

**National Alfalfa and Forage Alliance
Best Management Practices for RR
Alfalfa Seed Production**

<http://www.alfalfa.org/GSCoexistenceDocs.html>

NAFA

BMP for RR Alfalfa Seed Production

- **Background and General Concepts**
 - The document is in the form of a contract, whereby RR alfalfa seed contractors and seed producers agree to adhere to activities that will reduce LLP of GE traits in conventional varieties.
 - The BMP was developed with the premise that seed certifying agencies should be partners in the management of RR alfalfa seed production.

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BMP for RR Alfalfa Seed Production

- **Background and General Concepts**
 - Specifies the roles and requirements for all parties involved in RR alfalfa seed production.
 - Specifies production practices for all RR alfalfa seed that would meet or exceed AOSCA standards for Foundation class seed production.
 - Was adopted by the NAFA Board of Directors on 1/22/08.

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BMP for RR Alfalfa Seed Production

– **The BMP specifies that the seed contractor will:**

- Ensure that the isolation distance between a new planting of RR alfalfa seed and any established conventional seed production meets pollinator-specific isolation requirements.
 - Leafcutter bees – 900 feet.
 - Alkali bees – 1 mile.
 - Honey bees – 3 miles.

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BMP for RR Alfalfa Seed Production

- **The BMP specifies that the seed contractor will:**
 - Report GPS coordinates for all established and planned RR alfalfa seed production fields to local seed certification agencies for use in producing a pinning map.
 - Contractors are required to authorize state officials to release, upon request, the isolation distance between a planned conventional alfalfa seed field and the nearest RR alfalfa seed field.

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BMP for RR Alfalfa Seed Production

– **The BMP specifies that the seed contractor will:**

- Collect and test seed from conventional seed production fields to determine if isolation standards are meeting LLP goals.
- Work with seed certifying agencies to make changes to standards if the data indicates a need.

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BMP for RR Alfalfa Seed Production

– **The BMP specifies that the seed contractor will:**

- Honor GE-free seed production zones, when designated.
- Require RR alfalfa stewardship training for all new RR alfalfa seed producers.

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BMP for RR Alfalfa Seed Production

- **The BMP specifies that the seed grower will:**
 - Sign and abide by a Monsanto Technology/Stewardship Agreement.
 - Observe patent rights.

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BMP for RR Alfalfa Seed Production

– The BMP specifies that the seed grower will:

- Observe all federal, state, and local regulations.
 - Pesticide use.
 - U.S. Patent Rights
 - PVP and Federal Seed Act
 - Phytosanitary laws governing seed and pollinators.

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BMP for RR Alfalfa Seed Production

– **The BMP specifies that the seed grower will:**

- Manage pollinators to minimize pollen flow.
 - Introduce only the pollinator species specified on the contract.
 - Refrain from moving pollinators from RR fields to conventional fields.
 - Place domiciles so as to maximize distance to other varieties.

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BMP for RR Alfalfa Seed Production

- **The BMP specifies that the seed grower will:**
 - Manage pollinators to minimize pollen flow.
 - In the case of custom pollination, the grower must inform the pollinator of this requirement.
 - Discourage nearby placement of honey bees if they are not specified on the contract as the pollinator species.

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BMP for RR Alfalfa Seed Production

– The BMP specifies that the seed grower will:

- Assist the RR alfalfa seed contractor with field location prior to planting with regard to isolation.
- Notify the contractor if new alfalfa seed fields are planted in close proximity.
- Facilitate crop improvement inspections as requested.

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BMP for RR Alfalfa Seed Production

- **The BMP specifies that the seed grower will:**
 - Apply sufficient registered Roundup products to kill non-GE seedling alfalfa plants in new plantings.
 - Manage weeds and volunteers using integrated weed control strategies.
 - Minimize weed shifts or development of tolerant weeds.
 - Maintain variety true to type.

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BMP for RR Alfalfa Seed Production

– The BMP specifies that the seed grower will:

- Destroy RR alfalfa seed fields at the expiration/termination of the seed production contract
 - Do so in such a manner as to allow seed certification inspectors to validate stand destruction.
 - Render the stand worthless for any unlicensed purpose or use (unlicensed seed, forage, hay or pasture production purpose).

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BMP for RR Alfalfa Seed Production

– **The BMP specifies that the seed grower will:**

- Destroy RR alfalfa seed fields at the expiration/termination of the seed production contract
 - Report stand destruction date and method to the RR alfalfa seed contractor.
 - Plan to use a subsequent crop that allows management of alfalfa and RR alfalfa volunteers should they occur.

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BMP for RR Alfalfa Seed Production

– The BMP specifies that the seed grower will:

- Use good equipment sanitation.
 - Manage equipment to minimize seed mixture potential between different varieties and or variety types.
 - Use dedicated equipment for planting and harvesting RR alfalfa seed when possible.

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BMP for RR Alfalfa Seed Production

– The BMP specifies that the seed grower will:

- Use good equipment sanitation.
 - Clean planters before and after use.
 - Clean and inspect combines before and after use.

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BMP for RR Alfalfa Seed Production

- **The BMP specifies that the seed grower will:**
 - Use good equipment sanitation.
 - Put RR alfalfa in RR alfalfa seed bins only.
 - Clean and inspect bins before use.
 - Plan harvest timing to handle like-trait varieties together.

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BMP for RR Alfalfa Seed Production

- **The BMP specifies that the seed grower will:**
 - Use good equipment sanitation.
 - Clean all seed handling equipment to avoid mixing RR alfalfa and conventional seed.
 - Return unused stock seed to the seed contractor.
 - Notify custom harvesters if the field is RR alfalfa.

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BMP for RR Alfalfa Seed Production

– The BMP specifies that the seed grower will:

- Keep field records, which shall include:
 - Planting date, acres planted, seeding rate, stock seed received and returned.
 - Accurate field location with latitude/longitude and a local field map.

NAFA

BMP for RR Alfalfa Seed Production

– **The BMP specifies that the seed grower will:**

- Keep field records, which shall include:
 - Roundup herbicide application dates, rates, and formulation used.
 - Seed box/bin numbers used for harvest.
 - Stand destruction date and methods used.

NAFA

BMP for RR Alfalfa Seed Production

- **The BMP specifies the RR alfalfa seed contractor's staff will:**
 - Work in close partnership with seed growers.
 - Report each field location, planting date, and stand destruction date to local crop improvement associations.
 - Coat RR alfalfa stock seed purple for easy identification.
 - Recommend changes to the BMP should the need arise.

AOSCA

Alfalfa Seed Stewardship Program

- **The program is based on some basic AOSCA principles**
 - Standards changes need industry input and support.
 - Standards changes need sound scientific information supporting the change.

AOSCA

Alfalfa Seed Stewardship Program

- **Alfalfa seed industry representatives met with AOSCA agencies in Reno in 2006**
 - The purpose of the meeting was to get industry input as RR alfalfa seed production came on line.
 - Alfalfa seed companies shared what their customers wanted.
 - Alfalfa seed companies shared their thoughts on standards changes that might be necessary to meet customer expectations.

AOSCA

Alfalfa Seed Stewardship Program

- **What we learned:**

- Alfalfa seed customers fall into three categories regarding LLP;
 - Don't care.
 - Care a little.
 - Care a lot. Zero tolerance.
- Most customers fall into the first category, and are happy with the seed they have been purchasing.

AOSCA

Alfalfa Seed Stewardship Program

- **What we found out:**
 - Companies can have customers in more than one category.
 - Every company said that a wholesale change in isolation standards or field history requirements would make it difficult or impossible for them to meet certification standards.

AOSCA

Alfalfa Seed Stewardship Program

- **We also had a good idea that:**
 - Current isolation standards were not sufficient to meet AOSCA goals of 1% outcrossing. This became apparent as initial studies on pollen flow were done as part of the RR alfalfa process.
 - This new information affected not only RR alfalfa, but also conventional varieties.
 - 1% LLP was not acceptable to Zero Tolerance customers.
 - Different isolation standards for GM and conventional varieties was not a good idea.

AOSCA

Alfalfa Seed Stewardship Program

- **We also had a good idea that:**
 - Data indicated that outcrossing at the current isolation distance of 165 feet for the Certified class was between 1% and 2%.
 - While the new data indicated a higher outcrossing rate than previously thought, alfalfa seed customers were happy with the seed they were buying.

AOSCA

Alfalfa Seed Stewardship Program

- **Recap important points:**
 - The alfalfa seed industry did not support changes to isolation or field history standards.
 - Alfalfa seed customers have been pleased with the quality of the seed they have been receiving.
 - There was an opportunity for AOSCA to help companies with LLP-sensitive customers.

AOSCA

Alfalfa Seed Stewardship Program

- **Basic Premise of the ASSP:**
 - Provide a platform by which seed producers select additional services that they believe will allow them to produce seed meeting their customers needs.
 - Allows customers to select isolation tolerances, the number of inspections, inspection timing, and other parameters.
 - Allows customers to pay for only the services they believe will benefit them.

AOSCA

Alfalfa Seed Stewardship Program

- **Additional services prior to planting could include:**
 - Seedstock sampling and testing for the presence of GM traits.
 - Verification that field history meets customer standards.
 - Verification can be based on grower records or seed certification agency records.

AOSCA

Alfalfa Seed Stewardship Program

- **Additional services prior to planting could include:**
 - Verification that the field meets customer-designated standards for distance to known GM alfalfa seed fields.

AOSCA

Alfalfa Seed Stewardship Program

- **Additional services after planting could include:**
 - Verification of distance to known alfalfa seed fields. This could occur more than once a season, logically after spring and fall planting.
 - Seedling inspection
 - Plants out of the planter row or feral plants outside the field could be assessed for GM traits.

AOSCA

Alfalfa Seed Stewardship Program

- **Additional services after planting could include:**
 - Bloom inspection
 - Potential services could include collection and testing of leaf samples for GM traits.

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Alfalfa Seed Stewardship Program

- **Additional services could include equipment inspections:**
 - On Farm:
 - Planting equipment.
 - Harvesting and seed handling equipment.
 - Seed containers.

AOSCA

Alfalfa Seed Stewardship Program

- **Additional services could include equipment inspections:**
 - Seed plant inspections.
 - Could be especially important if a seed lot that had not been in the ASSP was cleaned prior to a sensitive seed lot.
 - Seed conditioners could sign an affidavit that they had not knowingly cleaned GM alfalfa seed in the facility.

AOSCA

Alfalfa Seed Stewardship Program

- **Additional services could include seed sampling and testing:**
 - Official samples of combine run or clean seed could be drawn and tested for GM traits.

Comparing the NAFA BMP and the AOSCA ASSP

– NAFA BMP

- Provides specific requirements and/or procedures for:
- Isolation standards
- Pollinator management
- Record keeping
- Equipment sanitation

Comparing the NAFA BMP and the AOSCA ASSP

– NAFA BMP

- Does not, in and of itself, increase the cost of seed production, but may do so inadvertently through the use of the additional services of state seed certifying agencies.
- Is designed to be used to reduce the impact of RR alfalfa on the seed production of conventional varieties.

Comparing the NAFA BMP and the AOSCA ASSP

- **AOSCA ASSP**

- Was designed to be very flexible.
 - Allows the producer to set standards based on their knowledge/experience.
 - Allows the producer to choose the services that they believe will allow them to meet their goals.
 - Will increase the cost of producing seed, but allows the producer to design a program that does not price their seed products out of the market's ability to pay.

Comparing the NAFA BMP and the AOSCA ASSP

- **AOSCA ASSP**

- Was developed with the goal of assisting alfalfa seed production for GE-sensitive markets.
- Was developed with current seed certification methods and standards as a baseline, and the ASSP and traditional certification are complimentary.
- Customers of the ASSP are strongly encouraged to use traditional certification.