

Existing BMP Pick List

BMP	Source	Requirement	included in rule?	AIB Comments
Fluency Agents				
require fluency agent/prohibit talc and graphite	PMRA		maybe	WSH/LD in support **need to understand how fluency agent is used and is it at upstream seed treatment facility? Or is it added at planting time? How marketed and used? Right now talc and graphite is industry standard in VT - is planter manufacturer recommendations for rate and ratio and type of lubricant
avoid excess use rates of lubricants to minimize dust and avoid buildup of unwanted residue	ASTA		maybe	rate is hard to evaluate with talc/graphite - so tough to regulate/recommend because hard to understand. Depends on humidity and planter specific
use drift-reducing surfactants/seed lubricants	Honey Bee Coalition			
use synthetic lubricants instead of talc or graphite	Corn Dust Research Consortium (CDRC) MN			
Label Adherence				
read and adhere to pesticide label and seed tag directions	PMRA ASTA Honey Bee Coalition CT MN		maybe	pesticide label is legally binding already EPA is in process of trying to extend pesticide use language to seed tag option for VT rule is to make seed tag language binding/enforceable (not just recommendations) CC supports and remembering Heather's presentation about needing education about knowing what is on seeds. Outreach component.
follow plant back restrictions found on seed tag or referenced elsewhere	ASTA			think of restrictions on next rotation, look into ASTA intentions more
adhere to specified minimum planting depth	MN ext			this comes back to agronomic practices that are common sense for growers looking to have productive crops. More important to ensure proper disposal etc that label will refer to
IPM				
practice IPM when choosing seed treatments (scout fields, compare to economic thresholds, use lowest effective seed treatment rate)	PMRA			**have Heather come back to talk to AIB conflicting information in research concerning historical neonic use on fields influencing pest pressure. Anecdotaly seen less re-plant with introduction of seed treatment technology.
match the use of pesticide seed treatments to locally appropriate levels of pest incidence and the likelihood of infestation (where possible, select only the pesticide treatment rate that is necessary for control of the target insects)	Honey Bee Coalition			Definition of IPM was different between researchers and Seed companies **We need to nail down what definition is before making IPM recommendation
identify the potential pest or disease before selecting seed treatments	ASTA			these types of recos assume have alternative available to chose from so if we include in BMPs it might have to have a caveat about availability
do not use neonic treated seed unless there is a specific pest problem that can be effectively managed with neonic seed treatment	CT			Also consider availability of resource to conduct scouting in VT to have this be viable option
learn which crop production practices increase or reduce risk of attack from stand-reducing insects (use IPM)	MN			
keep records of pest infestations over time to then use to guide your decisions about treated seed	MN			Focus on pests during the first 2-3 weeks when treated seeds provide systemic activity
attend outreach programs related to pollinators (seed treatment technology, minimizing dust, industry, extension)	MN			
Communication				
open communication between beekeepers, applicators/consultants, growers (hive locations, timing of planting and pesticide applications)	PMRA Honey Bee Coalition CDRC CT MN			VT Pesticide Rule already has requirement for 48hr notification for pesticides highly toxic to bees - might be able to expand this to be applicable to planting of seeds treated with pesticides highly toxic to bees.
Reduce Dust Drift				
reduce dust exposure to pollinator habitat (avoid dry/windy conditions, avoid these conditions when pollinator habitat, flowers, water downwind, control flowering weeds before planting)	PMRA ASTA CT			
plant treated seed during appropriate weather conditions (winds >15mph can move abraded contaminated seed dust to off-target sites)	MN			
avoid generating dust when handling and loading treated seed (handle bags with care to reduce abrasion and spillage, don't load or clean or engage equipment near hives or foraging sites)	PMRA ASTA			

**find someone to come talk to AIB about planters and fluency agents (Heather for research update and address this with colleague) Jeff Sanders?

** Jonathan Chamberlin bring some example seed tags

also look for someone understanding fluency agents specifics

reduce dust exhausted from planters (follow equipment directions, clean and maintain equipment, use deflector equipment to direct exhaust to ground level so less drift)	PMRA			Dr. Tooker called out that dust deflected to soil is at risk to soil biota i.e. Ground beetles/beneficial insects UVM showed "bee friendly planter" (claim on equipment) that directed dust to different place, but were unable to source kit to modify existing planters to reduce dust or redirect dust.
avoid dust drift from treated seeds to sensitive areas during planting by observing wind speed and direction	ASTA			
direct air exhaust downwards towards soil surface to decrease potential of dust drift	ASTA			
avoid shaking the bottom of the seed bag when filling planter to reduce release of dust	ASTA			
planter should be filled at least 10 yds inside the field to be planted	ASTA			
reconfigure planters so that only clean air enters seed metering devices	MN			
During typical corn planting windows, the most common honey bee foraging sites are often woody shrubs and trees (e.g., apples, crab apples, maples, etc.). Take extra care to avoid drift of planter dust onto these plants. Bee attractive pollen sources can be vulnerable to drift from this dust if they are within approximately 165 feet (50 meters) of the field being planted.	Honey Bee Coalition Corn Dust Research Consortium (CDRC)			reduce risk farmers and beekeepers (supplement water and pollen at planting time see below)
Seed Disposal				
proper clean-up and disposal (spilled or exposed seeds and dust incorporated into soil or removed, avoid contact with surface water, don't leave empty bags or left over seed in fields/environment)	PMRA			is seed disposal an issue? Only need to dispose if it accidentally hits the ground and has soil on it (don't want to put any soil/debris through planter). Seed is too valuable so save for the next year.
properly dispose of any spillage to minimize exposure to people, livestock, wildlife and the environment	ASTA			
return excess seed to its original seed lot containers if the seed is intended for storage and subsequent planting	ASTA			
plant small quantities of unwated treated seed in fallow or other non-cropped areas in accordance with seed treatment product label	ASTA MN ext			
unless restricted by label language, excess treated seed may be double planted in the turn rows at the end of the field or within a portion of the field	ASTA			
off farm disposal of seed not acceptable for planting and/or large quantities of treated seed (consult with state or local authorities, disposal facilities will be required to have EPA permit to dispose, zero tolerance for treated seed in the commodity grain channel)	ASTA			
never compost treated seed	MN ext			
never burn treated seed in a stove that is used in the home, farmshop etc	MN ext			
proper disposal of empty seed bag & filters	???			
Storage & Handling				
protect treated seed from direct sunlight, extreme heat and moisture	ASTA			
storage facility should be well ventilated	ASTA			
treated seed should be kept secure from children, livestock, wildlife and unauthorized persons	ASTA MN ext			
Pollinator Habitat				
survey for presence of pollinator hives and flowering crops or weeds in field and nearby	ASTA			Is pollinator hive intended to mean commercial honey bee? If not we may want to change the language to better cover other pollinating insects
eliminate flowering plants and weeds in and immediately adjacent to the field prior to planting seeds with pollinator sensitive insecticide	ASTA			
Improve or establish pollinator foraging areas (include flowering plants in non-crop areas)	Honey Bee Coalition			This should refer to resources on how best to establish pollinator habitat on farms (NRCS/ Xerces)
remove flowering vegetation within fields (tillage, mowing, herbicide) prior to planting	CDRC CT			
ensure all seed is covered by soil	ASTA			
Cleaning Equipment				
clean planters and seed boxes away from sensitive environmental areas	ASTA MN			
do not use compressed air when cleaning planting equipment as it may lead to significant dust drift	ASTA			
do no dump excess rinse water from the cleaning of planting equipment on soil, surface water, ground water, or in septic systems (can be applied to field/crop where active ingredient is registered for)	ASTA CDRC			

assess equipment prior to planting (modify to reduce dust, proper calibration and maintenance)	MN			
Beekeeper recommendations				
beekeepers recommended to supplement the hive with internal feeding during and right after corn planting, and provide clean water to reduce the need for bees to seed water from sources in and adjacent to corn fields	CDRC			
beekeepers recommended to clearly label hives/apiary with their contact information	CDRC			
pesticide and lubricant manufacturers recommendations				
development work to improve sticking agents and coatings and improved fluency agents	CDRC			
ensure lowest effective labeled rate of neonic treatment	CDRC			
offer fungicide-only seed treatment options	CDRC			
avoid/limit post processing of treated seed	CDRC			
Equipment manufacturers recommendations				
Provide mechanical means to reduce the movement of dust from fan exhaust during planting using equipment design principles and verification methods established in internationally recognized standards (ref. ISO 17962:2015, Agricultural machinery – Equipment for sowing – Minimization of the environmental effects of fan exhaust from pneumatic systems - https://www.iso.org/standard/61136.html).	CDRC		no	According to Jeff Sanders research/work this may not be feasible option or effective option to reduce risk.
Seed dealers recommendations				
Offer untreated seeds as an option for farmers, and make it clear that this option is available.	CDRC			
Adhere to quality control measures outlined in http://seed-treatmentguide.com/wp-content/uploads/2014/12/ASTA-Seed-Guide-Application.pdf	CDRC			
Support bee health by providing outreach to producers to make wise seed choices and to follow best seed planting practices.	CDRC			
Regulators recommendations				
Provide financial and instructional support for maintaining trees and shrubs outside drift areas for bee forage during planting season.	CDRC			
Provide guidance for the reduction of attractive herbaceous forage in and around corn fields.	CDRC			
Fully fund governmental provisions to ensure that pollinator forage area enhancement can increase and be sustained.	CDRC			
Encourage application of the lowest effective labeled rate of neonicotinoid treatment on the seed.	CDRC			
Ensure that both insecticide-treated and fungicide-only seeds are available, and educate farmers about this option.	CDRC			
Provide a responsive structure for bee-incident reporting and be sure that it is understood and used by beekeepers. Ensure that incident report procedures are adequately funded and operate in a timely fashion commensurate with the urgency of this situation for honey bees and beekeepers.	CDRC MN			
Ensure that IPM practice information is available to the producer.	CDRC			
Ensure that seed bag labeling is clear and that growers are aware of the potential risk posed by planter dust.	CDRC			
Dedicate transportation corridor and rights-of-way plantings to support the establishment of pollinator habitat.	CDRC			
Reach out to farmers, and help make them aware of the situation and of the importance of farmers implementing recommended actions to reduce bee exposure from dust-off.	CDRC			

AIB Member Proposed BMP Pick List

BMP	Recommendation / Requirement		included in rule?	AIB Comments
Farmer Requirements/Recommendations				
require use of dust reducing lubricant Talc and graphite are not permitted to be used as lubricants.				avoid using "Fluency Agent" because it is a brand name
prohibit use of neonics highly toxic to bees in VT as seed treatments				
prohibit farmers from treating their own seeds with neonics				
remove waste seed and dust from the soil and dispose of properly				
phase out of all neonic pesticides in 2-3 years				
do not use NTS unless there is a specific pest problem that can be effectively managed with NTS				
when use of neonics is not warranted, purchase non-neonic TS. If seed selection is limited, contact your seed company to request increased selection and availability of non-neonic TS				
notify nearby beekeepers before planting NTS				
remove flowering plants from field and field edges by mowing or tillage before planting NTS				
read and follow all instructions on seed tag, including PPE when handling, proper disposal, and required buffer zones				
avoid storing NTS under extreme temperatures and excessive humidity				
avoid planting on windy days (particularly if wind is blowing toward bee hives, flowering trees or standing water sources)				
dispose of dust leftover in seed bags and filters properly (follow seed tag instructions or use municipality hazardous waste collection process)				
Seed Industry Requirements/Recommendations				
prohibit use of piperonyl butoxide as inert ingredient with neonics				PBO is a synergist for foliar insecticides (has the effect to reduce the amount you have to use to be effective) may not be used in seed treatment insecticides.
AAFM Requirements/Recommendations				
provide funding to farmers to modify planting equipment to reduce dust				
provide funding to Extension to run programs for farmers about planter modifications				
provide funding for workshops for beekeepers on varroa mite management				
work/coordinate with other states to increase our influence on the seed industry				
evaluation/review of rule/BMPs/recommendations every 3-5years to address any unintended or unexpected consequences				

Seed Treatments:

Acetamiprid: 4.57-11.2 µg/bee; half-life in soil 12 days
 Assail
 Clothianidin: LD50 > 0.0439 µg/bee; half-life in soil 148-7000 days (19 years)
 Poncho, NipsItInside, Poncho/VOTIVO
 Thiamethoxam: LD50 > 0.0012 µg/bee; half-life soil 34.3 to 464 days
 Cruiser
 Imidacloprid: 0.0037 - 0.0409 µg/bee; half-life soil 26.5-229 days to 8 years (speaker)
 Gaucho, Provado, Merit

LD50 for Bees Classification

- highly toxic (acute LD50 < 2µg/bee)
- moderately toxic (acute LD50 2 - 10.99µg/bee)
- slightly toxic (acute LD50 11 - 100µg/bee)
- nontoxic (acute LD50 > 100µg/bee) to adult bees.

Act No. 145 of 2022, Section 2, amended 6 V.S.A. §1105a:

- (a) The Secretary of Agriculture, Food and Markets, upon the recommendation of the Agricultural Innovation Board, may adopt by rule:
- (1) best management practices (BMPs), standards, procedures, and requirements relating to the sale, use, storage, or disposal of treated articles the use of which the Agricultural Innovation Board has determined will have a hazardous or long-term deleterious effect on the environment, presents a likely risk to human health, or is dangerous;
 - (2) requirements for the response to or corrective actions for exigent circumstances or contamination from a treated article that presents a threat to human health or the environment;
 - (3) requirements for the examination or inspection of treated articles the use of which the Agricultural Innovation Board has determined will have a hazardous or long-term deleterious effect on the environment, presents a likely risk to human health, or is dangerous;
 - (4) requirements for persons selling treated articles to keep or make available to the Secretary records of sale of treated articles, and what treatments were received, the use of which the Agricultural Innovation Board has determined will have a hazardous or long-term deleterious effect on the environment, presents a likely risk to human health, or is dangerous; or
 - (5) requirements for reporting of incidents resulting from accidental contamination from or misuse of treated articles the use of which the Agricultural Innovation Board has determined will have a hazardous or long-term deleterious effect on the environment, presents a likely risk to human health, or is dangerous.
- (c)(1) Under subsection (a) of this section, the Secretary of Agriculture, Food and Markets, after consultation with the Agricultural Innovation Board, shall adopt by rule BMPs for the use in the State of neonicotinoid treated article seeds. In developing the rules with the Agricultural Innovation Board, the Secretary shall address:
- (A) establishment of threshold levels of pest pressure required prior to use of neonicotinoid treated article seeds;
 - (B) availability of nontreated article seeds that are not neonicotinoid treated article seeds;
 - (C) economic impact from crop loss as compared to crop yield when neonicotinoid treated article seeds are used;
 - (D) relative toxicities of different neonicotinoid treated article seeds and the effects of neonicotinoid treated article seeds on human health and the environment;
 - (E) surveillance and monitoring techniques for in-field pest pressure; and
 - (F) ways to reduce pest harborage from conservation tillage practices; and
 - (G) criteria for a system of acreage of neonicotinoid treated article seeds.
- A copy of the proposed rules shall be submitted to House Committee on Agriculture and Forestry and Senate Committee on Agriculture on or before March 1, 2024.