



# **Fostering Innovation**

## **It Starts With the Seed**

### **The Canadian Seed Industry**

**Presented to:**  
**Genome Canada Workshop**  
**May 31, 2007**

# The Canadian Seed Trade Association

- **140 members ranging from:**
  - **companies that market garden seed and herbs to large western grain handlers**
  - **small family-run businesses to large multinational corporations**
- **Seeds from 50 principal crops:**
  - **grains and oilseeds, special crops, forage and turf grasses, flowers, vegetables, fruits**

# It Starts with the Seed

## The Seed Sector in Canada

- Employs over 13,000
- Contributes almost \$800 million to GDP
- Exports over \$188 million to 70 countries



# It Starts with the Seed

## The Seed Sector Is Important to Canadian Agriculture

### Seed Driven Innovation has brought:

- 400% increase in corn yields over 60 years
- 22% increase in wheat yields over 30 years
- 25% increase in canola yields since 1976
- Better yields, improved stability, disease, pest and weed resistance = reduced costs for farmers.

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## The Seed Industry Invests in Innovation

- Seed companies invest about 13% of turnover to support future innovation
  - Pharmaceuticals – 6.9%
  - Automotive – 0.2%
- Globally, private companies invest \$1 billion in research – in Canada about \$70 million
- Cost to develop a new variety is about \$ 1 million

# It Starts with the Seed

## The Future is Bright – With Innovation

- **Better returns for farmers**
  - **Drought and salinity tolerance, improved disease and pest tolerance**
- **To capture opportunities**
  - **For food - that delivers health benefits**
  - **For non-food – plastics, fibres, bio-fuels**

# The Future is Bright – For Food

## Genomics Can Deliver Food for the World:

A better understanding of seed development and metabolism can

- Improve productivity and yield
- Deliver more nutrition per plant
- Lead to varieties that can adapt to international environments

# The Future is Bright – For Food

## Genomics Can Deliver Health and Wellness:

- Improved understanding of the genes responsible for oil, starch and protein content and quality
- With understanding comes:
  - the ability to improve quantity and quality
  - the ability to create new and improved nutritional profiles
  - The ability to generate plant produced medicines and vaccines

# The Future is Bright – For Non-Food

**New bio-fuels mandate will require:**

- **2.1 Billion litres of ethanol in 2010**
  - **Production from over 6 million acres**
- **600 Million litres of biodiesel in 2012**
  - **Production from about 2 million acres**

# The Future is Bright – For Non-Food

## Potential Growth in vegetable stock requirements (2010)

	Annual Growth	Requirements in 2010 (acres)
Personal Care	10%	10,000
Candle Wax	10%	16,000
Dielectric Fluid	25%	40,000
Lubricants	40%	186,000
Polyols	60%	306,000
Solvents	8%	26,000
<b>Total</b>		<b>575,000</b>

Estimates made from work done by Promar International

# **The Future is Bright – For Non-food**

## **Genomics Can Deliver for the Bio-economy:**

**Understanding of the genetic base for cell structure can lead to varieties specifically designed for bio-fuel and other non-food uses**

- **Increased production of oil and starch**
- **More easily fermented starches and plant residues (eg. straw and corn stover)**
- **Substantially increased yield to meet demand**



# The Future is Bright – For the Environment

**Genomics can deliver a better understanding of the relationship between plants and the environment**

- **Improved use of nutrients**
- **Plants that create their own nutrients**
- **Increased tolerance to environmental stress – drought, salinity, mineral toxicity**
- **Insect and pest resistance**

# It Starts with the Seed

## What does the Industry Need?

- **A regulatory system that:**
  - Enables innovation
  - responsive approval system
  - science based
- **An Environment that encourages investment through:**
  - Incentives
  - Access to intellectual property protection tools that are competitive internationally



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