

**VERMONT AGENCY OF AGRICULTURE, FOOD AND MARKETS (AAFM)
AGRICULTURAL INNOVATION BOARD (AIB)**

MEETING MINUTES

DATE: July 24, 2023

LOCATION: Vermont Agency of Agriculture, Food and Markets 94 Harvest Lane, Williston, VT 05495 –
Conference Room 210 / Virtual Microsoft Teams Meeting

Member	Present	Absent
St. Pierre, Amanda	x	
Beckford, Roy		x
Hazelrigg, Ann	x	
Chamberlin, Jonathan		x
Cutler, Clarice	x	
Ransom, Earl		x
Rebozo, Ryan	x	
Schubart, Steven	x	
Owen, Sarah		x
Harper, Wendy Sue	x	
DiPietro, Laura	x	
Dwinell, Steve	x	
Morgan Griffith	x	
Guests in Attendance		
Stephanie Smith Jill Goss John Tooker (Penn State University) Emilie Bergeron (CropLife Canada) Louis Robert Matt Wood Doug Johnstone Mitchell Bradley (Syngenta) Zach Szczukowski Kimberly Obrien (Bayer Crop Science) Lisa Fantelli Grace Ann Hasler (BASF) Lucas Rhoads (Natural Resources Defense Council)		

Meeting called to order: 1:00 PM EST

Meeting adjourned: 3:46 PM EST

Next meeting: Monday August 28, 2023

Agenda:

1:00 PM – Welcome, introductions, agenda, previous meeting minutes & action item review

1:05 PM – Dr. John Tooker, Professor of Entomology / State IPM Coordinator, Penn State College of Agricultural Sciences
Neonicotinoid Treated Seed and IPM in PA

2:00 PM – Louis Robert, Agronomist Emeritus, Ministry of Agriculture, Fisheries, Aquaculture, and Food of Quebec
Treated Seed Regulations in Quebec

2:40 PM – Emilie Bergeron, Vice President CropLife Canada
Neonicotinoid seed treatment requirements Ontario & Quebec: Impact, Benefits, Alternatives

3:10 PM – Morgan Griffith, Vermont Agency of Agriculture, Food & Markets
Overview of Health Canada’s Pest Management Regulatory Agency Neonicotinoid Regulations

3:40 PM – Workplan status, future meeting agendas

3:50 PM – Public Comments

4:00 PM – Adjourn

New Action Items

Action	Responsible Party	Complete? (date)
Ask PMRA: How do they regulate the prohibition of talc and graphite?	Morgan	
provide a recap of what AIB has heard relevant to each required topic	Morgan	

Ongoing Action Items

Action	Responsible Party	Complete? (date)
AIB members let Morgan know if eligible for per diem reimbursement to receive necessary paperwork	All eligible AIB members	
Compare crop acreage numbers to seed tonnage reports	AAFMM	

Welcome & Introductions, agenda, previous meeting minutes & action item review

- 6/26/2023 meeting minutes accepted without edits
- No additions/modifications to agenda

Dr. John Tooker, Professor of Entomology / State IPM Coordinator, Penn State College of Agricultural Sciences: Neonicotinoid Treated Seed and IPM in PA

- Ground beetle is important beneficial insect in field crops in PA because of their predation of slugs
- Take home messages – IPM is the paradigm for pest control
 - IPM focuses on pests that are economically concerning
 - Much of current insecticide use is insurance-based
 - Neonic use is rarely risk-based, it is preventative and forced

- Neonics disrupt ecological functions, can exacerbate pests
- No-till/Cover crops provide a base for conservation farming and IPM
- Progressive farmers will embrace IPM if they see the benefits
- Integrated Pest Management
 - Uses combo of biological, cultural, chemical tactics to control pests – use chemical as a last resort
 - Only use insecticide when there will be a return on investment
 - Key principles:
 - Avoid preventative insecticides, insecticides are last resort
 - Scout to know what pests are in your fields
 - Treat pest population if it exceeds economic threshold
 - Economic thresholds = pest density or damage that will lead to yield loss
- Field crop production tends to avoid IPM and uses a preventative strategy
- Insecticides are useful, but they are overused and always have been
 - Use has increased since introduced following WWII – steady increase every year
 - Most are used as insurance treatments
 - Decrease good insects, make pest problems worse, hurt beneficial insect populations, and other environmental concerns
- Research has shown soil function is highest with no insecticides (research on turf by Wickings, Cornell)
- Benefits of neonic seed treatments
 - Water soluble, can be absorbed by plants and take effect from the inside as systemic action
 - Can protect yield (only when pest is present)
 - Targeted application
 - Low dose, low mammalian toxicity and low toxicity to spiders and mites
 - Systemic activity for 2-3 weeks so the plant is protected when young and vulnerable
- Limitations of neonic seed treatments
 - Only protect plants for 2-3 weeks
 - Only 1-5% of active ingredients enter plants (from Purdue studies focused on soybeans and corn)
 - Yield benefits are inconsistent
 - Only 5-8% of fields have yield benefits (from Ontario research)
 - Water soluble so sufficient rain can wash them away
 - Pollute ground water
 - Persist in soil (7-7000 days)
 - Limit populations of beneficial insects – so some pest populations outbreak
 - Highly toxic to insects – among the most toxic insecticides ever developed
 - Toxic to some mammals via unexpected pathways (accumulating in spleen and genitals of deer and unclear how/why because is an unexpected mode of action)
 - High toxicity to some bird and fish species, but reasons for variability are unclear
- Their use as seed coating is not being tracked by federal government or most state governments
 - Douglas and Tooker, 2015 publication and Tooker et al 2017
 - Minnesota keeps track better than other states, crop chemical usage dominates neonic usage

- Amount of neonics onto land has been increasing
- Between 2011 and 2017 the amount of neonics deployed doubled (most as seed coatings) but this data is no longer collected through USGS
- Use of other insecticides are also increasing, not just a neonics
- At the Central PA research farm they see no yield benefit from neonic use (Pearson, Rowen, Tooker, unpublished)
 - Have done this for years and have never seen a yield benefit from neonic seed coatings
- Where does the neonic that is coated on the seed go?
 - > 90% into water, soil, non-crop plants, 2-3% taken up by plants, 2-3% lost as dust at planting
- Slugs are a significant pest in no-till field crops
 - Early season pest in corn and soybeans
 - Slugs/trap in untreated vs treated corn – see more slugs throughout the season when use
 - Neonic seed treatments exacerbate slug problems. By killing predators, slugs cause decrease in stand success and yield (Douglas PhD thesis, Douglas et al 2015)
 - More slugs leads to fewer soybean plants per hectare – more slugs per trap with neonic treated soybeans and fewer plants with more slugs per trap
 - More slug predators in control fields (non-neonic) so more predation (proportion killed)
 - More predation activity correlates to fewer slugs
 - Douglas, Rohr & Tooker 2015 Journal of Applied Ecology
 - 19% lower stand development when slugs and insecticides
- Do neonics limit decomposition? 3 year experiment
 - Control treatment is decomposing faster than neonic / pyrethroid treatment
 - 10% slower with neonics or pyrethroids because fewer decomposers
- Seed treatments decrease soil aggregate stability
 - Cover crop without seed treatment has less soil aggregate stability
- Bottom line
 - Manage for the pests you have and your farming goals
 - Preventative insecticides, particularly neonics can make pest populations worse and disrupt natural functions (i.e. pest predation, decomposition, soil aggregation)
- No-till makes conservation possible and fewer pests, no-till fields provide stability for habitat for beneficial organisms
 - Cover crops enhance good insect populations
- Penn State Diversified Dairy Cropping Systems Project
 - 2 year corn-soy rotation (Bt, seed treatments, broadcast pyrethroid) – high input
 - Pest populations have been worse with these practices
 - 2x 6 year rotations (cover crops alfalfa, corn, small grains) IPM (No Bt, no seed treatments, insecticides as necessary) – low input
 - When comparing these 2 rotation and pest management strategies, no difference until year 4-6 when there are significantly more slug predators in the low input 6-year rotation and subsequently more slug damage in high input
- Works with Pennsylvania No-Till Alliance (group of farmers advocating and educating for no-till practices)

- Their mission is Soil health through IPM, diverse rotations with cover crops, and no-till to decrease inputs
- Some farmers have difficulty finding corn without seed treatments so only use treated seed in corn rotation of program.
- Question: AIB has heard about the difficulty in scouting for wireworms & SCM. Do you scout for these pests in PA?
 - We don't scout for them routinely but have scouted 8 fields in 3 counties and found 1 wireworm
 - SCM don't tend to be problematic in no-till fields that are prevalent in PA
 - Have yet to see SCM as problem in the Diversified Dairy Cropping Systems Project
- Questions: what pests are you scouting for?
 - Black cutworm and true army worm and slugs. If we saw evidence that another pest was present we would begin scouting for it.
 - Other pests we are looking for are generalist defoliators i.e. Japanese beetles
- Question: were your control plots on land that had never seen neonic seed treatments before?
 - Were done on fields that did not receive previous neonic applications
- Question: what are your thoughts on planter modifications that direct exhausted dust to the ground?
 - Understand inclination to direct dust to ground instead of broadcast from the planter where it can cause potential exposure to pollinators and bees.
 - By our research insects on the ground will be just as affected if dust directed to the ground. So would far prefer an alternative solution to directing dust to the ground.
 - Frustrating that newer vacuum planters becoming more common. The old planters that do not move air around were just as good planting seed.

Louis Robert, Agronomist Emeritus, Ministry of Agriculture, Fisheries, Aquaculture, and Food of Quebec: Treated Seed Regulations in Quebec

- Louis retired from the Ministry of Agriculture last year and therefore is making this presentation not on behalf of the government or any other entity
- Quebec instituted multiple initiatives to reduce pesticide use in the province, 1992, 2011, 2020, but all incentives had no effects and could be considered failures
- When looking at amount of pesticides sold, glyphosate is 48-50% of all pesticides sold
- In the meantime monitoring by Ministry of Environment reported pesticides detected in most if not all streams, especially neonics
- Scientific evidence of neonic toxicity to bees
- Public concern grew stronger against neonics and public funded research showed no benefit to farmers from the use of insecticide-coated seed in 84 field crop trials (Labrie et al, 2020)
- In Spring 2019 Quebec passed a bylaw that required a recommendation from a registered agronomist in order to use atrazine, chlorpyrifos, clothianidin, thiamethoxam, and imidacloprid
 - In 2015 100% of corn and 50% soybeans treated with neonics and by 2021 0.5% are neonic treated seed
- What is the bylaw's impact on farmers?
 - No crop failures have been reported
 - No impact on yield

- More corn/soybeans in Quebec than VT and more than NY but 1/10 of what find in Minnesota and other larger producing areas
- Was surprised that farmers could get the seeds that they ordered without insecticide seed coatings
- Didn't encounter a lot of problems ordering, but companies expected that this would happen so perhaps were prepared – more and more varieties available as time went on

Emilie Bergeron, Vice President Chemistry CropLife Canada: Neonicotinoid seed treatment requirements Ontario & Quebec: Impact, Benefits, Alternatives

- Perspective on Provincial regulatory approaches to neonic seed treatments
- Regulating pesticides in Canada
 - Federal – Health Canada
 - Provinces responsible for sale, use, storage, transportation disposal can restrict
 - Municipalities could regulate use of pesticides
- Neonics extensively reviewed in Canada in past 10 years
 - Neonic seed treatment confirmed as safe because of Health Canada/federal review process
- Treated seeds integral part of IPM strategy
 - Protect plants when most at risk
 - Accurate placement in the seed bed reduces risk of exposure to both growers and non-target species
 - Volume of product on treated seed is less than what is required to treat with foliar applications
- Ontario regulation
 - Changes in 2020 were well received by industry because less burdensome
 - Requirements apply to purchase and planting but not the transport and storage
 - Requirements for growers
 - Complete IPM training (online or in person)
 - Complete once and does not expire
 - Receive certification that is used to purchase treated seed
 - Complete a risk assessment and pest risk assessment report
 - Scouting for pests, crop damage from previous years
 - Assessment completed once
 - Sign an IPM written declaration stating that IPM principles were considered in your decision
 - Certificate, report and declaration to be shown when buying treated seed
 - Considerations
 - Non-regulatory approach preferable
 - BMPs developed in collaboration with industry achieve same objective while minimizing regulator duplication of effort with federal level
 - Certification and assessment completed only once so less impact on resources
 - Recognize grower expertise and ability to make their informed decisions
 - Recognize use of seed treatment as part of IPM strategy
- Quebec regulation
 - Requirements adopted in 2018 (part of broader strategy on pesticide)

- Relatively new still more time to draw firm conclusions
- Adopted class 3A pesticides includes neonic treated seeds
- Quebec is a very small market compared to Ontario and Canada and Canada as a whole is already a very small market
- Obtain agronomic justification and prescription provided by certified agronomists
 - Agronomic assessment look at soil type, region, organic matter, tillage practices, crop rotation, pest presence
 - 3 levels of risk: low, moderate, or high - seed treatment only prescribed when risk level high
- Prescription only valid for 1 year
 - Not whole farm, prescriptions done by parcel
- Permit/certificate required for buying/applying pesticides
 - This is in addition to justification prescription
- Growers required to maintain pesticide registry – records kept for 5-year
- Financial penalties for non-compliance (\$250 - \$1.5 million)
- Sale of pesticides are to be reported annually to the government
- Impact on growers
 - Additional burden on growers while products already registered at federal level
 - Dramatic reduction of use of neonic treated seeds resulting in less options for growers to address pest issues
 - Limited number of agronomists providing prescription
 - Hard to find agronomist to do the work needed to prescribe justification for neonic treated seed
 - Insufficient market signals leading to less offered
 - Many growers have opted to keep insecticide treated seed, but choosing diamide treated seed
 - Lack of recognition of growers' ability to assess their fields and identify their needs – reliance on 3rd party
 - High impact on resources, financial and human for the growers, government and agronomist
- Science-based approach to support ag competitiveness
 - Align with federal regulations that are based on science-based risk assessments
 - Tools registered at the federal level should be available for use by growers in all provinces
 - When regulations make market unpredictable, it lowers incentive for industry to be a part of that market – especially when the market is small already
 - Allow for timely response in the field sometimes pest reaction require fast decision making that regulations don't always allow.
- With pest pressures and environmental conditions changing due to climate changes growers need all tools to be able to adapt
- Comment: it must be really hard to navigate different province approaches. Do you think Ontario will go the way of Quebec?
 - Ontario has done the reverse and dialed back their approach to ease the burden/red tap on the farmer

- Question: any impact on Quebec yield or income as a result of bylaw?
 - We don't have study to demonstrate this yet
 - Crop Life Canada and seed industry trying to quantify this – working on getting data to see impact
 - Have heard anecdotally that growers who have switched to conservation tillage and cover crop away from neonics now see pests in their field that will justify the need for neonics in their field.
 - Crop Life Canada is looking into data collected and methodology by Labrie et al

Morgan Griffith, Vermont Agency of Agriculture, Food & Markets: Overview of Health Canada's Pest Management Regulatory Agency Neonicotinoid Regulations

- This presentation further fulfills the request to learn about Canada's approach to neonic regulations at a federal level.
- Information is from Health Canada Pest Management Regulatory Agency (PMRA) which is equivalent to US EPA – they checked this presentation for accuracy
- [Neonicotinoid insecticides - Canada.ca](http://Neonicotinoid%20insecticides%20-%20Canada.ca)
- [Pollinator protection - Canada.ca](http://Pollinator%20protection%20-%20Canada.ca)
- PMRA is responsible for pesticide regulation in Canada and they started a series of scientific reviews of neonics in 2012 in response to reports of bee kills.
 - Instigated studies to determine risks to pollinators from exposure to neonics and conducted extensive water monitoring
 - PMRA published decisions on risks to pollinators and to aquatic invertebrates from exposure to clothianidin, thiamethoxam, and imidacloprid
- Starting in 2012, for 2 seasons a high incidence of bee deaths was reported when neonic-treated corn and soybean seeds were planted
 - deaths could be tied to exposure to dust generated during planting
- 2014 Health Canada introduced new requirements to limit the release of dust. Since then, bee incidents have decreased and remain low. Published requirement included:
 - Banned the use of talc and graphite and only allow the use of dust-reducing fluency agent
 - Question: How do they regulate the prohibition of talc and graphite?
 - **AAFM will ask PMRA contact – not sure the logistics of this requirement
 - Avoid loading and cleaning planting equipment near bee colonies or forage areas
 - Avoid engaging the system where dust could contact bee colonies
 - Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface
- Health Canada PMRA also published BMPs for protection of pollinators when using treated seeds:
 - Use IPM when choosing seed treatments
 - Develop and maintain shared communication among growers and beekeepers
 - Recognize pollinator habitat (weeds and flowering trees) and take care to reduce dust exposure
 - Avoid dust exposure by not planting on very dry and/or windy conditions when flowering resources, standing water, or bee yards are downwind

- Avoid generating dust when handling and loading the treated seed bags
- Clean and maintain planting equipment regularly, but in a way that wash water or vacuumed dust does not cause non-target exposure
- Dispose of the empty seed bags properly and to report any suspect pollinator pesticide poisonings
- PMRA conducted pollinator specific re-evaluations of imidacloprid, clothianidin, imidacloprid and published them in 2019.
 - All label amendments required by April 2021
 - Imidacloprid pollinator re-evaluation decision:
 - resulted in cancellation of some foliar and soil application uses
 - restrictions to applications to crops before or during bloom
 - additional label statements are proposed for the use of neonics as seed treatment on cereal and legume crops
 - Clothianidin pollinator re-evaluation decision:
 - Cancelled some foliar application uses and limited others
 - Additional label statements are proposed for use as seed treatment of cereal crops
 - Same general mitigation measures from thiamethoxam re-evaluation decision
 - Cancellation of some uses and additional label statements for seed treatments
- Example of Canadian label for Gaucho 480 FL imidacloprid insecticide that shows the additional required label statements for seed tags that outline toxicity to bees, only dust-reducing fluency agent permitted, link to BMPs, etc.
 - US Gaucho 480 FL label only requires statement about potential risk to birds so dispose of excess/spilled seed and seed packaging by burial away from water and cover or incorporate spilled seed.
- Aquatic invertebrate special reviews for clothianidin and thiamethoxam
 - Reviewed environmental data and neonic water monitoring data and published proposed special review decision in August 2018 which proposed cancellation of all ag uses
 - Received large amounts of neonic water monitoring data and had a stakeholder forum to examine the use of neonics in agriculture.
 - Health Canada considered new data and extensive comments and published final special review decisions in March 2021 with cancelled uses and mitigation measures implemented by March 2023
 - Clothianidin Special Review Decision risk to aquatic invertebrates
 - Assessed risk of exposure when applied as seed, foliar, or soil treatments
 - Mitigation measures included cancellation of in-furrow application on potato and seed treatment for field sown leafy vegetables and bunching onion
 - Reduced the maximum seed treatment rate for field corn and yearly maximum rate per hectare which limits the planting rates on various vegetables
 - Rate reduction for seed treatment of field corn results in the cancellation for the use for corn rootworm

- There were also foliar application relevant mitigation requirements
 - Thiamethoxam special review decision risk to aquatic invertebrates
 - Some uses were cancelled and maximum seed treatment rate for field corn and soybean was reduced which means uses as seed treatment for select pests are cancelled in these crops.
 - There are also mitigation measures relevant to soil drench, in-furrow, and foliar applications
- Health Canada is working on the Health, Environmental and Value Assessment Re-evaluations of clothianidin and thiamethoxam that are expected to be released in 2023
- Imidacloprid Health, Environmental and Value Assessment Re-evaluation was published in May 2021
 - Did not include risk assessment on pollinators because that was done separately
 - Human health risks are considered to be acceptable when used according to revised label instructions
 - Identified risks of exposure to aquatic invertebrates, birds and mammals
 - Risk mitigation measures and label updates had to be implemented by May 2023 and the cancelled imidacloprid products will be phased out
 - Risk mitigation measures:
 - Cancelled some in-furrow, soil drench and foliar uses. Only seed treatment cancellation was of use as seed treatment for corn flea beetle on field and sweet corn
 - Human health mitigation measures include PPE and engineering controls for seed treatment uses and label updates for REI and drift precautions
 - Reduction in maximum seed treatment rate for field corn, sweet corn, soybean and select vegetables
 - Labels are required to have standard statements informing users of the potential toxic effects to sensitive biota and identify spray buffer zones
 - Revisions to seed disposal instructions and the prohibition of broadcast seeding of treated seed
- Question: do EPA evaluations assess risk to beneficial insects (i.e. ground beetles)?
 - I am unsure, but I would assume that that is included in exposure assessments.

Workplan status, future meeting agendas

- Next month Scott McArt, author of [Cornell NY comprehensive neonic report](#) will present to the board
- Also have results from round 2 of the Agricultural Input survey to share
- **AAFAM will provide a recap of what AIB has heard relevant to each required topic
- Will be a general discussion of AIB members of next steps towards developing a recommendation for AAFM

Public Comments

- None

** - indicates action item