



AMERICAN SEED  
TRADE ASSOCIATION

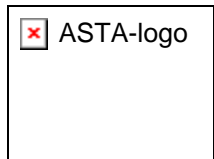
# Assessing the Biotech Pipeline

## Challenges and Opportunities Facing the Grain and Feed Industry

Andy LaVigne – President & CEO

National Grain and Feed Association – Annual Meeting

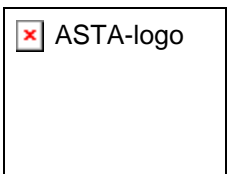
March 31, 2009 – Orlando, FL





# Today's Presentation

- ASTA – Who we are – What we do!
- Overview of the seed industry
- Technology and innovation
- Seed pipeline
- Moving forward





# ASTA History

- Founded in 1883
- Based in Alexandria, Va.
- 715 members in seed production & distribution/plant breeding/related industries in N. America & Global
- Authority on plant germplasm –  
Advocates science and policy issues of industry importance

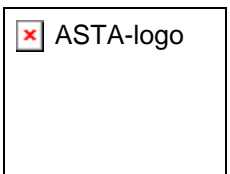


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# ASTA's Membership

- Roughly 2/3's are seed companies
- Remainder support industries
- Strong international presence
- All crops propagated by seed
- Organic – Conventional – Biotech





# ASTA's Goal

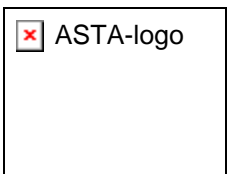
- To be the effective voice of action on all matters concerning the development, marketing & free movement of seeds, associated products & services t/o the world with a minimum of regulations
- ASTA promotes the development of ***better*** seed to produce ***better*** crops for a ***better*** quality of life.





# ASTA Strategic Priorities

1. **Global Ag Policy**
2. **US Domestic Policy**
3. **Intellectual Property**
4. **State/Local Issues**
5. **ASTA Publics**
6. **Seed Ass'n of the Americas**
7. **Membership**
8. **Responsiveness**
9. **ASTA Staff**
10. **Financial Health**





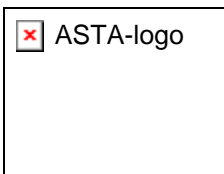
# Challenges/Opportunities

- Increasing global food demand
- Decreasing arable land for farming
- Increasing input costs
- Decreasing water supplies
- Global warming impacts
- Declining labor supply



# US Seed Industry Today

- US Seed Industry – \$7+ b
- Global Industry – \$27b
- Roughly 22% of global seed market
- Estimated increase to \$8.5b in 2010
- Still about 22% of global seed industry
- Growth in International - \$32b - \$44b
- Heavy investment to new traits/tech
- Spin-off technology





# Global Seed Sales

Country	2005	2010 Forecast
WORLD	\$34 B	\$ 42 B
<b>U.S.</b>	<b>\$7.08 B</b>	<b>\$8.7 B</b>
U.S. % of World Seed Sales	20.8 %	20.7 %



# ASTA – Plant Breeding

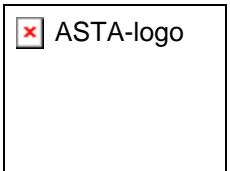
- Plant breeding – how we got where we are today!
- Thousands of years of experience
- Systematic plant breeding/selection began in the late 18<sup>th</sup> century
- 20<sup>th</sup> century brought the establishment of plant breeding on a scientific basis
- Innovation – Demand - Delivery





# ASTA – Plant Breeding

- Seeds are central to:
  - Germplasm diversity and conservation
  - Genomics, genetics and breeding
  - Agricultural technology delivery
  - Crop production and yield
  - Human and animal nutrition
  - Biofuels





# ASTA – Plant Breeding

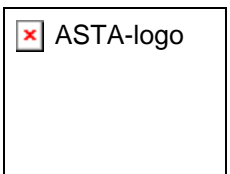
- Quality issues unique to seeds:
  - Vigor
  - Seed borne pathogens
  - Genetic purity
  - Longevity and storage
- Key to development – protection of Intellectual Property





# Product Development

- Market Drivers
  - Growers
  - Grain Industry
  - Food Industry
  - Biofuels Industry
  - NGO's
  - Governments
  - Public





# Product Development

- Driving Factors for Biotech R & D
  - Global Demand for Cereals
    - Developed/3<sup>rd</sup> world demand
    - Sustainable production
    - Declining arable acres
  - Crop Inputs
    - Insects
    - Disease
    - Herbicide tolerance/weed control
    - Reduction in pesticide use



# Product Development

## –Mother Nature

- Temperature
- Water Availability/Drought Tolerance
- Global Warming
- Nutrient Efficiency



# Product Development

## – Nutrient Output Traits

- Protein
- Starch
- Oil
- Fiber
- Nutrition

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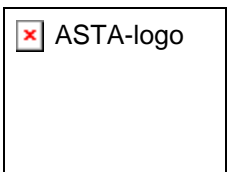
# THE SEED INDUSTRY PIPELINE

 ASTA-logo

# Seed Pipeline



- Input Traits – In the marketplace
  - Insect resistance – rootworm/corn borer
  - Weed control
  - Increased yield – genetic analysis
- Input Traits – Soon in the Marketplace
  - Stacked events – resistance man.
  - Refuge reduction



# Seed Pipeline



- Input traits – in the pipeline
  - Nitrogen efficiency
  - Drought tolerance
  - Add'l disease resistance – rust
  - Cold tolerance
- Biotech traits in wheat
  - Timeframe (?)

# Seed Pipeline



- Output Traits
  - Corn Amylase
  - High oleic oil soybean
  - Low linolenic soybean
  - Enhanced feed efficiency
  - High fermentable starch
  - High available energy
- Mainly longer term products/release





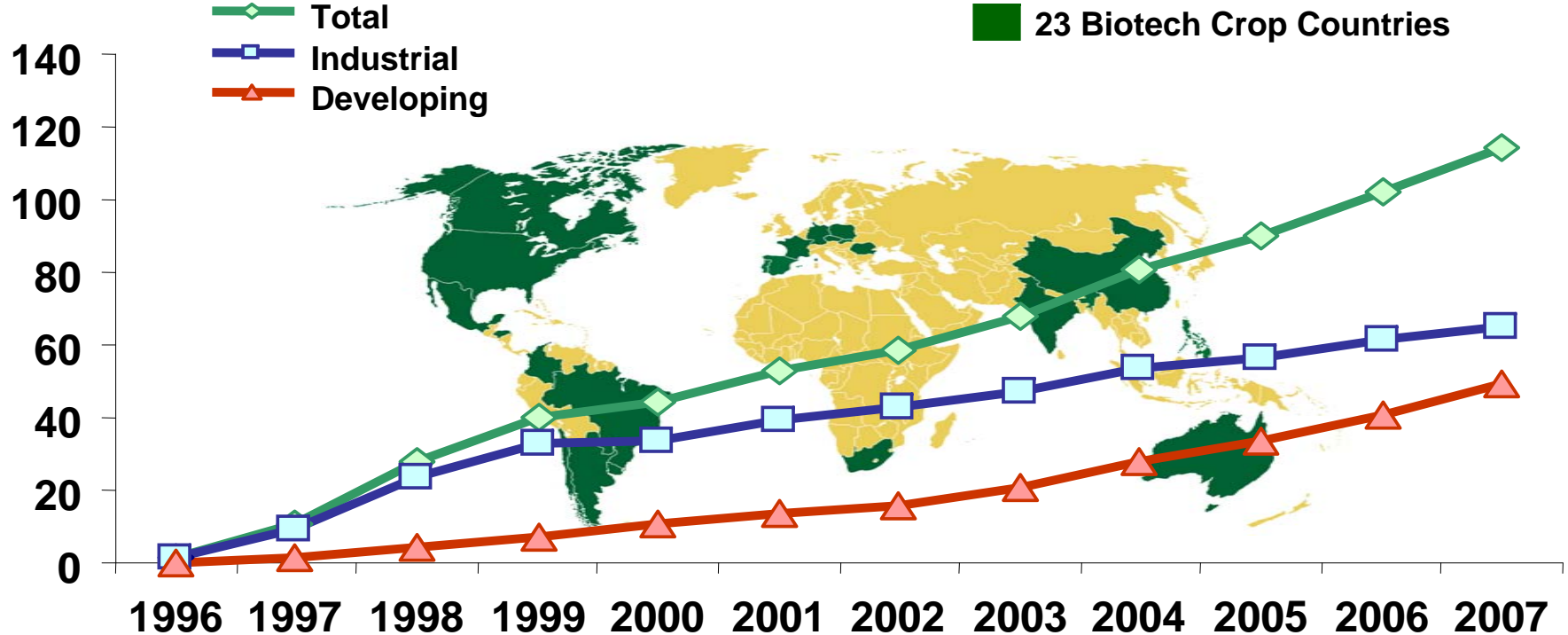
# Challenges

- Changing global programs – Korea – ex.
- Continued stalemate in approval process in Europe
- Introduction of traits in other global markets



# Adoption of Seed Innovation

**GLOBAL AREA OF BIOTECH CROPS**  
Million Hectares (1996 to 2007)



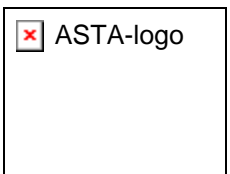
***Increase of 12%, 12.3 million hectares (30 million acres), between 2006 and 2007.***

Source: Clive James, 2007.



# Industry Commitment

- Key to continued development of traits – Stewardship of product!
- ASTA “Guide to Seed Quality Management Procedures”
- Agreement to get approval in trade markets with “Viable Approvals Processes”

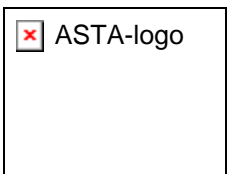


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# Industry Commitment

- Excellence Through Stewardship Program
- Development of Non-Agriculture Commodity Trait Stewardship Program





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# THANK YOU!

*Andy LaVigne*

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[www.amseed.org](http://www.amseed.org)

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