Development of Biotechnology in Asia
Opportunities and Challenges

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CropLife Asia.
Hundreds of companies through a network of Associations in 88 countries...
A Regional Network of 14 National Crop Protection Associations & 6 Multinational R&D Corporations
Opportunities for Biotechnology in Asia

• Meet the need to sustainably increase productivity
• Create benefits for consumers and the environment
• Create benefits for developing countries
• Build on and accelerate momentum of adoption
The Global Challenge

“How can agricultural production rise to meet demand in a framework of equitable, environmentally, socially, and economically sustainable development?”

World Bank Assessment of Agricultural Science & Technology, August 2003
The Intensification of Agriculture has Met the Challenge of Feeding the Increasing Population

Source: FAOSTAT data, 2004
More Food Per Acre Will be Needed

**World Population**

- **1950**: 2 billion people
- **1960**: One hectare to feed 4 people
- **1995**: One hectare to feed 5 people
- **2025**: One hectare to feed 8 people

*Source: Syngenta*
Benefits to Consumer, Improved Environment

- **Integrated Pest Management:**
  - Preserves non target species & improves biodiversity
  - Protects workers, natural resources, soil and water

- **Adoption of sustainable production practices:**
  - Conservation tillage enhances wildlife habitat, soil structure and water quality
  - Improved yields reduces need for cropland
  - **Reduced Mycotoxin concentrations improve health**
Benefits to Developing Countries

**Biotech is Scale Neutral**

- Greater productivity, fewer inputs
- Improved nutrition, ease malnutrition
- Subsistence farmers become merchant farmers
- Increasing post-harvest longevity
- Ease pressure on fragile ecosystems

Examples of goodwill technology:

- Virus resistant sweet potato
- Crops with more Vitamin A
  - ‘Golden Rice’
  - ‘Golden Mustard’
- Sharing rice genome
- Virus resistant papaya
- Virus resistant potato
Technology transforming crops important to Asia: examples

Slow ripening bananas

Partnerships with food companies to develop products with premium quality, nutrition and value. Providing consumers with improved product quality and convenience.

‘Golden Rice’

- can reduce blindness and other diseases caused by Vitamin A deficiency.


Source - Syngenta
Discovery: Stress (Drought, Heat, Cold Tolerance)

**Grower Benefits**

- Crops reach their genetic potential
  - Less risk from weather
  - Earlier planting, longer season
  - Faster germination, healthier start
  - Improved pollination

**Value**

- 5-10% yield increase
- Increased crop acres

Source - Monsanto
Global Area of Biotech Crops (mm hectares)

Source: Clive James, ISAAA, 2003
Global Area of Biotech Crops (Countries)

- 18 countries have adopted biotech crops.
- 3.4 billion people live in countries where GM crops are grown.

Mega Countries > 50,000

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<tr>
<th>Country</th>
<th>Area (MM hectares)</th>
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<tr>
<td>USA</td>
<td>42.8</td>
</tr>
<tr>
<td>Argentina</td>
<td>13.9</td>
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<tr>
<td>Canada</td>
<td>4.4</td>
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<tr>
<td>Brazil</td>
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<tr>
<td>China</td>
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<tr>
<td>South Africa</td>
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<td>Australia</td>
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<tr>
<td>India</td>
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<tr>
<td>Romania</td>
<td>&gt;0.05</td>
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<tr>
<td>Uruguay</td>
<td>&gt;0.05</td>
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< 50,000 hectares

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<tr>
<th>Country</th>
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<tbody>
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<td>Spain</td>
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<td>Honduras</td>
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<td>Germany</td>
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Source: Clive James, ISAAA, 2003
Challenges in the Development of Biotechnology in Asia

- Regulatory environment, especially the BSP
- Perceptions of public perception
- Funding and managerial expertise to commercialize locally developed products
- Difficulty in satisfying both the U.S. and the EU
Regressive Environment

• Not harmonized in the region, and no fully developed international standards
• Biosafety Protocol has been taken over by opponents of biotechnology
• Regulations created in response to fear of MNCs create serious problems for local researchers
Public Perception

• Opponents skilled at sound bite attacks
• Proponents need training in Risk Communication
• Misleading consumer surveys create perception of public rejection
• No clear understanding of what consumer acceptance would look like
Research in the Region

- Many important research projects still in laboratories
- Researchers lack skills, funding and incentive to bring these projects to the farmer
- Researchers have not been sufficiently active in supporting their interests
U.S. vs. EU

• Fundamental agreement at regulatory and technical level
• Fundamental disagreement at political level
• Asia torn between EU demands for “GMO free” food and need to develop agricultural productivity
A Way Forward - Regulatory

• Create predictable, consistent, harmonized regulatory structure
  ➢ Based on good science and not political opportunism
  ➢ Reflecting global diversity of agriculture
  ➢ Meeting Asian needs
A Way Forward - Incentives

• Reward innovation
  ➢ Rewards for industry and academic innovation
  ➢ Engaging with stakeholders in both benefits and risks
  ➢ Preventing misuse of data and proprietary inventions
A Way Forward – Local Research

• Create turnkey product development infrastructure
  ➢ Create Asian fund for development of Asian biotechnology research
  ➢ Hire expertise and experience from the private sector
A Way Forward – U.S. vs. EU

• Use science based regulatory structures to make local decisions
• Recognize the cost of meeting EU import requirements and assess that cost equitably
Conclusions

• Biotechnology offers tremendous benefits to agriculture in Asia
• Serious challenges need to be overcome to realize these benefits
• The way forward is difficult and requires alignment of multiple stakeholders
Thank You