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

http://www.alfalfa.org/CSCoexistenceDocs.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.
NAFA
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.
NAFA
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.
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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.
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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 that 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.