

April Twilight Meeting

Coordinated by: Carrie Denson



April 28th, 2020

Welcome to April Twilight Meeting Agenda for tonight: Gary Pavlis: Open meeting Nick Vorsa Peter Oudemans Thierry Besancon Gary Pavlis Carrie Denson Cesar Rodriguez-Saona Dean Polk Gary Pavlis: Close meeting



Opening Comments

- Frost damage
- ProGibb
- <u>https://www.nj.gov/dep/enforcement/pcp/bpo-</u> recert.htm
- Pesticide applicators can obtain 2 Core units and 4 units in each Category that they are certified in over their 5 year recertification period by completing the following online courses:





Nick Vorsa









































Blueberry Twilight Meeting

Peter V Oudemans



2020 Items for concern

- Frost and frost damage
- Pollination
- Botrytis scouting and management
- Anthracnose management



Recognizing Botrytis





Movement and Spread





Berry Infection





Late Season Issues





In Season Blueberry Disease Management Northeastern USA



Fungicides labeled for Blueberry Production in the USA. Local restrictions may apply, always consult the label! This table is intended to provide information on effectiveness for diseases that appear on the label plus additional diseases that may be controlled from application. — indicates insufficient data; +++ = good control; ++ = moderate control; + = some control; 0 = not recommended for use											
PESTICIDE	FRAC	REI (HR)	PHI (DAY)	AERIAL	IMPORTANT NOTES	Anthrac- nose	Botrytis	Mummy Berry	Root Rot	Alter- naria	Twig Blight
Azoxystrobin*	11	4	0	Yes	3 applications maximum; utilize resistance management strategies for Group 11 (Page 9)	+++	++	+++	0	++	0
Abound, Aframe, Satori etc. There are over 30 products that contain azoxystrobin. Always read the label and be sure the formulation contains the expected concentration of active ingredient.											
Captan (many formulations)	M4	72	0	Yes	No more than 70 lb of the 50WP or 43.75 lb of the 80WP can be applied during 1 crop cycle. Do not mix with oil or solvent based pesticides.	++	++	+	0	+	0
Captevate	17& M4	72	0	No	Contains both Captan and Elevate therefore an application of this material counts as both Captan and Elevate	++	+++	+	0	+	0
Elevate	17	12	0	No	Same active ingredient found in Captevate	0	+++	0	0	0	0
Inspire Super	3&9	12	7	Yes	Up to 4 (high rate) or 5 (low rate applications per year. Cross reference with Quadris Top and Switch to calculate number of applications	+++	+++	+++	0	++	++
Luna Tranquility	7&9	12	0	Yes	This fungicide is also effective against powdery mildew	÷	+++	?	0	?	+
Miravis Prime	7 & 12	12	0	Yes	Two applications maximum per season	++	+++	+++	0	+++	++
Omega	29	12	30	No	Use up to 6 applications per season. Allergic reactions may occursee label	+++	+++	0	0	+++	++
Pristine	11 & 7	24	0	Yes	DO NOT mix this fungicide. 4 applications maximum. Effective against powdery mildew	+++	+++	+++	0	++	0
Proline	3	12	7	No	Two applications maximum per season	+++	++	+++	0	+	+++
Propulse	3&7	12	7	No	Two applications per season	+++	++	+++	0	++	+++
Quadris Top	3 & 11	12	7	Yes	Do not exceed 4 applications (see page 9)	+++	+	+++	0	++	+++
Switch	9&12	12	0	No	Do not use more than 56 oz/acre per season	+++	+++	++	0	0	0
Ziram76DF Ziram XCEL	М3	48	14	No	A new 24C SLN is being issued. Use a PHI of 20-30 days to avoid visible residues on fruit.	+++	++	0	0	+	0

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Blueberry Twilight Meeting – April 28th, 2020



Alternative Options to Paraquat for Highbush Blueberries



New 2020 Paraquat Requirements

 Paraquat dichloride **GROUP 22 HERBICIDE** Restricted Use Pesticide Parazone[®] 3SL Gramoxone[®]SL 2.0 **HELMOUAT 3SL Firestorm**[®] Quik-Quat[™]

What has changed with paraquat products?

- Only certified applicators can legally apply paraquat.
- A non-certified applicator may not use paraquat even if working under the supervision of a certified applicator.
- Certified applicators must successfully complete an approved paraquat training at least once every three years.

Why using Paraquat?

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- Efficient postemergence herbicide on both annual grass and broadleaf weed seedlings.
- Inexpensive herbicide / generic brands.
- Limited risk of crop injury (contact herbicide) if applied appropriately...
- No paraquat-resistant weeds in NJ.
- BUT... very high toxicity!

What labeled herbicide to effectively replace paraquat?

Gramoxone 4 qt/A - 7 DAT



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Other POST herbicides labeled for use on highbush blueberry

Grasses targeted	Broadleave s targeted	Grasses + Broadleave s targeted
Poast	Sandea	Roundup
Select	Aim EC	Rely 280
Fusilade	Callisto	(Quinstar)
	Stinger	

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Sandea 75DF



Halosulfuron – MOA 2

- For established fields 1 year or longer.
- Sandea has PRE and POST activity.
- Control seedlings of pigweeds and ragweed.
- Suppress <u>yellow nutsedge</u>.
- Weak on nightshade, smartweed, and lambsquarters.
- No activity on grasses and perennials.
- ALS-resistant horseweed will survive...
- Tank-mix partner needed for broader control + NIS
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Sandea 1 oz/A - 7 DAT







Aim EC



Carfentrazone – MOA 14

- For established fields 1 year or longer.
- Carfentrazone has only POST activity.
- Acts <u>by contact</u> on many <u>annual broadleaf</u> weeds no taller than 2-3".
- No activity on grasses, perennials, and some annuals thick-leaved annual broadleaves (cocklebur, jimsonweed, and common purslane).
- Complete foliar coverage is critical (NIS).
- Tank-mix partner needed for broader control.

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Callisto / Motif Mesotrione – MOA 27



- For newly planted or established fields.
- Mesotrione has both PRE and POST activity.
- Systemic herbicide (bleacher) but Vaccinium sp. have excellent tolerance to mesotrione.
- Excellent annual broadleaf herbicide, except for some species (common purslane, common ragweed)
- Not effective on grasses
- Tank-mix partner needed for grasses + COC.

Stinger Clopyralid – MOA 4



- 24(c) Special Local Need label expires 12/2020
- Label only available online: <u>www.cdms.net</u>
- For established fields 2 years or longer.
- Stinger has PRE and POST activity.
- For newly planted or established fields.
- Do NOT apply Stinger from one week prior to bloom until one week after bloom.
- Do **NOT** add adjuvant (increased risk of injury).

Stingers targets EXCLUSIVELY

and

Leguminous







Credit: Chris Evans, University of Illinois, Bugwood.org

Composites



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Quinstar

QUINSTAR® 4L

- Quinclorac MOA 4
- Mesotrione has both PRE and POST activity on susceptible species.
- Susceptible weeds: bindweed, Canada thistle, large crabgrass, barnyardgrass, foxtail
- NO control of goosegrass or other weeds.
- Bindweed control: apply in fall before 1st killing frost on actively growing bindweed at least 4" tall. Add COC + AMS for enhanced control.



Rely / Interline Glufosinate – MOA 10





- For newly planted or established fields.
- Glufosinate has only POST activity.
- Will control most emerged annual grasses and broadleaf weeds" + some perennials (goldenrod, bindweeds).
- Contact herbicide with local translocation activity ("hotter" than paraquat).
- Weed size will be critical for good control:
 - ⇔ Grasses ≤ 3-4"
 - \Rightarrow Broadleaf: 4 to 6" depending on species

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Rely 280 - 7 DAT



Horseweed - Rely 280 48 fl oz/a

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Rely 280 - 7 DAT



Rely 280 injury on highbush blueberry

To conclude...

- No other POST herbicide will provide similar benefits to paraquat...
 - Most herbicides will require mixing a graminicide (Select, Poast, Fusilade) if you have goosegrass.
 - ⇒ Considering weed size will be more important than with paraquat for achieving good weed control.
 - ⇒ Glufosinate is interesting for weed control but can increase the risk of herbicide injury.
 - Some of these herbicides may be interesting to consider because of their dual activity (Callisto).

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Blueberry Fertility Update

Dr. Gary C. Pavlis Rutgers Cooperative Extension pavlis@njaes.rutgers.edu



What have we done to increase yield and quality?

- Monitor pH
- Annual leaf analysis
- Monitor and correct any nutrient deficiency
- Apply fertilizer at the most efficient time for uptake
- Fertigate for maximum efficiency
- Prune correctly
- Control weeds

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Nitrogen deficiency





Phosphorus deficiency





Potassium deficiency



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Boron deficiency





Iron chlorosis





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Iron deficiency





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Copper?





Nutrient	Product	Method	Rate
Boron	Solubor20	Foliar	l.51b./A
Boron	Solubor20	Ground	51b./A
Boron	Boraxll	Ground	lOlb./A
Copper	Cu chelate	Foliar	Label Rate
Iron	Fe chelate	Foliar	Label Rate
Mn	Mn chelate	Foliar	Label Rate
Mn	Mn sulfate	Foliar	2 lb./A
Zn	Zn chelate	Foliar	Label Rate



Dormant Fertilization was norm 10 years ago





Old Method: Dormant & petal fall

New Method: Petal fall & 6 weeks later

Newer Method: Spread out the application over 6 weeks starting at bud break



Yield as affected by fertilizer timing and method





pH factors to consider

- The pH of your irrigation water.
- The breakdown of the soil organic matter.
- The pH of your mulch
- The lower the % OM and CEC, the faster the soil pH will decrease with time.
- As pH increases so does fruit firmness.



Fertilizer keys

- Timing makes fertilizer more efficient/saves money.
- pH is too low on New Jersey fields.
- Leaf analysis is the only way to go.
- High soil P does not mean you don't apply P.
- Iron deficiency sometimes is not a function of high pH, especially with 'Duke'.
- Boron is different from the other micros.
- Micro teas are a No NO.
- Using Ammonium Sulfate decreases pH.
- Spreading fertilizer applications out results in more yield.

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What we saw for the Month of April!!!

Carrie Denson Program Associate Twilight Meeting 4/28/2020



Week Ending 4/3





Report Totals for Week Ending 4/3

Farmer Sites 41 Total (AC & BC)	Cranberry Weevil #per bush	Leafroller # per bush
Avg	0.643	0
Max	7.6	0

First Cranberry Weevil was capture the week of March 20th



Report Totals for Week Ending 4/12

Farmer Sites 64 Total (AC & BC)	Cranberry Weevil #per bush	Leafroller # per bush
Avg	1.0	0.004
Max	19	0.1



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Week ending 4/18





Report Totals for Week Ending 4/18

Farmer Sites 91 Total (AC & BC)	Leafroller # per bush	Plum Curculio #per bush
Avg	0.005	0.004
Max	.1	0.3

First Capture of Plum Curculio was on April 15th



What to expect in the month of May!!!

- Scouting will still continue bi-weekly for anyone that is part of the IPM program.
- Talked with Dean on Monday and sounds like we might be able to hire scouts!!!



Looking forward to another year working with you all!!!!

If you need me call/text 609-313-2406

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School of Environmental and Biological Sciences

CONTROL STRATEGIES FOR MID-SEASON INSECT PESTS

<u>Cesar Rodriguez-Saona</u> P.E. Marucci Blueberry/Cranberry Research and Extension Center
BLUEBERRY INSECT/MITE PESTS

New Jersey Agricultura Experiment Station

ERS

Growth stage	pre	e-bl	oor	n	bl	oon	า	m	id-s	eas	on	pre	-ha	rves	st	h	arve	est	р	ost	-har	vest
Scale																						
Cranberry weevil																						
Leafrollers																						
Spanworms																						
Gypsy moth																						
Thrips																						
Gall midge																						
Plum curculio																						
Cranberry fruitworm																						
Aphids																						
Leathoppers																						
Leafminers																						
Oriental beetle																						
Blueberry maggot																						
Spotted wing drosophila																						
Japanese beetle																						
BB bud mite																						

Bars show period when scouting and management of the pest is most important.

BLUEBERRY INSECT/MITE PESTS

New Jersey Agricultura Experiment Station

ERS

Growth stage	pre-l	oloon	n	l	bloor	n	m	id-s	eas	on	pre	-ha	rves	t	ha	arve	est	р	ost-	har	vest
Scale																					
Cranberry weevil																					
Leafrollers																					
Spanworms																					
Gypsy moth																					
Thrips															M			4	*	* .	
Collmidge														1		7	-				
Plum curculio																	12	-	4		
Cranberry fruitworm																	9	8		>	
Aphids																			1	-	
Leafhoppers																-			4	-	
Leafminers																					
Oriental beetle																					
Blueberry maggot																					
Spotted wing drosophila																					
Japanese beetle																					
BB bud mite																					

Bars show period when scouting and management of the pest is most important.



PLUM CURCULIO

- Active during bloom.
- Scout for the semi-circular scar on the fruit.
- Spray as soon as bees as removed.

<u>Chemical Control</u> Avaunt Brigade WSB Danitol 2.4EC Imidan 70WSB



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WHAT IS NEW?

New insecticide

Apta® Nichino America, Inc. TOLFENPYRAD

Apta® Insecticide provides an alternate mode-of-action on a wide range of pests.

Apta inhibits cellular respiration in the insect, facilitating anti-feeding behavior.

Target pests listed in label:

- Aphids
- Cranberry weevil
- Blueberry maggot
- Cranberry fruitworm
- Leafhoppers
- Scales
- Plum curculio
- Thrips



Marking studies on PC movement within blueberry fields.



BLUEBERRY INSECT/MITE PESTS

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Growth stage	pre-bloom	bloom	mid-season	pre-harvest	harvest	post-harvest
Scale						
Cranberry weevil						
Leafrollers						
Spanworms						
Gypsy moth						
Thrips						
Gall midge						
Plum curculio						and and a second second
Cranberry						5
Aphids						
Learnoppers						
Leafminers						X
Oriental beetle						
Blueberry maggot						
Spotted wing drosophila						
Japanese beetle						
BB bud mite						

Bars show period when scouting and management of the pest is most important.

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BLUEBERRY APHIDS





- Illinoia azaleae
- Many species of aphid found in blueberry – state specific
- Aphids transmit viruses shoestring, scorch
- Overwinter as eggs on bushes
- In spring, eggs hatch before bloom and young aphids seek new foliage
- Populations build during June and July, by parthenogenetic reproduction
- Some winged forms may be produced once colonies are crowded, and move within or between fields
- Fall conditions stimulate true males and egg-laying females

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NEW MANAGEMENT TOOLS



BUSHBERRY – FOLIAR

Crops of Crop Subgroup 13-07B (except Cranberry) Including: Aronia berry, Blueberry (*Vaccinium* spp. – highbush, lowbush and cultivars and/or hybrids of these [= all blueberry species]), Chilean guava, Currant (black, buffalo, native and red), Elderberry, European barberry, Gooseberry (*Ribes* spp.), Honeysuckle (edible), Huckleberry, Jostaberry, Juneberry, Lingonberry, Salal, Sea buckthorn, and cultivars, varieties and/or hybrids of these

Pests Controlled	Product Rate (fl oz/A)
Aphids	7.0 – 10.5
Blueberry thrips- <i>Frankliniella vaccinii</i> (feeding damage reduction)	10.5 – 14.0
Blueberry maggot	12.0 – 14.0

Foliar Application Restrictions:

Pre-Harvest Interval (PHI): 3 days

Minimum interval between applications: 7 days

Minimum application volumes: 25 gallons/Acre (Ground); 2 gallons/Acre (Aerial)

Maximum SIVANTO 200 SL allowed per year: 28.0 fluid ounces/Acre (0.365 lb Al/Acre).

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NEW MANAGEMENT TOOLS





Crops of Crop Subgroups 13-07B and 13-07H Including: Aronia berry, Bearberry, Bilberry, Blueberry (highbush and lowbush), Chilean guava, Cloudberry, Cranberry, Currant (black, buffalo, native, and red), Elderberry, European barberry, Gooseberry, Edible honeysuckle, Jostaberry, Juneberry, Muntries, Lingonberry, Partridgeberry, Salal, Sea buckthorn, and cultivars, varieties, and/or hybrids of these.

Pests (Controlled	Product Rate				
Aphids	Cranberry Tipworm	(fl oz/A)	(Ib ai/A)			
Blueberry Gall Midge	Thrips (larvae)	8.0 - 10.0	0.13 - 0.16			
Pests S	uppressed	Product Rate				
Blueberry Maggot		(fl oz/A)	(Ib ai/A)			
Leafhoppers		10.0	0.16			



EFFICACY TRIALS





EFFICACY TRIALS



BLUEBERRY INSECT/MITE PESTS

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ERS

Growth stage	pre-bl	oom	b	loom	mie	d-seas	on	pr	e-ha	rves	t	ha	rves	st	ро	ost-l	har	vest
Scale																		
Cranberry weevil																		
Leafrollers																		
Spanworms																		
Gypsy moth																		
Thrips																		
Gall midge																		
Plum curculio																		
Cranberry fruitworm																		
Aphids								1	18 6	SE)	190	14.90	10	10				
Leafhoppers								1/2	757		1 ser	13	22					
Leafminers									der	Y -	1 and	12						
Oriental beetle									Test	17	1		T P					
Blueberry maggot									A	T								
Spotted wing drosophila														A.				
Japanese beetle																		
BB bud mite																		

Bars show period when scouting and management of the pest is most important.

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ORIENTAL BEETLE





- Anomala [=Exomala] orientalis
- Oriental beetle is the most important soil feeding insect on NJ blueberries
- Oriental beetle is rapidly spreading throughout the USA and Canada
- Impact is more severe on young plantings
- Pheromone traps are highly effective in attracting adult beetles



MATING DISRUPTION

- Many insect species use pheromones for intraspecific communication
- Sex pheromones used to attract opposite sex
- Mating disruption is the disruption of sexual communication to prevent mating







MATING DISRUPTION

- Oriental beetle mating disruption- Bubbles AgBio Inc. http://www.agbio-inc.com/
- For oriental beetle control
- 20 dispensers per acre
- Now registered:
 \$62.50 (package of 25)





MATING DISRUPTION



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BEETLE GONE!



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NEMATODES



CONTAINS STEINERNEMA SCARABAEI: NATURE'S BEST DEFENSE AGAINST WHITE GRUBS.

STORAGE INSTRUCTIONS

Store in original packaging in a cool, dark place. Avoid freezing and protect from direct sunlight. Shelf stable for up to three months without refrigeration. Refrigerate (8°C) to prolong shelf life.

DIRECTIONS FOR USE

Remove all filters from the application equipment. Do not apply with pesticides. Mix entire contents of package with cool water to form a solution and stir occasionally to ensure thorough mixing. **BACKPACK SPRAYER APPLICATION:** Mix one package in 15L of water to form a solution. For each 2L of the solution, add 13L of water to treat 140 m² or 1,500 ft². Repeat with rest of solution. **BOOM SPRAYER APPLICATION:** Partly fill tank with water. Start agitator and keep running until application is complete. Mix one package in 15L of orm a solution and add to the sprayer tank. Fill tank with required volume of water and apply minimum 8L per 90 m² or 1,000 ft².

STANDARD RATE: ONE PACKAGE WILL TREAT 900 - 1,100 M2 OR 10,000 - 12,000 FT2.

FOR BEST RESULTS

Apply mid-August to mid-October (for British Columbia, as early as July) when soil temperatures are between 12°C and 25°C. For curative treatments apply in the spring when soil temperatures allow. Apply during low light periods. Early mornings or evenings or cloudy sky conditions are best. Water the treated area directly after application with 3mm (1/8th of an inch) of water. Keep soil moist for up to two weeks after application for the nematodes to get established. Avoid applying to dry or over-saturated soil.

CONTENTS: MINIMUM 225 MILLION S. SCARABAEI BENEFICIAL NEMATODES. COVERS UP TO 1,100 M² or 12,000 Ft². Contenu: Au Moins 225 millions S. Scarabaei nématodes bénéfiques. Couvre Jusqu' à 1,100 M² ou 12,000 Pi².

DISTRIBUTED BY: / DISTRIBUEE PAR:

BEST BEFORE / MEILLEUR AVANT:



935023 Airport Road Mono ON L9W 6C6 www.LawnLifeNaturalTurfProducts.com





WHAT ARE WE DOING?

On-going Research:

- Study the movement of plum curculio
- Test new insecticides (Apta) against plum curculio
- Test BeetleGONE! and Nemagard against Oriental beetle



Blueberry 'Twilight Meeting' 04/28/20 Insecticides, Market MRLs and Ratings for SWD

Dean Polk Fruit IPM Agent



Market	Trade Name	Active Ingredient	Pesticide Type	MRL (ppm)	Use	SWD Rating
Canada	Assail	Acetamiprid	Insecticide	1.6	Y	+
European Union	Assail	Acetamiprid	Insecticide	2	Y	+
United States	Assail	Acetamiprid	Insecticide	1.6	Y	+
Canada	Brigade	Bifenthrin	Insecticide	3	Y	+++
European Union	Brigade	Bifenthrin	Insecticide	3	Y	+++
United States	Brigade	Bifenthrin	Insecticide	1.8	Y	+++
Canada	Sevin	Carbaryl	Insecticide	7	Y	+
European Union	Sevin	Carbaryl	Insecticide	0.01	Ν	+
United States	Sevin	Carbaryl	Insecticide	3	Y	+
Canada	Altacor	Chlorantraniliprole	Insecticide	0.35	Y*	-
European Union	Altacor	Chlorantraniliprole	Insecticide	1.5	Y	-
United States	Altacor	Chlorantraniliprole	Insecticide	2.5	Y	-
Canada	Exirel	Cyantraniliprole	Insecticide	4	Y	+++
European Union	Exirel	Cyantraniliprole	Insecticide	4	Y	+++
United States	Exirel	Cyantraniliprole	Insecticide	4	Y	+++
Canada	Verdepryn	Cyclaniliprole	Insecticide	1.5	Y	++
European Union	Verdepryn	Cyclaniliprole	Insecticide	0.01	Ν	++
United States	Verdepryn	Cyclaniliprole	Insecticide	1.5	Y	++
Canada	Diazinon	Diazinon	Insecticide	0.1	Ν	+++
European Union	Diazinon	Diazinon	Insecticide	0.01	Ν	+++
United States	Diazinon	Diazinon	Insecticide	0.5	Y	+++



Market	Trade Name	Active Ingredient	Pesticide Type	MRL (ppm)	Use	SWD Rating
Canada	Asana	Esfenvalerate	Insecticide	0.1	N	+++
European Union	Asana	Esfenvalerate	Insecticide	0.02	N	+++
United States	Asana	Esfenvalerate	Insecticide	1	Y	+++
Canada	Danitol	Fenpropathrin	Insecticide	3	Y	+++
European Union	Danitol	Fenpropathrin	Insecticide	0.01	Ν	+++
United States	Danitol	Fenpropathrin	Insecticide	3	Y	+++
Canada	Sivanto	Flupyradifurone	Insecticide	4	Y	-
European Union	Sivanto	Flupyradifurone	Insecticide	0.01	N	-
United States	Sivanto	Flupyradifurone	Insecticide	4	Y	-
Canada	Admire	Imidacloprid	Insecticide	3.5	Y	-
European Union	Admire	Imidacloprid	Insecticide	5	Y	-
United States	Admire	Imidacloprid	Insecticide	3.5	Y	-
Canada	Avaunt	Indoxacarb	Insecticide	0.1	N	-
European Union	Avaunt	Indoxacarb	Insecticide	0.8	Y*	-
United States	Avaunt	Indoxacarb	Insecticide	1.5	Y	-
Canada	Malathion	Malathion	Insecticide	8	Y*	++
European Union	Malathion	Malathion	Insecticide	0.02	N	++
United States	Malathion	Malathion	Insecticide	8	Y	++
Canada	Lannate	Methomyl	Insecticide	6	Y	+++
European Union	Lannate	Methomyl	Insecticide	0.01	Ν	+++
United States	Lannate	Methomyl	Insecticide	6	Y	+++



Market	Trade Name	Active Ingredient	Pesticide Type	MRL (ppm)	Use	SWD Rating
Canada	Intrepid	Methoxyfenozide	Insecticide	4	Y	-
European Union	Intrepid	Methoxyfenozide	Insecticide	4	Y	-
United States	Intrepid	Methoxyfenozide	Insecticide	3	Y	-
Canada	Rimon	Novaluron	Insecticide	7	Y	-
European Union	Rimon	Novaluron	Insecticide	7	Y	-
United States	Rimon	Novaluron	Insecticide	7	Y	-
Canada	Imidan	Phosmet	Insecticide	5	Y*	+++
European Union	Imidan	Phosmet	Insecticide	10	Y	+++
United States	Imidan	Phosmet	Insecticide	10	Y	+++
Canada	Pyganic	Pyrethrins	Insecticide	1	Y	+
European Union	Pyganic	Pyrethrins	Insecticide	1	Y	+
United States	Pyganic	Pyrethrins	Insecticide	1	Y	+
Canada	Esteem	Pyriproxyfen	Insecticide	1.5	Y	-
European Union	Esteem	Pyriproxyfen	Insecticide	0.05	N	-
United States	Esteem	Pyriproxyfen	Insecticide	1	Y	-
Canada	Delegate	Spinetoram	Insecticide	0.5	Y	+++
European Union	Delegate	Spinetoram	Insecticide	0.4	Y	+++
United States	Delegate	Spinetoram	Insecticide	0.5	Y	+++
Canada	Entrust	Spinosad	Insecticide	0.5	Y	+++
European Union	Entrust	Spinosad	Insecticide	1.5	Y	+++
United States	Entrust	Spinosad	Insecticide	0.4	Y	+++

Market	Trade Name	Active Ingredient	Pesticide Type	MRL (ppm)	Use	SWD Rating
Canada	Movento	Spirotetramat	Insecticide	3	Y	-
European Union	Movento	Spirotetramat	Insecticide	0.7	Y*	-
United States	Movento	Spirotetramat	Insecticide	3	Y	-
Canada	Closer	Sulfoxaflor	Insecticide	0.1	N	-
European Union	Closer	Sulfoxaflor	Insecticide	0.01	N	-
United States	Closer	Sulfoxaflor	Insecticide	2	Y	-
Canada	Confirm	Tebufenozide	Insecticide	3	Y	-
European Union	Confirm	Tebufenozide	Insecticide	3	Y	-
United States	Confirm	Tebufenozide	Insecticide	3	Y	-
Canada	Actara	Thiamethoxam	Insecticide	0.2	Y	-
European Union	Actara	Thiamethoxam	Insecticide	0.01	N	-
United States	Actara	Thiamethoxam	Insecticide	0.2	Y	-
Canada	Apta	Tolfenpyrad	Insecticide	0.1	N	+
European Union	Apta	Tolfenpyrad	Insecticide	0.01	N	+
United States	Apta	Tolfenpyrad	Insecticide	7	Y	+
Canada	Mustang-Maxx	Zeta-Cypermethrin	Insecticide	0.8	Y	+++
European Union	Mustang-Maxx	Zeta-Cypermethrin	Insecticide	0.05	Ν	+++
United States	Mustang-Maxx	Zeta-Cypermethrin	Insecticide	0.8	Y	+++

* Under use = Use with caution and reduced total use or rate, or increase PHI

SWD rating: "-" = no control, *= Poor, **= Good, ***= Excellent

Apta & Verdepryn not tested under NJ conditions.



New Jersey Agricultura Experiment Station

Thank you for Joining!!!!