EMERGING TECHNOLOGIES IN PLANT BREEDING: A POLICY PERSPECTIVE

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The Goals of Plant Breeders Remain the Same
Plant breeders today have access to an incredible array of genetic information from both commercial and wild plant varieties.
Public Policy: The Impact

- Regulatory policy will determine utilization of methods across companies and across crops
- Overly high regulatory burden
  - Limits utilization to largest companies
  - Limits utilization to highest value crops (e.g., corn, soybeans) and to limited number of traits (e.g., herbicide tolerance)
  - Determine range of new varieties for farmers and new products for consumers
Public Policy: The Principles

- Legal certainty in government policies
- Regulation grounded in science
- Government policies that facilitate innovation—unnecessary regulation will impede innovation
- Consistent policies for research, collaboration and trade
International: Consistent Policies

• **International Policy Impacts:**
  • Global movement of ag products
  • Continued innovation & ag development
  • Research collaborations
  • Commercial seed trade
  • Introduction of crop innovations in smaller or niche markets

**FOCUS:** Facilitation of consistent policy end points
Considerations

• Question is not whether new plant varieties are adequately regulated

• Question is whether they should be subject to a special pre-market review/approval process

• Quality management and field testing continue

• Do not want to create a third category of product
Plant varieties developed through the latest breeding methods should not be differentially regulated if they are similar to or indistinguishable from varieties that could have been produced through earlier breeding methods.
Genome Editing: A Continuum

- Targeted deletion mutation
- Targeted gene editing
- Targeted gene insertion
- Targeted gene insertion

Allele excision through small nucleotide deletion or addition
Recreate an allele (e.g. from wild relative)
“Cisgenic” insert gene from plant’s gene pool
Targeted Transgenic

Where to Draw the Line?
International Strategy

• Consensus on “where to draw the line”
  • International Seed Federation concept paper

• Working toward core group of like-minded countries (exporting and importing)
  • US needs to be active in the international discussions

• Consistency in scopes of regulatory oversight means:
  • Facilitates innovation
  • Relieves problem of asynchrony
  • Minimizes impacts on trade
Goal: Access the Entire Toolbox
THANK YOU