



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333

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JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

Memorandum

To: Board of Pesticides Control

From: Pam Bryer, Toxicologist

Subject: Progress update on pesticides allowed for control of browntail moth near marine waters

Date: November 9, 2019

At the April 19, 2019 meeting, the board decided to reconsider the list of pesticide active ingredients written in policy that are allowed for control of browntail moth (BTM) near marine waters. This memo is an update of that project.

As a starting point, the Maine pesticide registration database was queried for all currently registered pesticides that state "gypsy moth" on their label. The Maine Forest Service suggested that identifying products labeled for use in the management of gypsy moth may assist in the identification of potential pesticides to be used for BTM management. Gypsy moths share several life history traits with BTM making them a good surrogate species. MFS previously objected to the use of imidacloprid for BTM management based on lack of demonstrated efficacy. As a result, pesticide products containing imidacloprid were eliminated from the preliminary list of pesticides to be assessed.

On October 10, 2019 MFS and BPC convened a BTM roundtable meeting. The roundtable was an opportunity to share BTM management updates amongst all stakeholders. This was also an opportunity to receive feedback from applicators on the proposed list of allowed pesticides. Prior to the meeting, MFS surveyed applicators to determine the common pesticides used for BTM management and observed pesticide efficacy.

At the BTM roundtable meeting:

MFS provided an update on the status of the population. Due to the long & wet spring, there were localized pockets of pathogenic fungus that seemed to have reduced several BTM populations. Current acre counts were not available for direct comparison to last fall's acre counts.

BPC provided a review of the current regulatory framework, the proposed timeline for this re-appraisal, and the proposed methodology for the ensuing risk assessment.

Dr. E. Groden, representing the University of Maine, provided an update on recent research. Her research has focused on attempting to determine a set of best practices for BTM control, primarily with biological pesticides: *BtK*, spinosad, azadiractin, and *Beauveria bassiana*. There is continued research on control measures that damage the winter webs; BTM webs have been found to have unique properties making them unexpectedly resilient.

Following these presentations, the group participated in an open discussion. Themes of this discussion included concerns over water quality; persistence of pesticide in tree tissues and subsequent movement into pollen and leaf drop; human health; impacts on non-target organisms; long-term effects; answering customers' concerns over pet health (including backyard chickens). There was no indication that active ingredients, beyond those provided in the aforementioned list, were found to be particularly effective. The following active ingredients were identified by the group as commonly used: acephate, spinosad, bifenthrin, permethrin, and emamectin benzoate. The only pesticides mentioned to have no clear effectiveness were "oils".

Following the BTM roundtable meeting, no new potential pesticides were added to or removed from the already created list. Currently, the BPC toxicologist is working on calculating risk quotients (RQs) for 42 conventional active ingredients. The biological active ingredients will be reviewed separately because their risk assessments are inherently different from conventional active ingredients.

The list of active ingredients proposed for review is attached.

Active Ingredients Currently Registered in Maine with Gypsy Moth Listed on the Label

+ Ornamentals + 2019	+ Forestry + 2019	+Assorted fruit trees + 2019	+ Cherries + 2019	+ Oaks + 2019
Abamectin (122804)	Abamectin (122804)			
Acephate (103301)	Acephate (103301)	Acephate (103301)	Acephate (103301)	Acephate (103301)
Acetamiprid (99050)	Acetamiprid (99050)	Acetamiprid (99050)	Acetamiprid (99050)	
Azadirachtin (121701)	Azadirachtin (121701)	Azadirachtin (121701)	Azadirachtin (121701)	Azadirachtin (121701)
Bacillus thuringiensis subspecies kurstaki strain SA-12 solides, spores, and insect	Bacillus thuringiensis subspecies kurstaki strain SA-12 solides, spores, and insect	Bacillus thuringiensis subspecies kurstaki strain SA-12 solides, spores, and insect	Bacillus thuringiensis subspecies kurstaki strain SA-12 solides, spores, and insect	
Bacillus thuringiensis, subspecies kurstaki strain SA - 11 solids, spores and insect	Bacillus thuringiensis Subsp. Kurstaki, Strain ABTS-351,fermentation solids, spores, and insect	Bacillus thuringiensis, subspecies kurstaki strain SA - 11 solids, spores and insect	Bacillus thuringiensis, subspecies kurstaki strain SA - 11 solids, spores and insect	
Bacillus thuringiensis subsp. aizawai strain GC-91 (6426)	Bacillus thuringiensis subspecies kurstaki, strain EVB-113-19 (6700)	Bacillus thuringiensis subsp. aizawai strain GC-91 (6426)	Bacillus thuringiensis subsp. aizawai strain GC-91 (6426)	
Bacillus thuringiensis Subsp. Kurstaki, Strain ABTS-351,fermentation solids, spores, and insect		Bacillus thuringiensis Subsp. Kurstaki, Strain ABTS-351,fermentation solids, spores, and insect	Bacillus thuringiensis Subsp. Kurstaki, Strain ABTS-351,fermentation solids, spores, and insect	
Bacillus thuringiensis subspecies kurstaki, strain EVB-113-19 (6700)		Bacillus thuringiensis subspecies kurstaki, strain EVB-113-19 (6700)	Bacillus thuringiensis subspecies kurstaki, strain EVB-113-19 (6700)	
		Bacillus thuringiensis, subsp. aizawai strain ABTS 1857 (6523)	Bacillus thuringiensis, subsp. aizawai strain ABTS 1857 (6523)	
Basic cupric sulfate (8101)		Basic cupric sulfate (8101)	Basic cupric sulfate (8101)	
beta-Cyfluthrin (118831)				
Bifenthrin (128825)	Bifenthrin (128825)	Bifenthrin (128825)	Bifenthrin (128825)	Bifenthrin (128825)
Canola oil (11332)		Canola oil (11332)	Canola oil (11332)	Canola oil (11332)
Carbaryl (56801)	Carbaryl (56801)	Carbaryl (56801)	Carbaryl (56801)	
Chlorpyrifos (59101)	Chlorpyrifos (59101)	Chlorpyrifos (59101)	Chlorpyrifos (59101)	
Chromobacterium subtsugae strain PRAA4-1 cells and spent fermentation media (16329)	Chromobacterium subtsugae strain PRAA4-1 cells and spent fermentation media (16329)	Chromobacterium subtsugae strain PRAA4-1 cells and spent fermentation media (16329)	Chromobacterium subtsugae strain PRAA4-1 cells and spent fermentation media (16329)	
Clothianidin (44309)		Clothianidin (44309)		
Cryolite (75101)		Cryolite (75101)		
Cytraniliprole (90098)		Cytraniliprole (90098)		
Cyfluthrin (128831)	Cyfluthrin (128831)	Cyfluthrin (128831)	Cyfluthrin (128831)	
Cypermethrin (109702)				
d-Allethrin (4005)				
Deltamethrin (97805)				
Dicrotophos (35201)				Dicrotophos (35201)
Diflubenzuron (108201)	Diflubenzuron (108201)	Diflubenzuron (108201)		
Dinotefuran (44312)	Dinotefuran (44312)			
Emamectin benzoate (122806)	Emamectin benzoate (122806)			
Esfenvalerate (109303)		Esfenvalerate (109303)	Esfenvalerate (109303)	

Active Ingredients Currently Registered in Maine with Gypsy Moth Listed on the Label

+ Ornamentals + 2019	+ Forestry + 2019	+Assorted fruit trees + 2019	+ Cherries + 2019	+ Oaks + 2019
Fats and glyceridic oils, margosa (25006)		Fats and glyceridic oils, margosa (25006)	Fats and glyceridic oils, margosa (25006)	
	Fenpropathrin (127901)	Fenpropathrin (127901)	Fenpropathrin (127901)	
Fluvalinate (109302)				
gamma-Cyhalothrin (128807)	gamma-Cyhalothrin (128807)	gamma-Cyhalothrin (128807)	gamma-Cyhalothrin (128807)	gamma-Cyhalothrin (128807)
				lambda-Cyhalothrin (128897)
Heat-Killed Burkholderia sp strain A396 cells and spent fermentation media (6534)	Heat-Killed Burkholderia sp strain A396 cells and spent fermentation media (6534)	Heat-Killed Burkholderia sp strain A396 cells and spent fermentation media (6534)	Heat-Killed Burkholderia sp strain A396 cells and spent fermentation media (6534)	
Indoxacarb (67710)				
lambda-Cyhalothrin (128897)	lambda-Cyhalothrin (128897)	lambda-Cyhalothrin (128897)	lambda-Cyhalothrin (128897)	
Mancozeb (14504)	Mancozeb (14504)	Mancozeb (14504)	Mancozeb (14504)	Mancozeb (14504)
Methoxyfenozide (121027)	Methoxyfenozide (121027)	Methoxyfenozide (121027)	Methoxyfenozide (121027)	
Methyl bromide (NO INERT USE) (53201)	Methyl bromide (NO INERT USE) (53201)	Methyl bromide (NO INERT USE) (53201)	Methyl bromide (NO INERT USE) (53201)	
Naled (34401)		Naled (34401)		Naled (34401)
Novaluron (124002)		Novaluron (124002)	Novaluron (124002)	
Oxydemeton-methyl (58702)	Oxydemeton-methyl (58702)	Oxydemeton-methyl (58702)	Oxydemeton-methyl (58702)	
Permethrin, mixed cis,trans (109701)	Permethrin, mixed cis,trans (109701)	Permethrin, mixed cis,trans (109701)	Permethrin, mixed cis,trans (109701)	Permethrin, mixed cis,trans (109701)
Phosmet (59201)	Phosmet (59201)	Phosmet (59201)	Phosmet (59201)	Phosmet (59201)
Piperonyl butoxide (67501)	Piperonyl butoxide (67501)	Piperonyl butoxide (67501)	Piperonyl butoxide (67501)	Piperonyl butoxide (67501)
Potassium salts of fatty acids (79021)	Potassium salts of fatty acids (79021)	Potassium salts of fatty acids (79021)	Potassium salts of fatty acids (79021)	
Pyraclostrobin (99100)	Pyraclostrobin (99100)	Pyraclostrobin (99100)	Pyraclostrobin (99100)	Pyraclostrobin (99100)
Pyrethrins (69001)	Pyrethrins (69001)	Pyrethrins (69001)	Pyrethrins (69001)	Pyrethrins (69001)
Pyridalyl (295149)		Pyridalyl (295149)	Pyridalyl (295149)	
Soybean oil (31605)	Soybean oil (31605)	Soybean oil (31605)	Soybean oil (31605)	
	Spinetoram (major component (4,5-dihydro)) (110008)	Spinetoram (amixture of spinetoram-J and spinetoram-L) (110007)	Spinetoram (amixture of spinetoram-J and spinetoram-L) (110007)	
		Spinetoram (major component (4,5-dihydro)) (110008)	Spinetoram (major component (4,5-dihydro)) (110008)	
Spinosad (110003)	Spinosad (110003)	Spinosad (110003)	Spinosad (110003)	
Tebufenozide (129026)	Tebufenozide (129026)	Tebufenozide (129026)	Tebufenozide (129026)	
Tetramethrin (69003)				
Thiamethoxam (60109)				
Zeta-Cypermethrin (129064)	Zeta-Cypermethrin (129064)	Zeta-Cypermethrin (129064)	Zeta-Cypermethrin (129064)	