

# GMO Issues Facing Producers of Identity Preserved, Non-GMO, and Organic Crops

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*The Non-GMO Report*



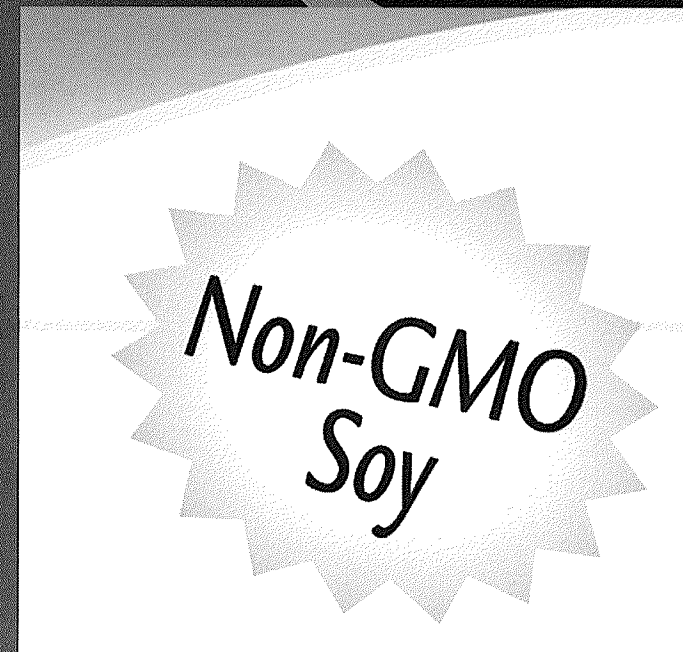
# Market Trends

- Specialty grains
  - Soybeans: \$3.5 billion market
- Traceability
- Consumers want organic and non-GMO
  - Organic growing by 20%
  - Europe
  - Japan “Extremely sensitive”



# US Non-GMO Market

- Non-GMO labels
- Frito-Lay buys non-GM corn
- National Starch's TrueTrace IP program





# Producer Opportunities

- IP and Non-GMO soybeans
  - Premiums: \$.45 to \$2.75
- Organic soybeans
  - \$14 per bushel
- IP and Non-GMO corn
  - Premiums: \$.05 to \$1.50



# Identity Preservation Measures

- Finding and testing non-GMO seed
- Plan fields and isolate fields
- Late planting
- Segregation at every stage
- Equipment, storage, and transportation cleaning
- Record-keeping
- GMO testing



# Sources of GMO Contamination

- Seed
- Pollen drift
- Commingling in grain handling
  - Equipment not cleaned
  - Transportation
- Farm inputs



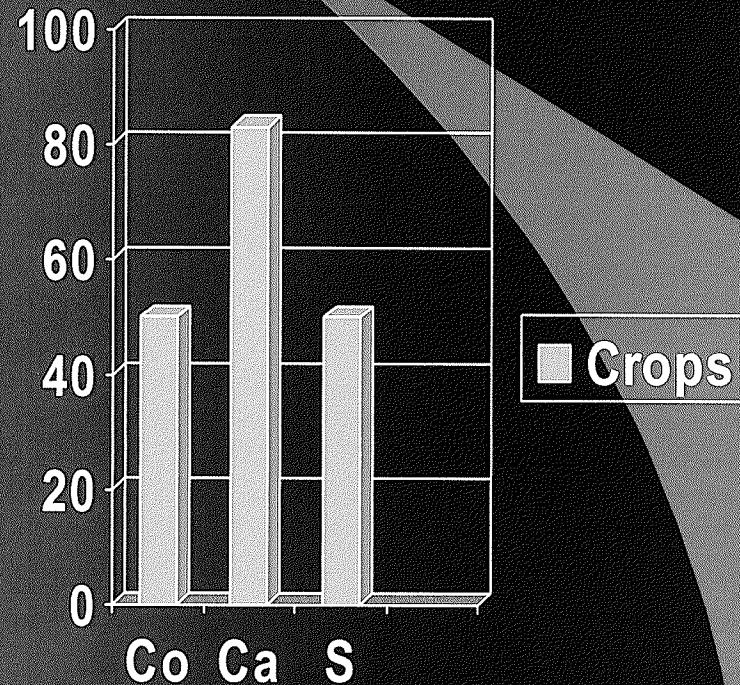
# Seed Challenges

- Difficult to find non-GMO seed
- Pattison Bros developed own varieties
- GMO testing expensive
- Impossible to find GM-free corn
  - Seed company produces in Argentina

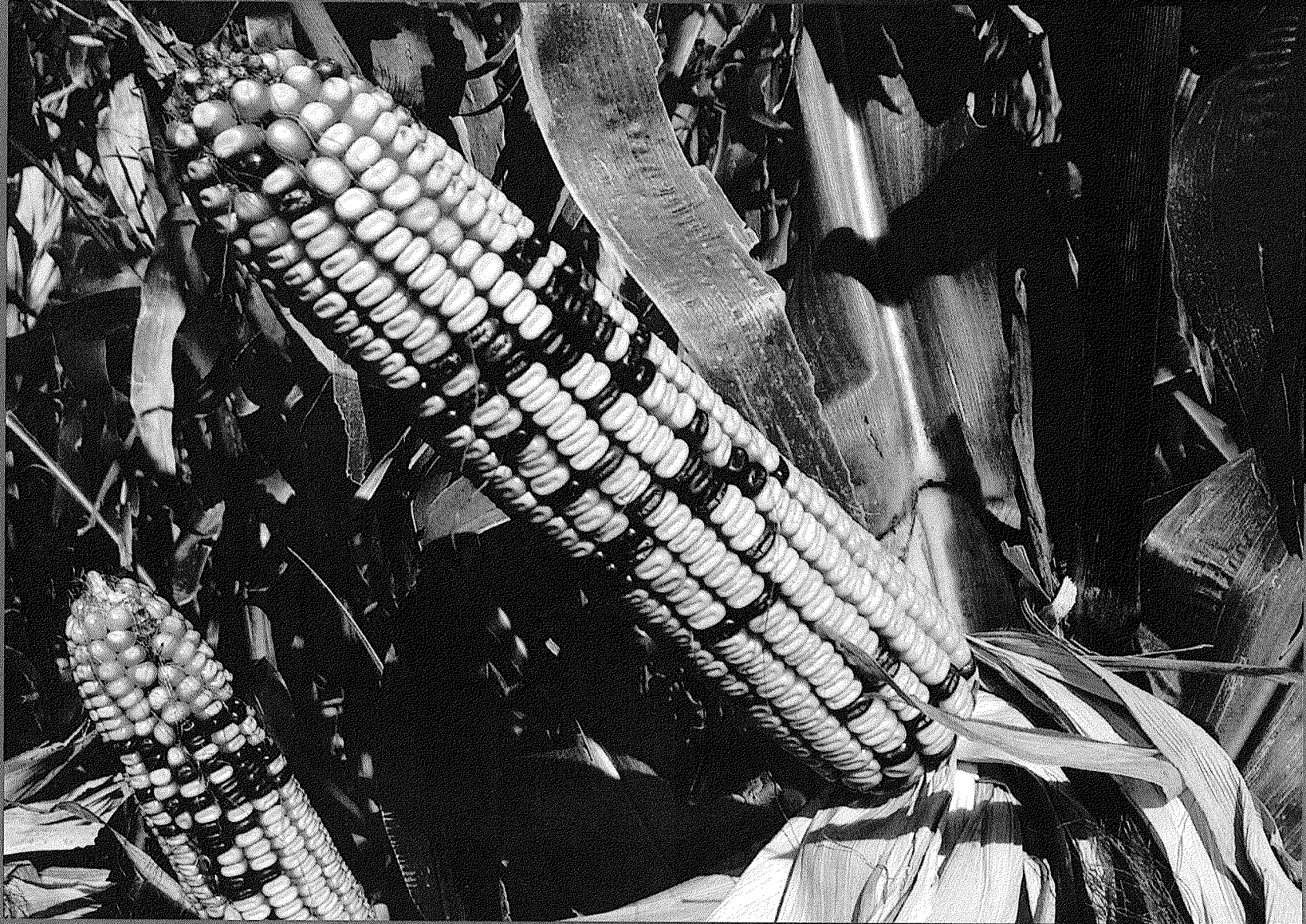


# Union of Concerned Scientists Seed Study

- 50% of corn
- 83% of canola
- 50% of soybeans
- Contamination levels 0.5 to 1%.









# GMO Challenges

- Meeting buyer requirements
  - Strict GMO thresholds
- Meeting regulatory requirements
  - Korea zero tolerance for GMOs
- GMO testing expensive



# GMO Challenges

- Increasing acreage of GM crops
- GMO contamination incidents
  - StarLink, Prodigene, Bt-10
- GMO testing more difficult
  - Restricted access to reference materials
- Fear of patent lawsuits



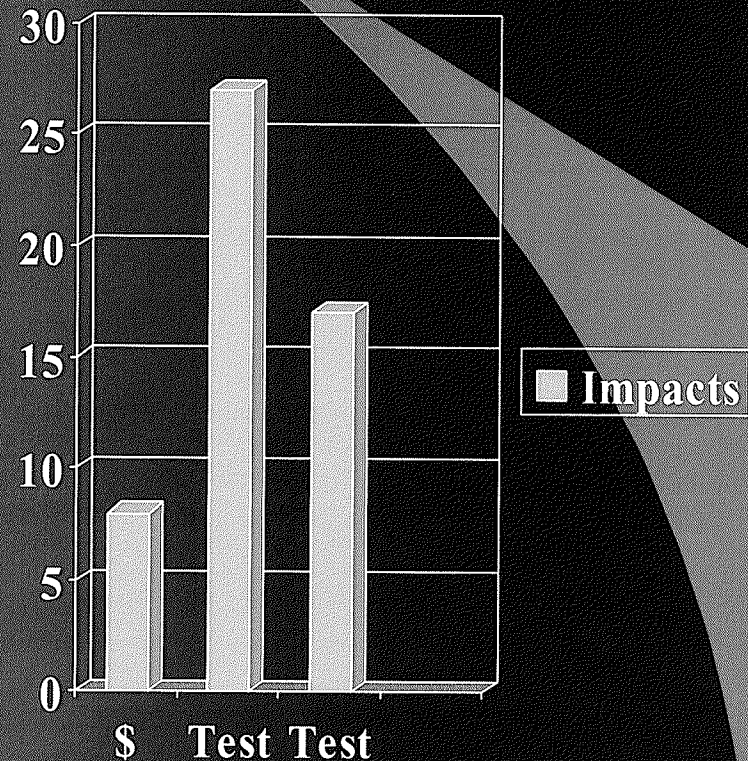
# Impacts of GMO Contamination

- Rejected grain shipments
- Loss of premiums
- Loss of customers/markets
- Loss of organic certification



# OFRF Survey: GMO Contamination of US Organic Farms

- 8% had direct costs or damages
- 27% had a GMO test requested or required
- 17% had GMO test
- 11% tested positive





# Greatest Problems in Midwest

- 70% to 80% reported negative impacts
- 88% took measures to protect fields
- Epicenter: Iowa and Wisconsin
- 22% of all positive tests in Iowa
- Minnesota, Ohio, Indiana, Michigan



# Reports from the Field

- Some grain buyers don't test
- Removing corn from rotations
- \$1700 for GMO tests on \$4000 crop
- Rejected shipments
  - \$35,000 loss



# Contamination Example

- Abbe Hills Open Pollinated Corn
- Grown on same farm for 90 years
- Took precautions to prevent contamination
- Tested positive for Bt gene
- Lost half her business, genetic purity
- “Preview of large-scale consequences”



- *“It comes down to basic principles of responsibility and accountability. The biotechnology industry is not acting responsibly with regard to this.”*  
Iowa Organic Farmer



# Coexistence?

- “National priority”
- Iowa State coexistence initiative
- North Dakota coexistence working group
  - Collapsed, all responsibility on organic producers
- Vermont coexistence/BMP strategies
  - Opposed by organic farmers



# Coexistence?

- IA organic farmer grows GM, non-GM, and organic corn
- Not exported, no GMO testing
- Transitioning to all organic
- “Price advantage”



# Coexistence?

- Miguel Altieri, University of California
- “Coexistence is a Myth” paper
- GM crops are “totally incompatible” with organic
- Recommends establishing GMO-free zones



# Legislation

- Farmers Protection Acts
- Assigns liability to biotech companies
  - VT, MT, ND, and CA
  - Passed VT Senate, still in House
- IA Indemnity fund to compensate losses
- Europe discusses before GM crops planted



# Other Strategies

- “PuraMaize” seed
- Better cooperation/communication between GM and non-GM producers
- Efforts by biotech cos. to address problems
- Legal action
  - Saskatchewan Organic Directorate



# Summary

- Significant challenges with GMOs
- Unfair situation
- Agronomic, legislative, legal remedies
- Ensure continued growth
- Economic vitality, agricultural diversity