Plant Breeding: “Biotech and GM are just New Tools”

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Plant Breeding

- Factory concept
- Breeder = Manager
- Product = Improved Varieties
- Customers
  - Farmers & Farmer’s Customers
Breeding Objectives

- Performance
  - Offensive
- Sustained performance
  - Defensive
- Marketability
  - Differentiation
  - Opportunity
Farming

• Business
  – Needs Profit
  – Profit is OK
  – Reduce Input Costs
  – Increase Output Value
Breeding Tools

- Genetics
  - Variation & Knowledge
- Mechanization
  - Field & Laboratory
- Computers
- Biotech
Breeding Efficiency

• Slow, simple and cheap
• Biotech is costly
• Justify costs???
• Medicine vs. Agriculture
“Because We Can” Syndrome

- Look in mirror
- Regulatory complaint at Saskatoon Mtg
- “Which Barley Variety is it?”
Biotech in Breeding

- What is Biotech?
- 2x haploidy
- MMAS
- Transformation
- Replace Breeding
Biotech & Breeding

• Positive
  – Science Based

• Negative
  – Emotion based
  – Necessity?
  – Need for Variation?
  – Testing/evaluation
Biotech - Costs

- Biotech is expensive
- Justify investment
- Expectation of Return
- Do we need to be so fast?
- Plant Breeding - Proven & Cost Effective
- Public to Private
- Gov’t. Cost Recovery
Roundup-Ready Wheat

• Who wants it?
• Who needs it?
• Because we can?
• Return on Investment?
Biotech Backlash Concerns

- New Problems for Breeding
- Technology ahead of itself
- Technology too expensive yet
- Expectations too high
- Driving away investment
- Golden Rice - Problems??
Breeding - Organic Production

• Current Breeding is for all
• Heritage Varieties issue
• “Good Old Days”
• Island of Susceptibility in Sea of Resistance
• Organic >> Benefit from GM Tech
Organic vs. Conventional

- Agriculture is NOT Natural
- Ergo Organic Ag is NOT Natural
- Sustainable Agriculture???
- Food movement = Nutrient movement
- Ergo need Nutrient Replenishment
Agricultural Product Safety

- Health Foods
- Organic Products
- Conventional Products
- Relative Risk
- Conv Ag and Medicine allow people to live long enough to be concerned!
Confused Philosopher

- If Health Foods are so good then why haven’t they Naturally become important foods?
- Too much of anything can be dangerous
- Reasonable Risk
- What if? Vs What if we don’t?
• Pollen Drift vs. Pest Drift
• Evidence of Invasion
• Organic surrounded by Conventional
• Marketplace Differentiation
• Cheap Food Policies
Risk

- Reasonable Risk
- Zero Tolerance
- Precautionary Principle
- Research = Unknown = Risk
- Electricity Analogy
- Careful what you ask for?
The HUMAN PEST

• This is our problem!!