VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

AAFM Comments on H706 as passed

Potential Impacts on agricultural production
- Availability of seed variety and characteristics
- Increase in pesticide use
- Reduced forage yields
- Impact on use of cover crops

Potential Impacts on other pest management issues

State budget fiscal impacts

Agency actions to implement AIB Recommendations

BMPs for use of insecticide treated seeds

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

Seed genetic traits for insect management

- Many corn seed varieties include Plant Incorporated Protectants (PIP)
- These are primarily genes that produce B.t. toxins in leaves
- These protect against above ground corn pests – primarily Lepidoptera
- Use of these varieties reduces or eliminates the need for foliar application of pesticides
- These varieties are reported to not be available without insecticide coatings

Without PIPs and without insecticide seed treatments:

- Soil applied pesticides would be applied in-furrow
- Foliarly applied pesticides would be applied

Possible result would be an increase in pesticide use

List of genetic traits available:
\https://www.texasinsects.org/bt-corn-trait-table.html

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

Seed Corn providers in Vermont

Treated/untreated Corn

Distributor	Treated	Untreated
Bayer Crop Science	41,240	
Channel Bio	36,560	
FBN Inputs, LLC	1036	
Kent Nutrition Group, Inc	214	4
Loveland Products, Inc.	39,400	
Mycogen Seeds c/ Dow AgroSciences LLC	1,497,900	900
Pioneer Hi-Bred International, Inc.	576,315	
Seedway LLC	278,500	900
Syngenta Seeds, LLC	229,700	
Winfield Solutions LLC	89,150	
Pounds	2,790,015	1804
Tons	1395.008	0.902

Plant Incorporated Protection- Corn

Distributor	Pounds	Trait Packages
Kent Nutrition Group, Inc	2,450	HT, HT/IR
L.D. Oliver Seed Company Inc.	24,525	HT/IR
Loveland Products, Inc.	31,750	HT, HT/IR
Mycogen Seeds c/o Dow AgroSciences LLC	569,350	HT, HT/IR
Pioneer Hi-Bred International, Inc.	32,800	HT, HT/IR
Seedway LLC	519,200	HT, HT/IR
Syngenta Seeds	141,500	HT, HT/IR
Winfield Solutions, LLC	89150	HT, HT/IR
Pounds	1,410,725	
Tons	705.3625	

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

Corn insect management without PIPs

Foliar pesticides

Armyworms

Threshold: Whorled-sized plants—most plants show damage, 3 larvae/plant

Insecticide	Pounds Active Ingredient/A	Amount of Formulated Product
§ Lambda-cyhalotrin (*Warrior II)	0.02-0.03 (See label)	1.28—1.92 fl. oz./acre
chlorpyrifos (*Lorsban 4E)	0.5—1.0	1—2 pt./A
Min. days to harvest-21. Foliar application. Consult the label.		
§ Permethrin (*Pounce, *Ambush)	0.1—0.2	see label
Apply before brown silk formation. Consult the label.		

Cutworms

Threshold: 5% or more of plants cut. See text.

Insecticide	Pounds Active Ingredient/A	Amount of Formulated Product
chlorpyrifos (*Lorsban 4E)	0.5—1.0	1—2 pt./A
Min. days to harvest-21. Foliar application. Consult the label.		
§ Permethrin (*Pounce, *Ambush)	0.1—0.2	see label
Apply before brown silk stage. Consult the label.		
§ Lambda-cyhalotrin (*Warrior II)	0.015—0.025	0.96—1.6 fl. oz./acre

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

Corn insect management without PIPs

Soil applied pesticides

Tefluthrin - .327 lbs AI /acre - Synthetic pyrethroid – Federal RUP

Bifenthrin – 0.1 lbs AI/ acre – Synthetic pyrethroid – State RUP

Broflanilide – 0.0445 lbs AI/Acre – Diamide – State RUP

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

Economic impacts

- Elson Shields, Cornell University Research on stand losses due to seed corn maggot (SCM) (AIB 6/26/23 presentation)
- Seed treatment has helped farmers adopt the use of cover crops
  - "It is important to understand that in the absence of these seed protectants, farmers may revert to planting fewer cover crops to avoid losses to SCM"
- 2 year study looking at % stand loss with and without neonic seed treatment (2021-2022)

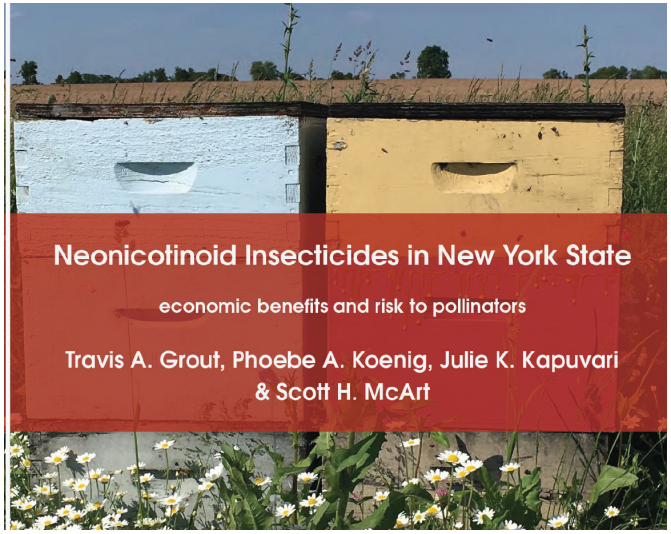
> "Research data collected in controlled studies during 2021 at the Cornell Musgrave Farm located in Aurora, NY shows that in corn production following a cover crop, seed corn maggot economically damaged 54% of the non-insecticide seed treated plots ranging from 11% to 62% stand losses."

Seed Corn Maggot, Stand Losses and the Need for Insecticide Seed Treatments - Elson Shields, Cornell University

Seed Corn Maggot, Stand Losses and the Need for Insecticide Seed Treatments – What's Cropping Up? Blog (cornell.edu)

For farmers focusing on silage production (40% of New York corn acres), the New York data set (n = 10 comparisons) indicates that neonicotinoid-treated seeds were more cost-effective than using fungicide-only seeds, resulting in a mean net income benefit of $61.42 per hectare (3% increase in income per hectare) relative to using fungicide-only seeds (see Table 5.8).

Similar to the yield results in Section 5.2.1, it is important to note that, when significant here and below, differences in mean net income were largely influenced by a small proportion of comparisons. This is because the yield data summarized in Section 5.2.1 are used in the calculation of net income effects and a small proportion of those trials observed significant differences in yield (see Table 5.2 and Figure 5.2). In other words, the data indicate that when there are overall economic benefits of using neonicotinoid-treated seeds, a small proportion of farmers will experience significant economic benefits, while the majority of farmers will not. Unfortunately, because variance was rarely noted in the underlying yield studies, it is not possible to estimate the exact proportion of farmers that are likely to experience significant net income benefits of using neonicotinoid-treated seeds, though the number is probably similar to the proportion of trials experiencing significant yield benefits.



VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

State Budget Fiscal Impact

Pesticide Registration Revenue –

Potential withdrawal of **170** neonicotinoid products - **$34,000** annually

Seed Registration Revenue - tonnage fees for neonicotinoid treated seed - 1,197.66 tons based on 2022 data. **$12,000** annually

Additional personnel resources –

Implementation of the provisions will require personnel resources:

Evaluations and determinations of need for exemptions

Evaluations and determinations of need for agricultural emergencies

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

H706 Exemption process

Agency will have obligation to evaluate agricultural seed market to determine if an exemption should be considered, and whether neonicotinoids are needed for other pests. This will require the services of:

- An agronomist – PG25 - $109,904.64
- An agricultural economist – PG26 - $115,108.74

These services will have to be provided by additional employees, or contracted services with an appropriately qualified vendor.

If there is a need for an exemption, a detailed evaluation of anticipated effects and a determination as provided in the bill will require at a minimum:

- A wildlife biologist – PG 24 - $105,158.28

Other professional staff will have to devote time to this effort, resulting in lack of time for other current work.

Additional resources may be needed for potential litigation

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

H706 comparison to NY legislation (A8571) Exemption process vs. Waiver process

H706 Exemption Process

Section 1105b (b) establishes exemption process
- by order of Secretary
- valid for no more than one year
- specify type of seed, geographic area

Requires a "detailed evaluation" of:
- agricultural seed market

Requires determination that, either:
- use of non-NTS seed would cause undue financial harm to growers
- there is not a sufficient amount of seed to meet needs

Requires a "detailed evaluation" of anticipated effects on:
- pollinator populations
- bird populations
- ecosystem health
- human health

Requires a determination of whether there will be "undue harm" to these.

Similar provision for exemptions for golf course use

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

H706 comparison to NY legislation (A8571) Exemption process vs. Waiver process

NY Waiver Process

§ 37-1101. 2. provides that Secretary of DEC (pesticide SLA) shall provide a waiver

- allowing use of NTS seed for agricultural production
- Valid for no more than two years
- Only applicable to farm for which waiver is granted
- Requires applicants to:
  - Complete IPM course
  - Provide a pest risk assessment and report
- Pest risk assessment can be based on scientific evaluation of risk factors
  - Planting date
  - Amount of decaying organic matter anticipated due to cropping practices
  - Cropping practice history
  - Pest prevalence
- DEC to develop rules for waiver process

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

H706 comparison to NY legislation (A8571) Exemption process vs. Waiver process

H706	NY provisions
Agency must make "detailed evaluations" and "determinations"	Grower applies for waiver
Agency must make detailed evaluations regarding anticipated effects - Pollinator populations - Bird populations - Ecosystem health - Human health impacts	Grower completes IPM Course Grower completes or contracts for pest risk assessment Grower provides pest risk assessment report to agency Grower maintains records
Agency must make determination that whether there will be "undue harm"	DEC establishes rule process for waiver
"undue harm" not defined – could be subject to litigation	Pest risk assessment can be based on scientific evaluation of risk factors
Process results in uncertainty for growers, seed distributors	Process provides for certainty and ability to plan for growers, seed distributors

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

Agency actions to implement AIB Recommendations

- 17 public meetings 2022-2023
- Review of literature and resources
- Expert witnesses and public comment
- Publicly accessible Meeting information
- 2022 Annual Report to Legislature
  - 2023 annual report in final review
- Report regarding BMPs for non-neonicotinoid treated article seeds (2/15/23)
- AIB Recommendations Regarding Best Management Practices (BMPs) For Neonicotinoid Treated Article Seeds - Final Report (1/2/24)

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

What does AIB recommend?

1. Support additional research:
   a) Study the impact of halo or legacy effect on pest populations from the almost universal use of neonic treated seeds since 1990
   b) Non-target dust movement with new seed treatment technology that reduces abrasion of seed treatment during handling and planting
   c) Effectiveness, unknown limitations, and market availability of seed lubricant alternatives to talc and graphite
   d) Impact of managing/mowing buffers at planting time of treated seeds
      i. Reducing pollinator habitat in areas at risk of exposure from planting treated seeds may conflict with other conservation programs or not feasible for farms
2. Education and training
   a) Develop IPM guidance for growers for how to reduce environmental impact of NTS
      i. Develop information (in collaboration with UVM) on toxicity and potential risk to pollinators, decision making, scouting, types of pests, & management practices
      ii. Develop regional monitoring reports that track the prevalence of the pests
   b) Ensure growers receive updates on relevant research
      i. Seed treatment technology innovations to reduce dust/abrasion
      ii. Seed lubricant alternatives
      iii. Impact of past use of NTS on present pest populations
      iv. Local data on feasibility of VT corn crops without neonicotinoid seed treatment (plant stand, yield, economic impact, cultural pest management practices)
   c) Educate growers about seed label language and how to follow the label

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

What does AIB recommend?

3. Support and promote efforts to increase pollinator habitat without impacting agricultural production
4. Important to build in a mechanism for review and reevaluation of recommendations, so guidelines can adjust as we learn
    a) Revisit policy recommendations after a defined period of time and evaluate based on measurable metrics

VERMONT
AGENCY OF AGRICULTURE, FOOD & MARKETS
www.Agriculture.Vermont.gov

Agency actions to implement AIB Recommendations

Research - contracting with UVM to conduct research on:

- Continuation of 2023 research plots and sample collection
- Quantitative study comparing dust emitted with vacuum planters using different seed lubricants (talc, graphite, alternatives)
- Qualitative survey/trials to gauge farmers' acceptance of alternative seed lubricants
- Monitor corn seed maggot damage in plots comparing different tillage and manure/cover crop practices (no-till manure cover crop VS plow-till manure cover crop etc.
- Monitor/test health of bee hives along with pollen testing for neonicotinoids, other pesticides

Participate in UVM IPM Education and Training on this issue

Expand Pollinator Health Study to include:

- Expanded pollen testing
- Foraging habitat characterization

Pollinator Habitat Improvement
developing project on native pollinators and blueberries
developing collaboration with Agency of Transportation and other agencies on improving pollinator habitat