MCTF Pesticide Selection Subcommittee Meeting Minutes 10 19 21

Minutes for the Mosquito Control for the Twenty-First Century (MCTF) Task Force Meeting

Subcommittee Meeting: Pesticide Selection

October 19, 2021, 12:00 p.m. via Zoom

Bob Mann conducted roll call at 12:00 pm. A quorum was established. Subcommittee members in attendance included: Priscilla Matton, Brad Mitchell, Jennifer Pederson, Richard Pollack, Helen Poynton, and Nicole Keleher. Taryn LaScola provided a housekeeping update and added that Hotze Wijnja the chemist from MDAR will be at the meeting, given the topic of pesticide selection. Jan Connery (ERG Facilitator) reviewed the agenda for the group stating that at the last meeting, there was a clear desire to hear some important background information concerning pesticide registration and selection for Massachusetts and so Taryn and Priscilla, who have a lot of expertise in that area from different perspectives, both volunteered to give a presentation at this meeting.

Taryn reviewed the pesticide registration process and talked about FIFRA (Federal Insecticide Fungicide Rodenticide Act) enforced by the Environmental Protection Agency EPA, the Food Drug and Cosmetic Act, pesticide tolerances, residue, the Food Quality Protection Act Endangered Species Act, the Massachusetts Pesticide Control Act (MPCA MGL 132B) statute and 333 CMR state regulations. Additionally, she discussed pesticide definition and claims, federal vs. state definition, EPA, ecological risks, potential risks to human health (children and immune-suppressed individuals, endocrine disruption effect) and the environment, aggregate, cumulative and occupational risks, manufacturer labeling and confidential business ingredients under section 10 (quality control process, information disclosures on methods and testing of inert ingredients and what they are), buffers and the Food Quality Protection Act.

Taryn gave examples of enforceable language labeling and violation and types of language labeling, guidance, and classification and how that provided some extra guidance on how to use the product in the best way. Taryn mentioned that this type of language is not enforceable it's just informational, but the state has some general requirements that can be applied. Furthermore, Taryn stated that the EPA exempts products from registration if they contain specific active ingredients and inert ingredients as listed within FIFRA §152. Some examples of these ingredients are rosemary oil, garlic oil, thyme oil, calcium carbonate, beeswax. If a product contains active ingredients and inert ingredients that are on the very specific lists, then they can be exempt from the registration process. However, the active ingredient and inert ingredient must be listed on the label. Taryn discussed EPAs role in review and registration of the products on the federal and state levels and how a product gets registered in Massachusetts. Taryn noted the Pesticide Board Subcommittee (established by the Massachusetts Pesticide Control Act) consisted of five members: Designee for the Commissioner for MDAR, Department of Conservation and Recreation, Department of Public Health, Director for the Division of Food and Drug (also the Chair) and somebody representing commercial applicators.

Taryn discussed how products for aerial operations are chosen. The adulticide aerial applications are done by the State Reclamation and Mosquito Control Board (SRMCB) when there’s a public health hazard determined by DPH. The product used is Anvil, used since the early 2000s. Taryn explained that the products were reviewed by multiple state agency based on their efficacy, eco-toxicity data,

ecological risk to aquatic vertebrates, fish, environment, and recommendations for which product should be used.
Additionally, Taryn mentioned PFAS and noted the PFAS Task Force in Massachusetts and that EPA indicated that PFAS compounds are not allowed as ingredients in pesticides and are considered a contaminant.

Priscilla Matton (Superintendent at Bristol County Mosquito Control Project in Southeastern Massachusetts) was tasked with discussing how mosquito control districts choose products and when, where, and why. Priscilla stated that for mosquito control within Massachusetts, all the pesticides used are registered with the federal EPA and no 25(b) products are used. They're all approved by the pesticide subcommittee. New pesticides that have come out have been reviewed through Environmental Impact Report (EIR), and there is a memorandum of understanding (MOU) with MDAR and the Natural Heritage and Endangered Species program. All MCD applicators are licensed in the state of Massachusetts, and none of the products that we currently use are listed on the groundwater protection.

Priscilla talked about nuisance control and vector control. A vector is an organism that can transmit an infectious agent from an infected animal to a human or another animal. In Massachusetts, there are 53 different mosquito species; of those 21 that are currently vectors in Massachusetts for West Nile virus, EEE, and/or Jamestown Canyon (developing virus). So, of the 53 species, 21 can transmit West Nile Virus or EEE. Priscilla referred to Bristol County's data and how the trapping surveillance program is a snapshot of what's going on in the environment, specifically looking at vectors of the diseases of which they're looking to either reduce risk from or inform the public that there is risk. Priscilla noted in the last 15 years, almost 96% have shown to be competent vectors for EEE and 98% percent for West Nile virus. Furthermore, there's buildup of population followed by sustained activity over July, August, and September, before a cooler weather results in decrease. Almost all MCDs don't start adulticiding by truck until the 1st of June and stop by the beginning to the second week of September depending on temperatures and activity.

- Review of common classes of pesticides for mosquito control.

BTI and Bacillus Sphaericus class, which is a naturally occurring bacteria. It is noted that the important part to know for BTI and Bacillus Sphaericus was that mosquito larvae must be feeding at the time the application is made. It is noted that there are also larvicide oils. It is noted that these are effective against all immature stages because the pupae also need to breathe. There is also an insect growth regulator, Methoprene. Methoprene prevents the mosquito larvae from either advancing to the next stage or developing from the pupae stage. Methoprene works on the later stages, and it can work either through absorption or through ingestion. It is noted that this is important because this is something that then can work for a longer period of time or end later stages.

The subcommittee discussed how MCDs choose larvicides. Habitat type is a significant factor. Questions include: What kind of habitat is it? Can I get in by hand? Can I get in by airplane? Do I need a helicopter? How big is the area? How much product are we going to need to use? What's our accessibility? Is it possible that some areas may not be good areas to make an aerial application, because the product will not effectively reach the ground? It is noted that time of year matters because you can't use Methoprene in the fall. The mosquito is going to overwinter, so it's not going to advance onto that next stage and that would be a waste of product. Efficacy is closely review because there are certain species

that may not react as well to certain pesticides. Also, water quality can be a factor. It is noted that there are a lot of different factors related to habitat and the sheer volume of habitat can be significant.

The subcommittee discussed how MCDs choose adulticides. The common chemical class for adulticiding are pyrethroids. It is noted that in MA, this is the only class of adulticides that are used. Applications in Massachusetts are made between dusk and dawn. Of note though, many swampy areas are not accessible for applications, and there are several different areas in which truck-based application may be difficult. It is important to consider type of species. Questions include: Is it one of the 21 species that are capable of transmitting virus? What about the population size? For example, if you only have 10 mosquitoes in your environment, the whole cycle is going to be slower. If you have a million mosquitoes in that environment, the amplification cycle will be quick. It is noted that time of year is important because the MCD must apply product that is most effective against the type of mosquito populations. This includes the age of the mosquitoes in the populations. The species of mosquito that are concerning to MCDs bridging EEE into humans is Coquillettidia perturbans, a cattail mosquito. It is noted that this type of mosquito lives about three months. So, once it's very old in August, it's had an opportunity to take a lot of blood meals and can potentially be more deadly in the sense that it's had the opportunity to encounter EEE. Detection of virus is used as well. Mosquitos are collected all week, submitted the following Monday, and results are received back on Wednesday. Based on that time frame, the opportunity to control mosquitoes in a location was missed but it certainly lets the MCD know there's potential activity to determine surveillance needs. It is noted that detection tells the MCD there's a risk in the area and an adulticide could help reduce that risk.

- Questions from subcommittee members:

Jennifer Pederson commented that she knows what MCDs are doing and what the state is doing but there are also these companies that have popped up, like Mosquitos Squad, and others that are also spraying individual homes. In terms of the insecticides they use, can those applicators choose to do whatever they want, if it's approved by the federal and state? Taryn responded that the answer was yes. Taryn noted that one of the issues on the enforcement side was once you start using a product that are registered with EPA, license requirements and following our rules and regulations come into play, which includes recordkeeping and information left with the customer. Jennifer asked what the process was when using chemicals? Do you select certain applicators and go out and make sure that they're doing what they're supposed to be doing?

Taryn responded yes and that there are five pesticide inspectors with the state that go out and conduct routine inspections, follow up on complaints and conduct investigations. Taryn noted that there are about 10,000 or so licensed individuals. Jennifer noted that Priscilla stated that adulticiding by truck doesn't typically happen before June 1st, depending on what they see in surveillance but also depending on temperature. Priscilla responded that MCDs don’t make adulticide applications until after sunset or before sunrise. In late May/early June they spray between 2:00 a.m. and sunrise. It is noted that it can be very difficult to get temperatures above 55 degrees that early.

Brad noted that the private companies use much more persistent products than the mosquito projects do, which is something the group should be thinking about.

Brad commented on nuisance versus public health or vector, and noted that it is important to consider intent and planning when determining how to mitigation. The subcommittee should discuss what the intent is for control, and whether is it really designed for what we would expect for vector control. Brad

also commented on Taryn's presentation related to a previous CBI issue and noted that the pesticide board subcommittee did not have the ability to protect CBI. Brad recalled during a previous review the pesticide subcommittee board wouldn't register the product if they could not obtain the information under CBI.. Brad noted that the people that are most protective of CBI have the newer better products that they need to protect in the marketplace. Those newer, better products are typically the ones that are safer and more effective, which the state has an interest in.

Relative to nuisance versus vector control, Richard Pollack responded that of MGL 252, the enabling legislation was initially to control or eradicate mosquitoes. The projects were enabled to control mosquitoes because of the quality-of-life issue involved. Some of the active ingredients that are used for mosquito control are formulated as active ingredients in products that are registered by the Food and Drug Administration for use directly on human beings for treating certain parasitic infections or infestations. Those include pyrethrins, pyrethroids, malathion, spinosyns and so forth. Richard noted that these are in products that are labeled for use even directly on children, with exposure times somewhere between 10 minutes and 10 hours of direct contact with skin, depending on the product. Richard commented that he thought it was useful for everybody to keep that in mind when the same active ingredient was in something that was labeled for use directly on skin, sometimes for hours and at much greater concentrations and exposure.

Richard noted that in 2000, the state put together several working groups in response to the appearance of West Nile Virus in Massachusetts, and one of those working groups was entitled Pesticide Risk, which Richard was a part of. A report was developed from that workgroup of which he had provided to the Subcommittee. Many of the same questions that the subcommittee intends to discuss were addressed by that working group 20 years ago. Richard noted that it might be good to review what the issues were then, and what they may be today. Richard noted that Priscilla spoke at length about larvicide used against the vectors of EEE in West Nile virus. Richard asked how practical are larvicides against the main vectors of EEE and West Nile virus and is there something about the ecology of those most concerning mosquitoes that makes larviciding difficult?

Priscilla responded the two most important mosquito vectors for EEE, the amplification vector Culiseta Melanura lives in cryptic habitat, mostly in Hockomock Swamp, with red maple/white cedar swamp areas. They overwinter in that swamp as larvae, and it is very difficult to get the product into these crypts. Crypts are very tiny subterranean locations where water moves through. Bristol County MCD has been conducting experiments along with Plymouth County, to find a better way to get the product into the water. Priscilla noted it is very difficult and they have not had success in killing in the larval stage. The second most important mosquito for human transmission is Coquillettidia perturbans, which is the cattail mosquito. It overwinters in the larval stage. However, it siphons air directly from the root of the cattails, so it lives very down deep in the muck. It is also very difficult to control in the larval stage, when an MCD would normally make a larval application. Priscilla noted the issue with West Nile Virus, is that the mosquito species overwinters as adults. The female over winters with the virus, which then can start the cycle again the following year. They have more transit water, so sometimes it's more difficult to control. Priscilla noted that there is a lot of urban habitat for the species, including catch basins along the streets, so it is much more difficult to control those vectors through larval control.

Helen Poynton asked a question about pesticides that are labeled organic and whether or not they are the same as a 25(b). Do pesticides that are certified organic type have a separate registration process or the same registration process, but somehow get that label without certification? Taryn responded that if you want to have a USDA certified organic farm, then pesticides from the OMNRI (Organic Material

Review Institute) certified list can be used. OMNRI looks to meet the National Organic Program standards, that products have been naturally derived. It is not risk based at all. They certify products that are organic. It's part of the USDA marketing service but that is not a list that is regulated or looked at by the states or by EPA. Taryn noted that there are organic products that are registered pesticides and have gone through the process just like any other sort of traditional pesticide. The term organic has always been a little bit of a tricky one for folks because there is not great oversight as to what is organic and what is not.

Helen asked about what the process included in 2020 when the SRB re-reviewed the list of products that it used for spraying. Taryn responded that five state entities were involved: MDAR, Department of Environmental Protection, Division of Fisheries and Wildlife, Division of Marine Fisheries, and Department of Public Health. Taryn noted that there are about five or six different products that were reviewed, which included Anvil. Information was provided to the group relative to the toxicity, efficacy, and effects on aquatic organisms. That information was reviewed by each agency and then a recommendation was put forward to the SRB for an SRB vote, to determine which product would be used if an aerial application to occur in that year. Helen noted that the primary non-targets at risk from pesticides are aquatic invertebrates, especially crustaceans. She raised a concern that the MCTF report's calculation of risk for some pesticides did not include the risk to all non-target species. She also mentioned that after 2020 MCD spraying, some water bodies in MA had chemical levels above lethal levels for certain aquatic life.

Jan noted before the next meeting the subcommittee should review the relevant sections of the MCTF report - sections 1, 4, 5 and some of section 2, which is the control policy that is supposed to be a foundational document. Also, the group should consider the understory questions, consider ideas for recommendations the subcommittee should develop within the assigned directives, and identify any critical data gaps and key sources to fill those gaps. Seeing no other comments from the group, Bob Mann took a motion to adjourn the meeting. Priscilla Matton made a motion. Seconded by Richard Pollack. All in favor said aye. The meeting was adjourned at 2:00 pm.