

Suggested Best Management Practices

for the Coexistence of

Organic, Biotech and Conventional CROP PRODUCTION SYSTEMS

North Dakota has a diverse agriculture with differing production systems and markets. It is important that those involved in agriculture work together to preserve and enhance each person's chosen production system and markets.

The Coexistence Working Group was formed to identify and address issues facing agriculture in North Dakota. Membership in the group consisted of biotech, conventional, identity-preserved and organic farmers; biotech companies; organic certification organizations and groups; North Dakota Department of Agriculture; North Dakota State Seed Department; NDSU Foundation Seedstocks Project; NDSU Department of Plant Sciences; NDSU Agricultural Experiment Station; and the NDSU Extension Service. Participants were carefully chosen so leaders from each group were involved in the discussion.

History

North Dakota State University was contacted by the Northern Plains Sustainable Agriculture Society (NPSAS) in spring 2001. NPSAS was concerned about the ability of organic and identity-preserved producers having access to seed free of any transgenic genes. Those in attendance represented NDSU, state government and the organic community. After discussing the issues, it was decided to have another meeting in the fall.

It was also stated that more stakeholders should be involved. For the next meeting, the group decided to bring in conventional, biotech and identity-preserved farmers and representatives of biotech firms.

Procedure

The Coexistence Working Group would develop Best Management Practices (BMPs). The group was divided into three subgroups to come up with the recommendations. Individual group members were also able to propose BMPs. The proposed BMPs were discussed and voted on, with the minority opinion stated on each BMP. The findings of the group would then be printed and distributed to interested parties in North Dakota.

A North Central Sustainable Agriculture Research and Education Grant was applied for and received. Additional funding was provided by Monsanto. With the funds in place, the Coexistence Working Group was founded with Brad Brummond as grant coordinator. The first meeting focused on identifying issues. The second and third meetings were used to gather and present material on these issues.

NDSU
Extension Service
North Dakota State University

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OBJECTIVES

- Implementation of practices and protections to ensure purity and accessibility of the genetic resource base.
- Ensure integrity and marketability within the food system.

Suggested Best Management Practices for the Coexistence of Organic, Biotech and Conventional Crop Production Systems

Compiled and voted on by
Coexistence Working Group* in December 2003.

Any opinions, findings, conclusions or
recommendations expressed in this publication
are those of the authors and do not necessarily
reflect the view of USDA.

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The BMPs developed by the CWG are not
intended to advocate the development or
implementation of legislative or regulatory policies.

BMPs may not represent the opinions
of every member of the group.

Dissenting opinions are represented
in the minority reports.

Liability

Who will be responsible for
the economic damages caused by the
unintended presence* of genetic material?

(*Unintended presence: The presence of seed, genes,
transgenic event or foreign matter in a variety or
crop other than the one for which it was intended.

Causes of unintended presence include physical mixing
(i.e., commingling of seed) and to a lesser extent, pollen drift.)

BMP 1: Liability of Research and Development of Regulated Materials

Passed 9-8

Rationale

When liability becomes an issue, regulation
compliance will be an important factor.
Compliance should provide assurance that new
technologies are properly managed through the
research and development process.

Majority Recommendation

Researchers and developers of regulated genetic
material must follow the established federal and
state regulations as minimum standards to maintain
purity and identity.

Minority Opinion

The protocols and regulations in place may not be
adequate to provide containment of the technology
in question.

Researchers and developers of regulated genetic
material must follow established federal and
state regulations. That's the law! They must also
recognize that established federal and state
regulations are minimum standards. However,
meeting those minimum standards in no way
insures containment. Placing this BMP under the
heading of liability implies that meeting a minimum
standard somehow limits liability. Meeting mini-
mum standards does not ensure prevention of
harm to stakeholders and, therefore, cannot insulate
corporations or land-grant institutions from liability
when contracting to do transgenic research.

There are risks inherent to open-air field trials of
regulated transgenic material. Any release or escape
of this material would be illegal and have a great
potential for harm. No requirement for a state-of-
the-art DNA test for the presence of a gene event
greatly increases the risks. This test is necessary
to scientifically investigate and validate the
sufficiency of the isolation and containment
protocols. Conducting open-air research without
the ability to verify the adequacy of their protocols

is not sound science nor is it defensible in the face of liability. The lack of this requirement indicates the insufficiency of current regulatory oversight.

Sources

1. *USDA Animal Plant Health Inspection Service*
2. *North Dakota Department of Agriculture*
3. *North Dakota State University*

BMP 2: Educational Responsibilities

Passed 13-3

Rationale

Education is critical for the proper stewardship of new technologies.

Majority Recommendation

Each party selling or marketing agricultural seed and resulting commodities should be responsible for product-stewardship education and contract obligations at each point of sale. Communicating the effective and responsible use of relative technology should be the responsibility of land-grant universities and technology providers.

Minority Opinion

None

BMP 3: Contractual and Merchandising Obligations

Passed 14-2

Rationale

All growers and handlers should be aware of the requirements and risks of contracts they enter into and the ramifications those requirements might have on their production and operating plans.

Majority Recommendation

Producers must know, understand and follow the market contracts they enter into, as well as any regulatory requirements and testing protocols for the crops that are produced. Handlers must also know, understand and follow terms of the market

contracts, market channeling requirements and any testing protocols for the crops they handle.

Minority Opinion

None

Sources

1. *Farmers Legal Action Group, "Potential for Legal Liability from GMOs"*

BMP 4: Review of Insurance Policies

Passed 15-1

Rationale

All stakeholders need to know and understand their risks. Insurance industry officials are considering developing an exclusion for unintended presence and resulting damages or liability in farm-owner policies.

Majority Recommendation

All stakeholders should review their insurance and bond coverage with respect to provisions related to coverage for losses or damages resulting from unintended presence.

Minority Opinion

None

Sources

1. *Farmers Legal Action Group: "Potential Legal Liability from GMOs"*
2. *American Corporation GMO (Genetically Modified Organism) Crop Exclusion Center, Mutual Insurance: "What Are the Insurance Coverage Implications of GE Agriculture/Food Risk?"*

Land-Grant Research Funding

What is the land-grant mission and what impact do private research contracts have on it?

No BMP proposed.

Segregation

This centers on how products could be separated within the handling and transportation systems and what costs would be associated with maintaining separate systems.

BMP 5: Producer Segregation Practices

Passed 16-0

Rationale

Segregation is essential for coexistence, therefore practices and information that maximize crop and product purity should be utilized where possible.

Majority Recommendation

Producers need to utilize practices and information that help maximize crop purity and segregation. This includes knowing as much as possible about your seeds, seed standards, cropping history and production practices, crop characteristics and recommended isolation distances, your farm, your neighbors' crops and production systems, your equipment, the crop you harvest, sampling and testing protocols for quality characteristics required by your market, postharvest storage, transport, keeping records, risks and rewards.

Minority Opinion

None

Sources

1. Riddle, James A. "A Plan for Co-existence: Best Management Practices for Producers of Biotech Crops"
2. "Combine Clean-Out Procedures for Identity Preserved Grain," Iowa State University, Iowa Quality Grains Initiative, Iowa State University (ISU) Extension and the Iowa Agriculture & Home Economics Experiment Station
3. "Planter Clean-Out Procedures for Corn and Soybeans," Iowa State University - Pioneer Hi-Bred International Inc.
4. Fehr, Walter R. "Strategies for the Coexistence of GMO, Non-GMO, and Organic Crop Production"
5. Martens, Mary-Howell R. "Strategies to Minimize Genetic Contamination on Organic Farms"
6. Riddle, James A. "10 Strategies to Minimize Risks of GMO Contamination"

BMP 6: Segregation (Farmer Clean Out)

Passed 15-0-1

Rationale

Good segregation practices are essential to coexistence.

Majority Recommendation

All producers and truckers should carefully inspect and clean trucks and trailers after crops have been unloaded. This includes tarps and trailer covers. Recommend the keeping of records to document the cleaning of transport units.

Minority Opinion

None

Sources

1. Riddle, James A. "Plan for Co-existence: Best Management Practices for Producers of Biotech Crops"

Tolerances

Do we or do we not want tolerances? If we decide we want tolerances, at what level? We realize that zero tolerance would be very difficult, if not impossible, in commercial production. How would inclusion of tolerances affect markets? Is no detectable level in our seed supplies realistic?

For Comment Purposes Only

This is not a Best Management Practice. The Coexistence Working Group felt the marketplace ultimately makes the decision. For that reason, the issue was not addressed.

WE MUST REMEMBER THAT COEXISTENCE
IS A JOURNEY, NOT A DESTINATION

BMP 7: Buyers Set Tolerances (Thresholds) For the Commercial Markets

Passed 16-0

Rationale

Consumer purchase preference varies.

Majority Recommendation

Tolerances (thresholds) of government-approved transgenic traits are a function of the marketplace and should not be set by a political subdivision or legislation. The marketplace, represented by the purchasing entity, will determine the acceptable level (tolerances) of unintended presence.

Minority Opinion

None

Seed Certification Standards

This relates to the last question under tolerances: Is no detectable level in our seed supplies realistic? What standards and protocols will the Association of Official Seed Certifying Agencies (AOSCA), seed trade associations and state foundation and certified seed programs adopt, and how do those standards impact the seed industry and markets?

BMP 8: Do Not Set Seed Certification Standards for the Presence of Transgenic Material in Nontransgenic Seed

Passed 9-8

Rationale

- The marketplace determines thresholds and standards for seed and product quality characteristics, including the level of transgenic material in nontransgenic seed.
- Seed and product quality characteristics needed by the marketplace are extremely diverse and depend on the specifications set by producers and buyers.

- Setting standards for the presence of transgenic material would artificially affect the market-driven specifications and may eliminate from the market seed that is perfectly acceptable to producers and buyers.
- Thresholds and standards established for allowable percentage of transgenic material in certain geographic areas around the world have been politically based, rather than being based on science and safety assessments.

Majority Recommendation

Recommend that the North Dakota State Seed Department not develop seed certification standards for the presence of transgenic material allowed in public classes of nontransgenic seed.

Minority Report

Without standards and enforcement of the unintended presence of transgenic material in seed lots, pedigreed seed producers, farmers and markets will have little hope of avoiding or minimizing the occurrence of GM traits on their land or in their crops. This conclusion is supported by University of Manitoba scientific research.

The results indicate that the pedigreed canola seed production system in western Canada is cross-contaminated at a high level.

The pedigreed seed production system can be considered a stringent segregation/identity preservation system. The results also indicate that this stringent segregation system does not result in the genetic purity of pedigreed canola seed lots in western Canada. Furthermore, a successful segregation/identity preservation system requires agreed-upon tolerances for contaminants and enforcement of the standards through frequent testing and discarding of out-of-tolerance seed or grain lots.

The commercialization of glyphosate resistant wheat in western Canada is being contemplated, possibly initially under an identity preservation protocol. It can be predicted that the extent of

glyphosate resistance trait contamination in pedigreed conventional wheat seed lots and commercial grain lots will eventually be similar to or greater than the situation currently in canola.

Sources:

1. *Canadian Seed Growers Association, 2002*
2. *Friesen, Lyle F., Alison G. Nelson, and Rene C. Van Acker. 2003 "Evidence of Contamination of Pedigreed Canola (Brassica napus) Seedlots in Western Canada with Genetically Engineered Herbicide Resistance Traits." Agronomy Journal 95: 1342-1347*

BMP 9: Publicizing the Process for Providing Input into Seed Certification Standards

Passed 11-5

Rationale

Publicizing the process for input into seed certification standards will increase the awareness of individuals and increase input to the State Seed Department from a broad representation of interested parties.

Majority Recommendation

Recommend the North Dakota State Seed Department publicize the already-established process for interested parties to provide input into the seed certification standards. This includes recommendations for seed quality characteristics for unintended presence in lots of nontransgenic foundation, registered and certified seed.

Note: The marketplace will ultimately determine the product-quality characteristics and specifications required in seed and grain.

Minority Opinion

None

BMP 10: Pre-plant Test Seed

Passed 16-0

Rationale

The quality of seed, including the genetic purity and disease or physical contamination, has traditionally been determined under field and lab inspection standards. This applies to both "certified" and "quality-assured" seed sources. These inspections have primarily been accomplished by visual means. The evolution and development of specific genetic traits in seed sources require laboratory testing to determine presence or absence.

Unless written into a seed standard, the presence of a GM trait is not considered in seed certification. Currently, unless specifically requested by the grower or customer, the presence of GM traits in conventional varieties is implied by the variety name. The responsibility for determining the presence of GM traits in conventional seed sources is arguable. Today's industry standard suggests that, if there is a concern of unintended presence, the purchaser should pre-plant test the seed.

Majority Recommendation

If there is a concern of unintended presence, the purchaser should pre-plant test the seed.

Minority Opinion

None

Germ Plasm Purity

What are the land-grant policies relating to the ownership and use of public genetics by private corporations? What is the cold storage reliability of public varieties? How is the genetic integrity of public varieties protected? Is there a need to have dual-breeding systems at land-grant institutions and if so, who finances it?

BMP 11: Maintaining Breeder and Foundation Seed Stock Purity

Passed 11-4

Rationale

Germ plasm-, breeder-, and foundation-seed stocks free from unintended presence must be maintained to provide producers with viable production options. Segregation is essential for coexistence, therefore practices that maximize crop and product purity should be utilized.

Majority Recommendation

North Dakota State University must strictly isolate the planting and handling of transgenic crops from sites where breeder- and foundation-seed stocks are grown, conditioned or stored and implement a state-of-the-art testing regimen for unintended presence in breeder and foundation seed stocks.

Minority Opinion

None

Sources:

1. Fehr, Walter R. "Strategies for the Coexistence of GMO, Non-GMO, and Organic Crop Production"
2. North Dakota Agricultural Experiment Station. "Seedstocks Policies and Production Handbook"
3. NDSU Extension Service. "North Dakota County Crop Improvement Associations Seed Increase Program." Publication A-520, revised September 2003

Opportunities/Consequences

This relates to the cost/benefits of transgenic products and traits and effects on non-transgenic markets. What can be gained or lost?

No BMP proposed.

Neighbor Relations

How can growers work together to protect each other's markets and limit movement of unwanted genetic material?

BMP 12: Neighbor Relations and Communication

Passed 16-0

Rationale

Proactive, clear communication and cooperation among neighbors is a significant factor in maximizing production options and marketing opportunities for all parties.

Majority Recommendation

We recommend that growers make reasonable attempts to communicate their production intentions to their neighbors prior to planting and to confirm actual planting. We recommend that neighbors communicate important information about the production practices to be used and the best management practices being utilized to promote the coexistence of all crop production systems.

Minority Opinion

None

Sources:

1. Riddle, James A. "A Plan for Co-existence: Best Management Practices for Producers of Biotech Crops"
2. Riddle, James A. "10 Strategies to Minimize Risks of GMO Contamination"
3. Fehr, Walter R. "Strategies for the Coexistence of GMO, Non-GMO, and Organic Crop Production"

Controls on Research

Who controls research and the assessment process used in commercialization of biotech crops? What are the protocols for research on the land-grant-institutional level and who is responsible for oversight?

No BMP proposed.

Consumer Concerns

What is the consumer and market acceptance of biotech crops? This also deals with labeling requirements, testing and export markets.

BMP 13: Education of Consumers

Passed 16-0

Rationale

Informed decision making is basic to our society and provides a logical approach to dealing with public issues. Society needs access to unbiased information to make informed decisions. The Cooperative Extension Service historically has been a trusted provider of this type of information.

Majority Recommendation

The NDSU Extension Service will develop an educational brochure and a Web site designed to educate the public on how foods (crops) are produced under biotech, nonbiotech and organic crop production systems. The goal is to provide consumers with unbiased information on the various food production systems so they can make an educated choice. Representatives would make recommendations to the authors for consideration. Points of disagreement would be mediated by the Coexistence Working Group. The finished product may be both printed and Web-based.

Minority Opinion

None

Conclusion

The Best Management Practices (BMPs) are a place to start in fostering coexistence in North Dakota agriculture. We must all do our part to ensure a place for different types of production systems and access to markets in North Dakota.

Some would say that these Best Management Practices do not go far enough. We must remember that coexistence is a journey, not a destination. Adoption and implementation of these BMPs will help make coexistence possible. There is still more work to be done, but the process has started in North Dakota.

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For more information on this and other topics, see: www.ag.ndsu.nodak.edu

