



Bayer CropScience



**CropScience Analyst & Investor Days**

September 5 - 6, 2005  
Lyon, France



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**CropScience Analyst & Investor Days**

**BioScience – From Seeds to Sustainable Solutions**

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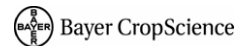
Lykele van der Broek  
Head of BioScience  
Bayer CropScience

## Forward Looking Statements

This presentation contains forward-looking statements based on current assumptions and forecasts made by Bayer AG and Bayer CropScience AG management.

Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the Bayer CropScience AG or our parent company, Bayer AG, and the estimates given here. These factors include those discussed in Bayer AG's public reports filed with the Frankfurt Stock Exchange and with the U.S. Securities and Exchange Commission (including Bayer AG's Form 20-F). Neither Bayer AG nor Bayer CropScience AG assume any liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

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## BioScience

### Overview

BioScience: Our Markets & Environment  
Our Activities  
Business Models for Capturing Value  
Research and Innovation for Future Value



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## BioScience: From Seeds to Sustainable Solutions

- BioScience is a global player in marketing of seeds and solutions derived from modern plant breeding techniques and plant biotechnology.
- Strong presence in key crops: cotton, canola and vegetables.
- Promising growth prospects in rice.
- R&D focus on improving the agronomic performance of crops and targeting needs of the down-stream industry, including opportunities from new business ventures.

BioScience uses plant biotechnology and modern plant breeding to improve the quality of crops, increase yields and create innovative solutions to meet the increasing need for renewable resources.

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## BioScience Activities – Dedicated Focus

3 Business Fields	3 Complementary Activities	7 Market Areas
Vegetable Seed	High quality, high performance vegetables seed varieties	■ Vegetables
Agricultural Crops	Improved productivity, performance and quality	■ Cotton ■ Canola ■ Rice
New Business Ventures	Innovative plant-based products	■ Nutrition ■ Health ■ BioMaterials



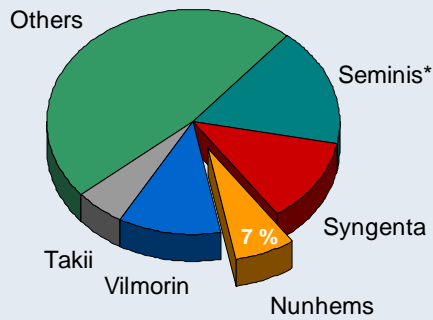
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## Vegetable Seed Market: By Company

### Nunhems is the # 4 Vegetable Seed Company Worldwide

market share 2004



Global Vegetable Seed Market\*\*  
(in € billion)



\* a subsidiary of Monsanto Co.

\*\* excluding governmental breeding and farm saved seed

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## Nunhems – Focus on Vegetables

- Among the top leading vegetable seeds companies
- Approx. 900 varieties in around 28 vegetables crops
- Focus on yield, adaptability, pest and disease resistance, abiotic stress tolerance and quality characteristics
- Sales 2004: € 172 million

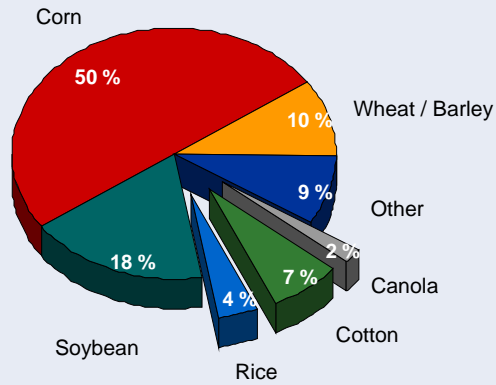


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## Strong Position in Expansion Seed Business

Value per Key Field Crop\*  
(as percent of the total value of US\$ 9.8 bn)



Source: The Context Network 2005

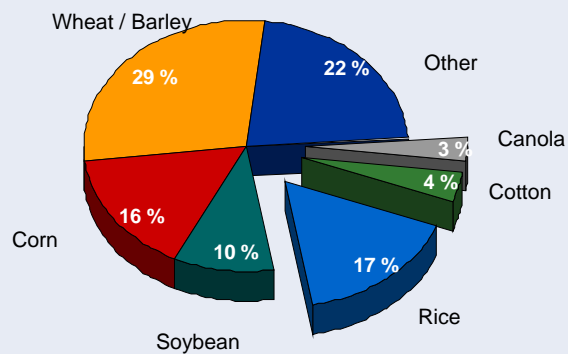
\* 2004, excluding farmer saved seeds and technology fees

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## Strong Position in Expansion Seed Business

Acreage per Key Field Crop  
(% of total of 948 millions hectares in 2004)



Source: The Context Network 2005

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## Focus on Canola, Cotton and Rice

Canola



Cotton



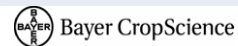
Rice



Bayer CropScience is in a unique position to lead the growth in these crops & offer an integrated package to farmers

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>■ Leadership in germplasm &amp; leading technology position</li> <li>■ Second important oilseed crop &amp; demand for oilseed crops growing globally</li> </ul> | <ul style="list-style-type: none"> <li>■ Superior germplasm for fiber yield &amp; quality; access to traits portfolio</li> <li>■ Increasingly high value added crop</li> <li>■ Value of the market increasing</li> </ul> | <ul style="list-style-type: none"> <li>■ No.1 in hybrid seeds in India</li> <li>■ Demand in rice expect to increase by 30 % in next 15-20 years (FAO, IRRI)</li> </ul> |
|--|--|--|

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## Major Markets Welcome Plant Biotech

81 million hectares grown in 2004: +20 % over 2003  
8.25 million farmers, 17 countries

% of global GM area grown



Source: Clive James ISAAA  
(International Service for the Acquisition of Agri-biotech Applications)

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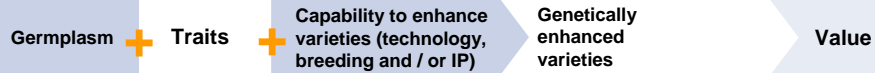


# Capturing Value for Growth

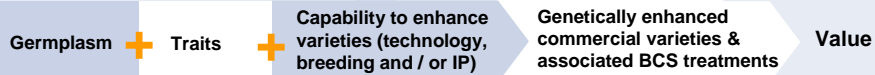
## 1. Plant Breeding



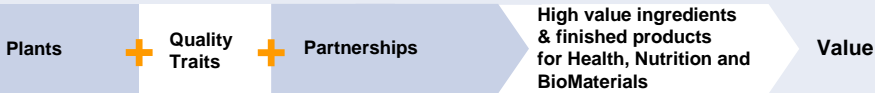
## 2. Innovations through Plant Biotechnology



## 3. Integrated Offering with Crop Protection



## 4. Downstream Applications of Plant Biotechnology



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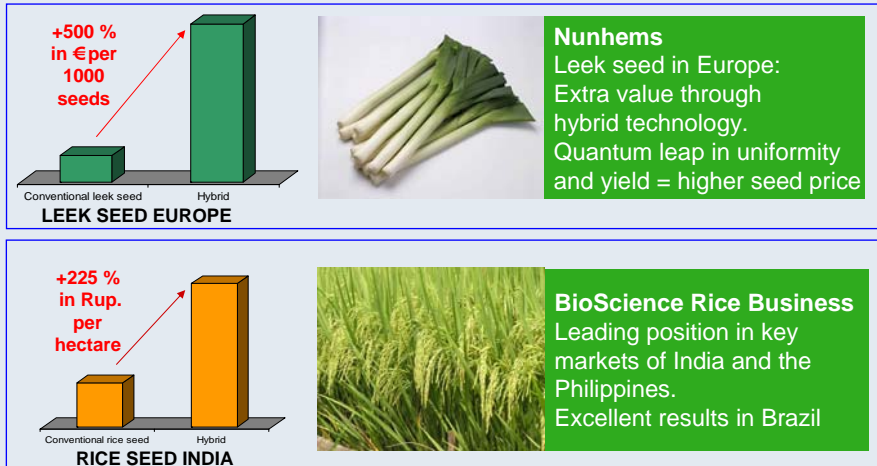
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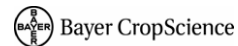
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## Value Generation from Breeding Know-how



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## Arize – Tomorrow's Rice

- Arize hybrid rice yields consistently 20 % above the best performing varieties and at least on par with the high-yielding competing hybrids.
- Arize grain, cooking and taste quality match the target market standards.
- Arize seeds presents high purity and germination rate, often exceeding the legal standards.



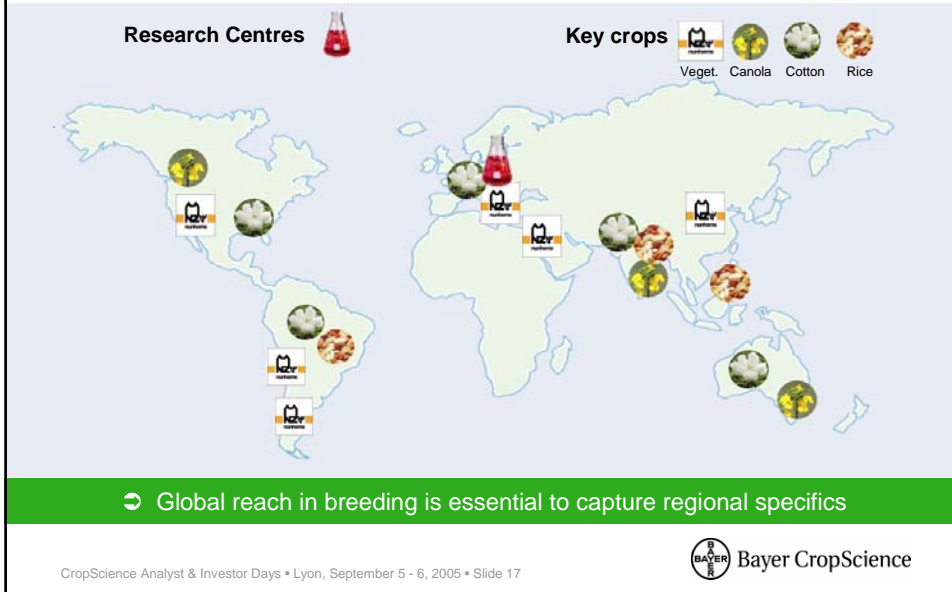
➔ Hybrid Rice will be a major contributor in breaking the current yield frontier

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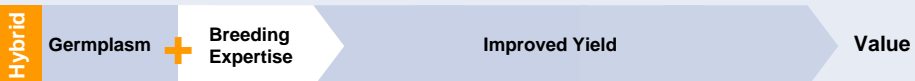


## Global Reach of our Breeding Activities

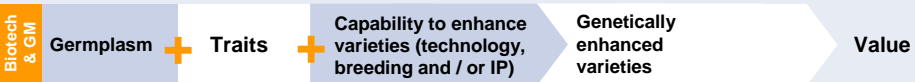


## Capturing Value for Growth

### 1. Plant Breeding



### 2. Innovations through Plant Biotechnology



## Number 1 Canola Seed in North America


**InVigor.**

High-Yield Hybrid

- Hybrid canola offering significant yield improvement
- SeedLink* pollination system providing consistent quantity & quality seed with built-in hybrid-vigor
- LibertyLink* offering broad-spectrum, easier harvest weed control
- 28 % market share after only 10 years of sales in most important market Canada



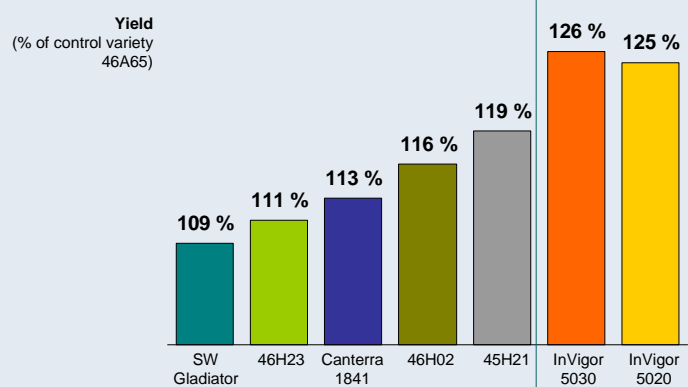
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## Setting the Yield Standard

**InVigor.**

Consistently high yield



Independent 2003 Prairie Canola Variety Trials (CDN)

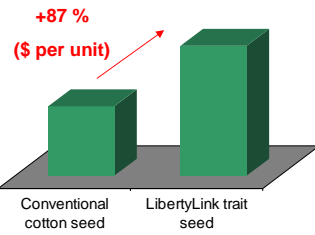
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## Capturing Additional Value

FiberMax Cotton

87 % more value captured per bag of cotton sold with GM technology



COTTON SEED USA



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## Breeding for Fiber Quality



Superior Quality Lint and High Yields

- Excellent fiber quality combined with high lint yield advantages
- Elite germplasm combined with *LibertyLink* and *Roundup Ready*® herbicide tolerance as well as *Bollguard*® insect resistance traits
- >24 % Market share in the US (2004)
- 28 % Market share in Europe (2004)



RoundupReady® and Bollguard® are registered trademarks of Monsanto Technology LLC.

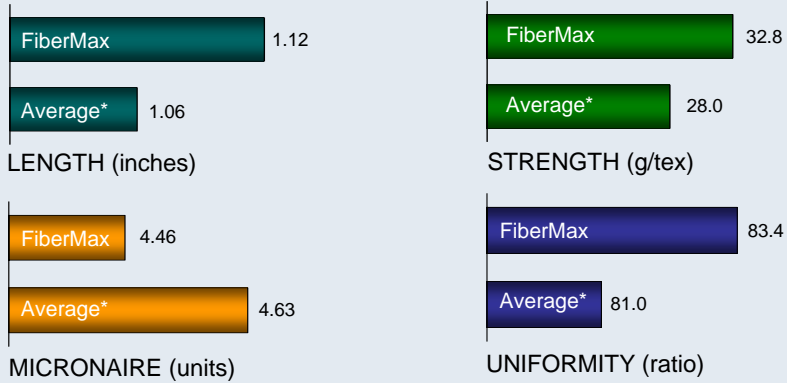
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## Breeding for Fiber Quality



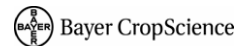
Fiber Quality above US crop average in key criteria



Source: All varieties average: USDA; Fibermax: OVT

\*) US all varieties average

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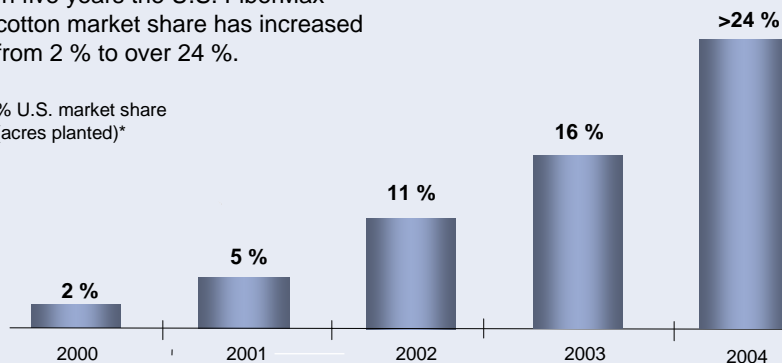


## An Increasingly Successful Business



In five years the U.S. FiberMax cotton market share has increased from 2 % to over 24 %.

% U.S. market share (acres planted)\*



\* based on USDA reports

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## Premiums & Image of FiberMax Downstream

### From Seed to Fabric

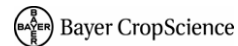
*"In the past, 3-4 times more FiberMax was in the market than was actually grown."* US Cotton Merchant, Billy Dunavant



- Innovative Certified FiberMax cotton program means a quality guarantee from the field to the fabric, capturing value throughout the chain.
- FiberMax is synonymous with high quality fiber, and with the certification program, spinners have assurance that they are buying genuine FiberMax lint.
- In 2004, 1 million bales\* entered the certification program.

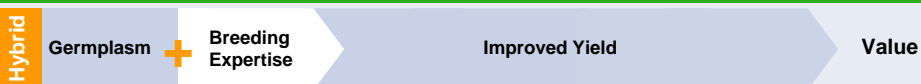
\* Approx. 220 kg per bale

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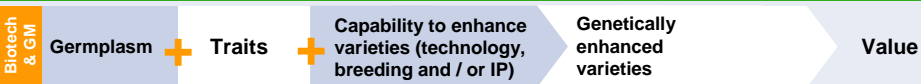


## Capturing Value for Growth

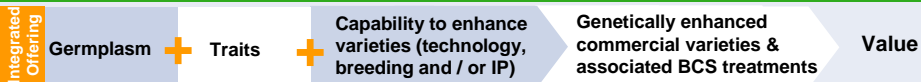
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### 2. Innovations through Plant Biotechnology



### 3. Integrated Offering with Crop Protection

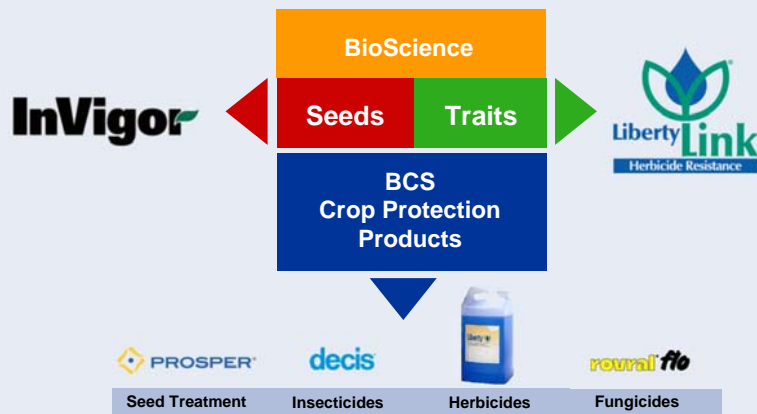


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## Bundling Opportunities for InVigor

A complete offering for customers & more value per seed bag sold

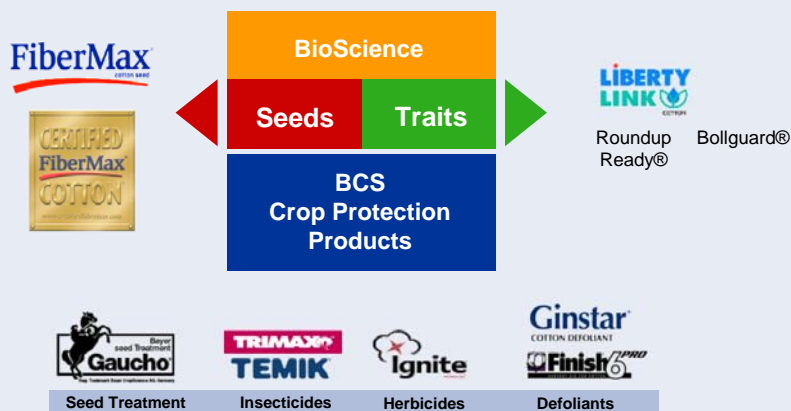


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## Bundling Opportunities for FiberMax

A complete offering for customers & more value per seed bag sold



RoundupReady® and Bollguard® are registered trademarks of Monsanto Technology LLC.

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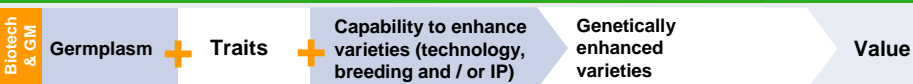
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## Capturing Value for Growth

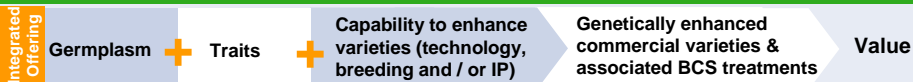
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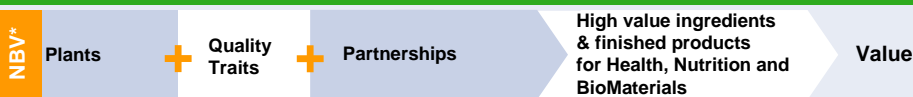
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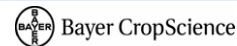


### 4. Downstream Applications of Plant Biotechnology



\*) New Business Ventures

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## The Future: Taking Plant Biotech Beyond the Farm

- World-wide growing demand for innovative bio-based products and renewable materials
- Innovation focused on creating, plant-based solutions for Health, Nutrition, and Biomaterials
- Building on our expertise in enabling technologies, carbohydrate metabolism, genetics and gene expression
- Building on partnerships with external partners

⇒ Opportunities to capture part of the value of the full chain

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## The Scope of our R&D

### At the farm and beyond the farm

#### Agronomic Traits



Next generation input/ag-traits:

- Insect control
- Herbicide tolerance
- Hybrids
- Disease resistance
- Promising R&D, including abiotic stress tolerance

#### Fiber Quality

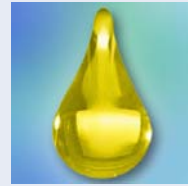
Bringing value to the textile industry and ultimately to customers with bio-engineered fiber with:

- Better color retention
- Flame resistance
- Wrinkle-free shirts

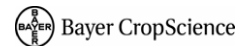


#### Modified Canola Oil

Moving from commodity to high value oils



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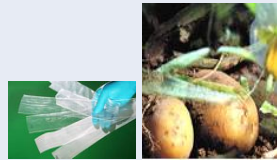
## The Scope of our R&D

### Plants as factories

#### Modified Carbohydrates

Specifically adapted for industrial use

**Exploring:** Paper products, coatings, glues, food thickeners, gelatin and fat replacers



#### Plant-made Pharmaceuticals (PMPs)

**For the manufacturer:** lower start-up costs, production flexibility, increased volume, potential quality advantages

**For the consumer:** available, safe drugs that are currently cost-prohibitive to produce



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## InVigor for Better Canola Oil

- Collaborative agreement with Cargill
- Production of high yield, high oleic InVigor hybrids
- High stability oil for the food industry
- No requirement for hydrogenation to eliminate trans-fats and to reduce saturated fatty acids
- Market introduction expected for 2007
- Oil seed production representing a US\$ 32 billion market growing at 3 % per year
- Canola oil alone accounts for a market of more than US\$ 8 billion



➔ Partnering to produce healthier lifestyle traits in a growing sector

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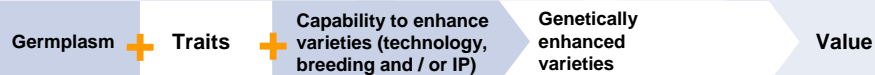


## Capturing Value for Growth

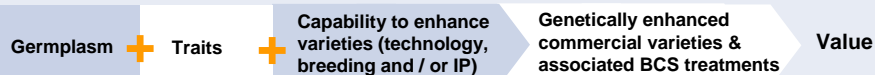
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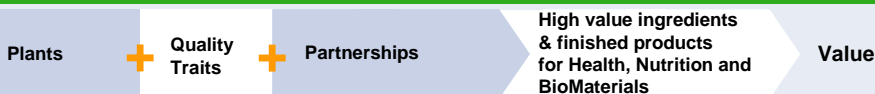
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### 3. Integrated Offering with Crop Protection



### 4. Downstream Applications of Plant Biotechnology



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Your partner for growth