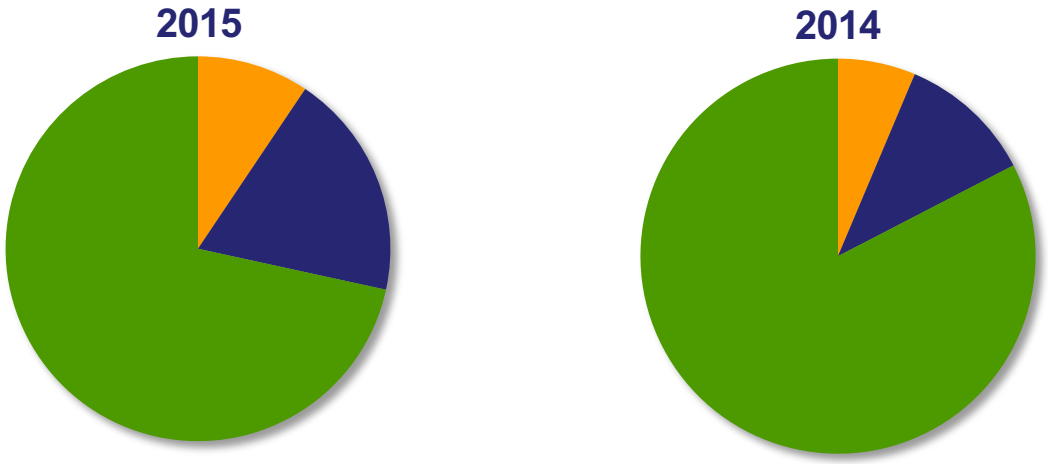
# Revenue mix poised to shift as pipeline progresses

| | Third Quarter | | | First Nine Months | | |
|---|---|---|---|---|---|---|
| | 2015 | 2014 | % Favorable/ (Unfavorable) | 2015 | 2014 | % Favorable/ (Unfavorable) |
| Product revenue | 123 | 67 | 84% | 383 | 266 | 44% |
| License revenue | 214 | 91 | 135% | 773 | 462 | 67% |
| Contract research and governmental grants | 1,486 | 1,344 | 11% | 2,912 | 3,456 | (16%) |
| Total revenues | 1,823 | 1,502 | 21% | 4,068 | 4,184 | (3%) |

*$K; Unaudited*

## First nine months revenue mix comparison:

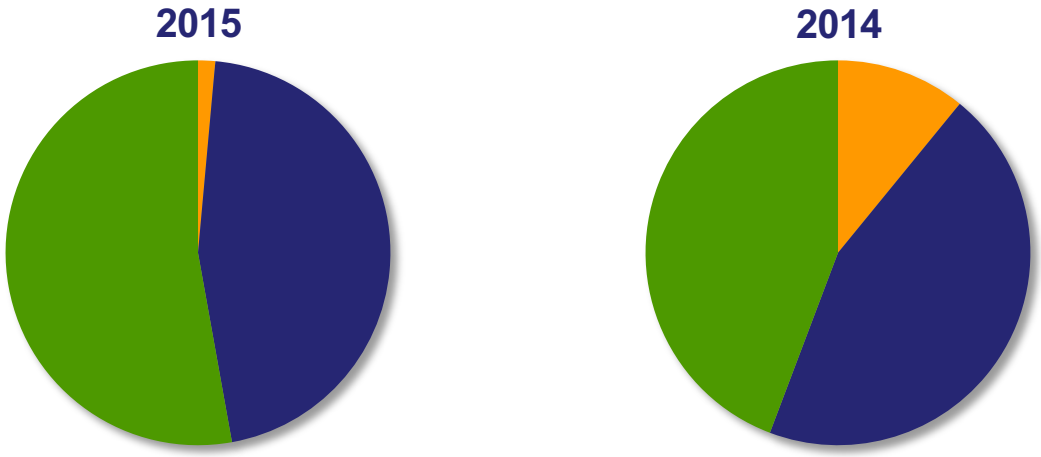
- Product revenue
- License revenue
- Contract research and government grants



# Uses of cash focused on investment opportunities to accelerate growth

**First nine months expense mix comparison:**

- Cost of product revenues
- R&D expense
- SG&A expense




- Arcadia is at an inflection point where strategic investment can accelerate current pipeline and broaden portfolio
- Moderate incremental expenses needed to support ongoing operations
- Option to invest in downstream regulatory processes increases commercial value share

# Portfolio of late-stage products creates compelling case for new investment in agriculture

- Major global markets for high-value yield and quality products
- Unique model increases value, reduces risk
- Late-stage portfolio, 13 products in Phase 3 or later
- Partnered with market leaders in target crops
- Clear path to sustained financial growth