POLLINATOR WORKING GROUP'S: INITIAL REPORT CONCERNING RHODE ISLAND POLLINATOR HEALTH & HABITAT

HISTORY OF THE POLLINATOR WORKING GROUP

- Response to legislation and interaction during an educational briefing of the Senate Environment and Agriculture Committee

- House Resolution

  - ❖ The Charge – Language of the Resolution
  - ❖ The Pollinator Working Group (represents a diversity of interests and expertise)
  - ❖ RI DEM oversight – Audubon and RINLA served as administrative support

POLLINATOR WORKING GROUP PROCESS

- Audubon and RINLA started the process with interviews of each member – issues & experts in the field – Informed the outline and speakers for the meetings
- Recommendations begin to appear
- Met semi-monthly and weekly meetings – September 2016 to February 2017
- Public participation

SPEAKERS & EXPERTISE

- A diversity of speakers and expertise
- Providing the PWG with comprehensive look at issues relating to pollinator's health and habitat
- Speakers:
  - ❖ Beekeepers
  - ❖ RI State Biologist
  - ❖ Pesticide Industry Representatives
  - ❖ University Researchers
  - ❖ RI State Apiary Inspector
  - ❖ Pesticide Regulators
  - ❖ Pesticide Educators
  - ❖ Public Educators

ONE INTERACTIVE SESSION

Using the attached label -Figure out how to do the following treatment :

Part 1

You have a birch tree you want to treat for birch leafminers. You have equipment calibrated to deliver a flow rate of 0.5 gallons/min. The birch tree you want to treat is 44" in circumference at breast height. You have selected an injection volume of 1 pint per site.

- •how much Acelepryn do you mix in how much water?
- •how many injection sites would you use?
- •where would you place them to treat this tree?

Part II

If your injection volume per site is 1 gallon and your flow rate is the same (0.5 gallons per minute),

1. how much Acelepryn and how much water do you need to treat this same tree?
2. how many injection sites would you use and where would you place them?

Dr. Steve Alm's Lesson on Rhode Island's Pesticide Training Program – How to Read a Label

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with the Worker Protection Standard, 40 CFR dard contains requirements for the prot workers on farms (sod farms included), f greenhouses, and handlers of agricultur tains requirements for training, decontam and emergency assistance. It also contain and exceptions pertaining to the statemer personal protective equipment, restricte notification to workers (as applicable).

Do not apply this product in a way that w other persons, either directly or through handlers may be in the area during appli

For any requirements specific to your St the State or Tribal agency responsible for

Do not enter or allow worker entry into the restricted-entry interval (REI) of 4 ho

For early entry into treated areas that is Worker Protection Standard and that i anything that has been treated, such as wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREM

The requirements in this box apply to use are not within the scope of the Worker for agricultural pesticides, 40 CFR part 1 when this product is used to produce a farms, forests, nurseries, or greenhouses.

Professional applications to golf courses, and commercial lawns and sports fields scope of the Worker Protection Standard. others to enter the treated area until spra

Acelepryn® must be used only in accorda on this label or in separate Syngenta supp may be made temporarily available throug a result of new EPA approvals. Syngenta v for losses or damages resulting from the any manner not specifically stated on this l bulletins published by Syngenta. User assu with such non-specified uses.

PRODUCT INFORMATION

Acelepryn is a suspension concentrate tha the control of white grubs and other liste scape and recreational turfgrass (including caterpillars, clearwing moth borers and ot ornamentals including trees, shrubs, foliag non-bearing fruit and nut trees that will nc during the season of application.

Acelepryn may be used on plants or turf grown for aesthetic or recreational purpo cation in or around home lawns, resident and office complexes, shopping comple dential complexes, institutional buildings interior plantscapes, ornamental garde parks, playgrounds, schools, day-care facil box areas, roughs, fairways, greens, colla other landscaped areas, and sod farms.

TABLE 1: Turf Application Rates

Target Pest	Acelepryn Turf Application Rates		
	Product (fl oz) per Acre	Product (fl oz) per 1,000 Square Feet	Lb AI/A
Turf Caterpillars (including armyworms, cutworms and sod webworms)	2 to 4	0.046 to 0.092	0.026 to 0.052
White Grubs (including Aphodius spp., Asiatic garden beetle, black turfgrass ataenius, European chafer, green June beetle, Japanese beetle, May/June beetles (Phyllophaga spp.), northern masked chafer, oriental beetle and southern masked chafer)	8 to 16	0.184 to 0.367	0.104 to 0.208
European Crane Fly	8 to 16	0.184 to 0.367	0.104 to 0.208
Billbugs	8 to 20	0.184 to 0.46	0.104 to 0.26
Annual bluegrass weevil	12 to 20	0.275 to 0.46	0.157 to 0.26
Spittlebugs	12 to 20	0.275 to 0.46	0.157 to 0.26
Chinch bugs (suppression only)	8 to 20	0.184 to 0.46	0.104 to 0.26

TABLE 2: Turf Application Dilution Chart

Application Volume (Gallons per 1,000 Square Feet)	Turf Application Rates			Fluid ounces of Acelepryn diluted to these volumes of finished spray			
	Product (fl oz) per Acre	Product (fl oz) per 1,000 sq ft	lb AI/A	1 gallon	5 gallons	10 gallons	100 gallons
1	1	0.023	0.013	0.023	0.115	023	2.3
	2	0.046	0.026	0.046	0.23	0.46	4.6
	4	0.092	0.052	0.092	0.46	0.92	9.2
	8	0.184	0.104	0.184	0.92	1.84	18.4
	16	0.367	0.208	0.367	1.84	3.67	36.7
	20	0.46	0.26	0.46	2.3	4.6	46.0
	24	0.55	0.313	0.55	2.76	5.5	55.0
2	1	0.023	0.013	0.0115	0.58	0.115	1.15
	2	0.046	0.026	0.023	0.115	0.23	2.3
	4	0.092	0.052	0.046	0.23	0.46	4.6
	8	0.184	0.104	0.092	0.46	0.92	9.2
	16	0.367	0.208	0.184	0.92	1.84	18.4
	20	0.46	0.26	0.23	1.15	2.3	23.0
	24	0.55	0.313	0.275	1.38	2.75	27.5
3	1	0.023	0.013	0.0077	0.039	0.077	0.77
	2	0.046	0.026	0.015	0.077	0.15	1.5
	4	0.092	0.052	0.03	0.154	0.3	3.0
	8	0.184	0.104	0.06	0.308	0.6	6.0
	16	0.367	0.208	0.123	0.616	1.23	12.3
	20	0.46	0.26	0.153	0.77	1.53	15.3
	24	0.55	0.313	0.184	0.92	1.84	18.4
4	1	0.023	0.013	0.0058	0.029	0.058	0.58
	2	0.046	0.026	0.0115	0.058	0.115	1.15
	4	0.092	0.052	0.023	0.116	0.23	2.3
	8	0.184	0.104	0.046	0.23	0.46	4.6
	16	0.367	0.208	0.092	0.46	0.92	9.2
	20	0.46	0.26	0.115	0.58	1.15	11.5
	24	0.55	0.313	0.138	0.7	1.38	13.8
5	1	0.023	0.013	0.0046	0.023	0.046	0.46
	2	0.046	0.026	0.0092	0.046	0.092	0.92
	4	0.092	0.052	0.0184	0.092	0.184	1.84
	8	0.184	0.104	0.037	0.184	0.37	3.7
	16	0.367	0.208	0.074	0.368	0.74	7.4
	20	0.46	0.26	0.092	0.46	0.92	9.2
	24	0.55	0.313	0.11	0.55	1.1	11.0
10	1	0.023	0.013	0.0023	0.0115	0.023	0.23
	2	0.046	0.026	0.0046	0.023	0.046	0.46
	4	0.092	0.052	0.0092	0.046	0.092	0.92
	8	0.184	0.104	0.0184	0.092	0.184	1.84
	16	0.367	0.208	0.0367	0.184	0.367	3.67
	20	0.46	0.26	0.046	0.23	0.46	4.6
	24	0.55	0.313	0.55	0.276	0.55	5.5

- To convert from fluid ounces to milliliters, multiply by 29.57.
- 1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons
- Do not use household utensils to measure Acelepryn

APPLICATION RATES FOR ORNAMENTAL PLANTS (EXTERIOR LANDSCAPES AND INTERIOR PLANTSCAPES)

Foliar Applications:

Acelepryn mixes readily with water and may be applied with many types of application equipment. Foliar treatment application rates are listed in Table 3. Mix the appropriate amount Acelepryn with the required amount of water and apply as a full coverage foliar spray to control the selected target pest. Foliar applications offer locally systemic activity against insect pests. Repeat treatment as necessary to maintain control using higher application rates as pest pressure and foliage area increases. Repeat applications must be limited to no more than once per seven days. Certain plant species or cultivars may be sensitive to the final spray solution. If local experience is not available, then a small number of plants should be treated and observed for phytotoxicity for at least one week before making an application to the entire planting. When making foliar applications to hard-to-wet foliage such as holly, pine, or ivy, the addition of a spreader/sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the area sprayed, as would be used in a dilute application. For outdoor landscape ornamentals, broadcast applications cannot exceed a total of 38.3 fluid ounces (equivalent to 0.5 lb of active ingredient) of product per acre per year.

TABLE 3: Foliar Ornamental Application Rates

Acelepryn Ornamental Foliar Application Rates					
Target Pests	Product (fl oz) per 100 Gallons	Lb AI per 100 Gallons	PPM	Percent AI (wt/vol)	Maximum Gallons per Acre per Year
Leaf-feeding caterpillars (such as bagworms and tussock moth caterpillars [including whitemarked tussock moth])	1	0.013	15.6	0.00156	3840
	2	0.026	31.3	0.00313	1920
	4	0.052	62.5	0.0625	960
	8	0.104	125	0.0125	480
For maximum residual control of the pests listed above	16	0.208	250	0.025	240

Soil Applications:

Acelepryn is a systemic product and will be translocated upward into the plant from root uptake. Soil treatment application rates are listed in Table 4. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. For this reason, basal application within one to three feet of the root flare of trees and shrubs is recommended. Application can be made by soil injection, soil drenches and broadcast sprays. When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. In some cases, this delay could be 60 days or longer. For this reason, applications should be made prior to anticipated pest infestation to achieve optimum levels of control.

TABLE 4: Ornamental Soil Treatment Application Rates

Target Pests	Trees: Amount per inch of diameter (DBH)		Shrubs: Amount per foot of height	
	Product (fl oz)	Lb AI	Product (fl oz)	Lb AI
Lace bugs Aphids, including apple aphid	0.0625	0.0008	0.0625	0.0008
	0.125	0.0016	0.125	0.0016
	0.25	0.0032	0.25	0.0032
Birch leafminer	0.25	0.0032	0.25	0.0032

The calculations for soil injection/drench applications of Acelepryn involve five easy steps:

Step 1: Calibrate the application equipment to determine its flow rate in gallons per minute.

Step 2: Select an injection volume per inch of tree diameter at breast height (DBH) or foot of shrub height.

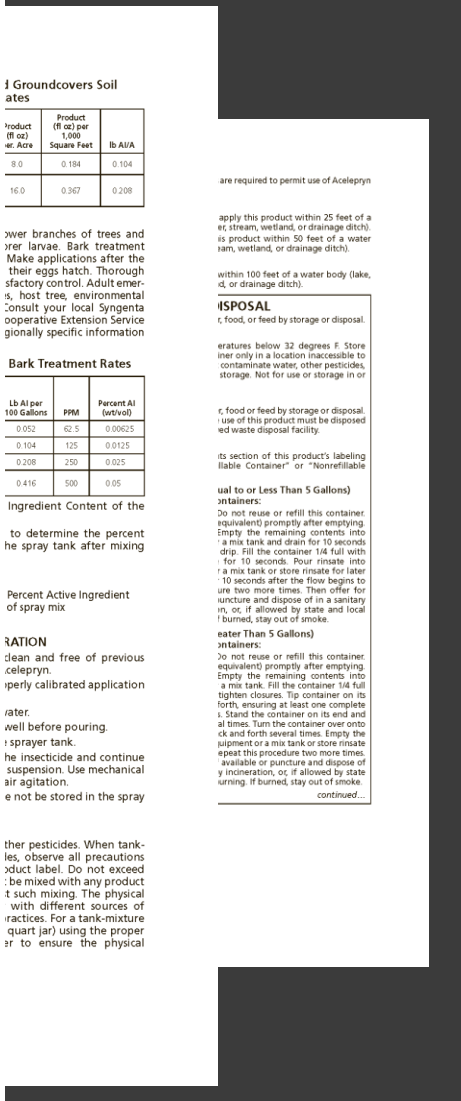


TABLE 1: Turf Application Rates

Target Pest	Acelepryn Turf Application Rates		
	Product (fl oz) per Acre	Product (fl oz) per 1,000 Square Feet	Lb AI/A
Turf Caterpillars (including armyworms, cutworms and sod webworms)	2 to 4	0.046 to 0.092	0.026 to 0.052
White Grubs (including Aphodius spp., Asiatic garden beetle, black turfgrass ataenius, European chafer, green June beetle, Japanese beetle, May/June beetles (Phyllophaga spp.), northern masked chafer, oriental beetle and southern masked chafer)	8 to 16	0.184 to 0.367	0.104 to 0.208
European Crane Fly	8 to 16	0.184 to 0.367	0.104 to 0.208
Billbugs	8 to 20	0.184 to 0.46	0.104 to 0.26
Annual bluegrass weevil	12 to 20	0.275 to 0.46	0.157 to 0.26
Spittlebugs	12 to 20	0.275 to 0.46	0.157 to 0.26
Chinch bugs (suppression only)	8 to 20	0.184 to 0.46	0.104 to 0.26

TABLE 2: Turf Application Dilution Chart

Application Volume (Gallons per 1,000 Square Feet)	Turf Application Rates			Fluid ounces of Acelepryn diluted to these volumes of finished spray			
	Product (fl oz) per Acre	Product (fl oz) per 1,000 sq ft	lb AI/A	1 gallon	5 gallons	10 gallons	100 gallons
1	1	0.023	0.013	0.023	0.115	0.23	2.3
	2	0.046	0.026	0.046	0.23	0.46	4.6
	4	0.092	0.052	0.092	0.46	0.92	9.2
	8	0.184	0.104	0.184	0.92	1.84	18.4
	16	0.367	0.208	0.367	1.84	3.67	36.7
	20	0.46	0.26	0.46	2.3	4.6	46.0
	24	0.55	0.313	0.55	2.76	5.5	55.0
2	1	0.023	0.013	0.0115	0.58	0.115	1.15
	2	0.046	0.026	0.023	0.115	0.23	2.3
	4	0.092	0.052	0.046	0.23	0.46	4.6
	8	0.184	0.104	0.092	0.46	0.92	9.2
	16	0.367	0.208	0.184	0.92	1.84	18.4
	20	0.46	0.26	0.23	1.15	2.3	23.0
	24	0.55	0.313	0.275	1.38	2.75	27.5
3	1	0.023	0.013	0.0077	0.039	0.077	0.77
	2	0.046	0.026	0.015	0.077	0.15	1.5
	4	0.092	0.052	0.03	0.154	0.3	3.0
	8	0.184	0.104	0.06	0.308	0.6	6.0
	16	0.367	0.208	0.123	0.616	1.23	12.3
	20	0.46	0.26	0.153	0.77	1.53	15.3
	24	0.55	0.313	0.184	0.92	1.84	18.4
4	1	0.023	0.013	0.0058	0.029	0.058	0.58
	2	0.046	0.026	0.0115	0.058	0.115	1.15
	4	0.092	0.052	0.023	0.116	0.23	2.3
	8	0.184	0.104	0.046	0.23	0.46	4.6
	16	0.367	0.208	0.092	0.46	0.92	9.2
	20	0.46	0.26	0.115	0.58	1.15	11.5
	24	0.55	0.313	0.138	0.7	1.38	13.8
5	1	0.023	0.013	0.0046	0.023	0.046	0.46
	2	0.046	0.026	0.0092	0.046	0.092	0.92
	4	0.092	0.052	0.0184	0.092	0.184	1.84
	8	0.184	0.104	0.037	0.184	0.37	3.7
	16	0.367	0.208	0.074	0.368	0.74	7.4
	20	0.46	0.26	0.092	0.46	0.92	9.2
	24	0.55	0.313	0.11	0.55	1.1	11.0
10	1	0.023	0.013	0.0023	0.0115	0.023	0.23
	2	0.046	0.026	0.0046	0.023	0.046	0.46
	4	0.092	0.052	0.0092	0.046	0.092	0.92
	8	0.184	0.104	0.0184	0.092	0.184	1.84
	16	0.367	0.208	0.0367	0.184	0.367	3.67
	20	0.46	0.26	0.046	0.23	0.46	4.6
	24	0.55	0.313	0.55	0.276	0.55	5.5

- To convert from fluid ounces to milliliters, multiply by 29.57.
- 1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons
- Do not use household utensils to measure Acelepryn

Step 3: Refer to the Table 5 below to determine the amount of time that is required to deliver the desired volume per injection site. The example highlighted in Table 5 shows that 10 seconds are required per inch of tree DBH or foot of shrub height when injecting 1 quart of solution per site using a flow rate of 1.5 gallons per minute.

Step 4: Determine how much solution to mix.

Step 5: Refer to the Table 6 below to determine the amount of Acelepryn that must be mixed in the desired volume of water based on the injection volume identified above. The example highlighted in Table 6 shows that 25 fluid ounces of Acelepryn must be mixed in 50 gallons of water when applying 0.125 fluid ounces of product per inch of DBH or foot of shrub height using one quart of solution per inch of DBH or foot of shrub height.

TABLE 5: Ornamental Soil Treatment Application Calibration Chart

Volume per Site*	Flow Rate (Gallons per minute)					
	0.5 gallon	0.75 gallon	1.0 gallon	1.5 gallons	2.0 gallons	3.0 gallons
1 pint	15.0 sec	10.0 sec	7.5 sec	5.0 sec	3.75 sec	2.5 sec
1 quart	30.0 sec	20.0 sec	15.0 sec	10.0 sec	7.5 sec	5.0 sec
2 quarts	1.0 min	40.0 sec	30.0 sec	20.0 sec	15.0 sec	10.0 sec
1 gallon	2.0 min	1 min 20 sec	1.0 min	40.0 sec	30.0 sec	20.0 sec

* Site = Soil injection site – the selected volume is applied per inch of tree DBH or foot of shrub height.

TABLE 6: Ornamental Soil Treatment Application Mixing Chart

Volume per Site*	Application Rate (fl oz)[1]	Product (fl oz) per 100 Gallons	Product (fl oz) per 50 Gallons	Product (fl oz) per 25 Gallons	Product (fl oz) per 10 Gallons	Product (fl oz) per 1 Gallon
1 pint	0.0625	50	25	12.5	5	0.5
	0.125	100	50	25	10	1
	0.25	200	100	50	20	2
1 quart	0.0625	25	12.5	6.25	2.5	0.25
	0.125	50	25	12.5	5	0.5
	0.25	100	50	25	10	1
2 quarts	0.0625	12.5	6.25	3.125	1.25	0.125
	0.125	25	12.5	6.25	2.5	0.25
	0.25	50	25	12.5	5	0.5
1 gallon	0.0625	6.25	3.125	1.56	0.625	0.0625
	0.125	12.5	6.25	3.125	1.25	0.125
	0.25	25	12.5	6.25	2.5	0.25

[1]Rate per inch Diameter at Breast Height (DBH); or rate per foot of shrub height.

Broadcast Applications to Flower Beds and Groundcovers:

Acelepryn may be applied for white grub control in flower beds and groundcovers. Flower bed and groundcover application rates are listed in Table 7. Apply in sufficient water to uniformly cover the area being treated (a minimum of 2 gallons per 1,000 square feet is recommended for flower bed and groundcover applications). Irrigate immediately after application or allow rainfall to move the product into the soil. Acelepryn may be applied to flower beds and groundcovers either before planting or after plants have been established.

TABLE 7: Ornamental Flowers and Groundcovers Soil Treatment Application Rates

Target Pest	Product (fl oz) per. Acre	Product (fl oz) per 1,000 Square Feet	lb AI/A
White Grubs (Asiatic garden beetle, European chafer, green June beetle, Japanese beetle, May/June beetles (Phyllophaga spp.), northern masked chafer, oriental beetle and southern masked chafer)	8.0	0.184	0.104
	16.0	0.367	0.208

Bark Applications:

Apply Acelepryn to the trunks and lower branches of trees and shrubs to control clearwing moth borer larvae. Bark treatment application rates are listed in Table 8. Make applications after the emergence of adult moths and before their eggs hatch. Thorough coverage of the bark is required for satisfactory control. Adult emergence varies according to pest species, host tree, environmental conditions and geographic location. Consult your local Syngenta Professional Products representative, Cooperative Extension Service specialist or pest control advisor for regionally specific information regarding application timing.

TABLE 8: Ornamental Application Bark Treatment Rates

Target Pests	Product (fl oz) per 100 Gallons	Lb AI per 100 Gallons	PPM	Percent AI (wt/vol)
Clearwing Borers, including peachtree borer	4	0.052	62.5	0.00625
	8	0.104	125	0.0125
	16	0.208	250	0.025
For maximum residual control of the pests listed above.	32	0.416	500	0.05

Formula for Determining the Active Ingredient Content of the Finished Spray Mixture:

The following formula may be used to determine the percent active ingredient (wt/wt) that is in the spray tank after mixing Acelepryn.

$$\frac{(18.4)\ \text{X (Fluid ounces of Acelepryn added to spray tank)}}{\text{(Gallons of finished spray mix) X (128)}} = \text{Percent Active Ingredient of spray mix}$$

APPLICATION EQUIPMENT PREPARATION

1. Application equipment must be clean and free of previous pesticide deposits before mixing Acelepryn.
2. Use clean, well maintained and properly calibrated application equipment.
3. Fill sprayer tank 1/4 to 1/2 full of water.
4. Shake the container of Acelepryn well before pouring.
5. Then add Acelepryn directly to the sprayer tank.
6. Mix thoroughly to fully disperse the insecticide and continue agitation to keep the insecticide in suspension. Use mechanical or hydraulic agitation. Do not use air agitation.
7. It is recommended that the mixture not be stored in the spray or mix tank overnight.

Tank-mixtures:

Acelepryn may be tank-mixed with other pesticides. When tank-mixing Acelepryn with other pesticides, observe all precautions and limitations on each separate product label. Do not exceed label dosage rates. Acelepryn may not be mixed with any product containing a label prohibition against such mixing. The physical compatibility of Acelepryn will vary with different sources of pesticide products and local cultural practices. For a tank-mixture test, prepare on a small scale (pint or quart jar) using the proper proportions of pesticides and water to ensure the physical compatibility of the mixture.

$C = 2\pi r$

$D = \frac{C}{\pi}$

solve for diameter of tree

solve for diameter of treatment

$D_{treatment} = 36 - D_{tree}$

$C = \pi D_{treatment}$

solve for circumference of treatment

TABLE 1: Turf Application Rates

Target Pest	Aceleprym Turf Application Rates		
	Product (fl oz) per Acre	Product (fl oz) per 1,000 Square Feet	Lb AI/A
Turf Caterpillars (including armyworms, cutworms and sod webworms)	2 to 4	0.046 to 0.092	0.026 to 0.052
White Grubs (including Aphodius spp., Asiatic garden beetle, black turfgrass ataenius, European chafer, green June beetle, Japanese beetle, May/June beetles (Phyllophaga spp.), northern masked chafer, oriental beetle and southern masked chafer)	8 to 16	0.184 to 0.367	0.104 to 0.208
European Crane Fly	8 to 16	0.184 to 0.367	0.104 to 0.208
Billbugs	8	0.184 to 0.46	0.104 to 0.26
Annual bluegrass weevil	12 to 20	0.275 to 0.46	0.157 to 0.26
Spittlebugs	12 to 20	0.275 to 0.46	0.157 to 0.26
Chinch bugs (suppression only)	8 to 20	0.184 to 0.46	0.104 to 0.26

TABLE 2: Turf Application Dilution Chart

Application Volume (Gallons per 1,000 Square Feet)	Turf Application Rates			Fluid ounces of Aceleprym diluted to these volumes of finished spray			
	Product (fl oz) per Acre	Product (fl oz) per 1,000 sq ft	lb AI/A	1 gallon	5 gallons	10 gallons	100 gallons
1	1	0.023	0.013	0.023	0.115	0.23	2.3
	2	0.046	0.026	0.046	0.23	0.46	4.6
	4	0.092	0.052	0.092	0.46	0.92	9.2
	8	0.184	0.104	0.184	0.92	1.84	18.4
	16	0.367	0.208	0.367	1.84	3.67	36.7
	20	0.46	0.26	0.46	2.3	4.6	46.0
	24	0.55	0.313	0.55	2.76	5.5	55.0
2	1	0.023	0.013	0.0115	0.58	0.115	1.15
	2	0.046	0.026	0.023	0.115	0.23	2.3
	4	0.092	0.052	0.046	0.23	0.46	4.6
	8	0.184	0.104	0.092	0.46	0.92	9.2
	16	0.367	0.208	0.184	0.92	1.84	18.4
	20	0.46	0.26	0.23	1.15	2.3	23.0
	24	0.55	0.313	0.275	1.38	2.75	27.5
3	1	0.023	0.013	0.0077	0.039	0.077	0.77
	2	0.046	0.026	0.015	0.077	0.15	1.5
	4	0.092	0.052	0.03	0.154	0.3	3.0
	8	0.184	0.104	0.06	0.308	0.6	6.0
	16	0.367	0.208	0.123	0.616	1.23	12.3
	20	0.46	0.26	0.153	0.77	1.53	15.3
	24	0.55	0.313	0.184	0.92	1.84	18.4
4	1	0.023	0.013	0.0058	0.029	0.058	0.58
	2	0.046	0.026	0.0115	0.058	0.115	1.15
	4	0.092	0.052	0.023	0.115	0.23	2.3
	8	0.184	0.104	0.046	0.23	0.46	4.6
	16	0.367	0.208	0.092	0.46	0.92	9.2
	20	0.46	0.26	0.115	0.58	1.15	11.5
	24	0.55	0.313	0.138	0.7	1.38	13.8
5	1	0.023	0.013	0.0046	0.023	0.046	0.46
	2	0.046	0.026	0.0092	0.046	0.092	0.92
	4	0.092	0.052	0.0184	0.092	0.184	1.84
	8	0.184	0.104	0.037	0.184	0.37	3.7
	16	0.367	0.208	0.074	0.368	0.74	7.4
	20	0.46	0.26	0.092	0.46	0.92	9.2
	24	0.55	0.313	0.11	0.55	1.1	11.0
10	1	0.023	0.013	0.0023	0.0115	0.023	0.23
	2	0.046	0.026	0.0046	0.023	0.046	0.46
	4	0.092	0.052	0.0092	0.046	0.092	0.92
	8	0.184	0.104	0.0184	0.092	0.184	1.84
	16	0.367	0.208	0.0367	0.184	0.367	3.67
	20	0.46	0.26	0.046	0.23	0.46	4.6
	24	0.55	0.313	0.55	0.276	0.55	5.5

- To convert from fluid ounces to milliliters, multiply by 29.57.
- 1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons
- Do not use household utensils to measure Aceleprym

Step 3: Refer to the Table 5 below to determine the amount of time that is required to deliver the desired volume per injection site. The example highlighted in Table 5 shows that 10 seconds are required per inch of tree DBH or foot of shrub height when injecting 1 quart of solution per site using a flow rate of 1.5 gallons per minute.

Step 4: Determine how much solution to mix.

Step 5: Refer to the Table 6 below to determine the amount of Aceleprym that must be mixed in the desired volume of water based on the injection volume identified above. The example highlighted in Table 6 shows that 25 fluid ounces of Aceleprym must be mixed with 1 gallon of water when applying 0.125 fluid ounce per inch of product [illegible] of DBH or foot of shrub height using one quart of solution per inch of DBH or foot of shrub height.

TABLE 5: Ornamental Soil Treatment Application Calibration Chart

Volume per Site*	Flow Rate (Gallons per minute)					
	0.5 gallon	0.75 gallon	1.0 gallon	1.5 gallons	2.0 gallons	3.0 gallons
1 pint	15.0 sec	10.0 sec	7.5 sec	5.0 sec	3.75 sec	2.5 sec
1 quart	30.0 sec	20.0 sec	15.0 sec	10.0 sec	7.5 sec	5.0 sec
2 quarts	1.0 min	40.0 sec	30.0 sec	20.0 sec	15.0 sec	10.0 sec
1 gallon	2.0 min	1 min 20 sec	1.0 min	40.0 sec	30.0 sec	20.0 sec

* Site = Soil injection site – the selected volume is applied per inch of tree DBH or foot of shrub height.

TABLE 6: Ornamental Soil Treatment Application Mixing Chart

Volume per Site*	Application Rate (fl oz)[1]	Product (fl oz) per 100 Gallons	Product (fl oz) per 50 Gallons	Product (fl oz) per 25 Gallons	Product (fl oz) per 10 Gallons	Product (fl oz) per 1 Gallon
1 pint	0.0625	50	25	12.5	5	0.5
	0.125	100	50	25	10	1
	0.25	200	100	50	20	2
1 quart	0.0625	25	12.5	6.25	2.5	0.25
	0.125	50	25	12.5	5	0.5
	0.25	100	50	25	10	1
2 quarts	0.0625	12.5	6.25	3.125	1.25	0.125
	0.125	25	12.5	6.25	2.5	0.25
	0.25	50	25	12.5	5	0.5
1 gallon	0.0625	6.25	3.125	1.56	0.625	0.0625
	0.125	12.5	6.25	3.125	1.25	0.125
	0.25	25	12.5	6.25	2.5	0.25

[1]Rate per inch Diameter at Breast Height (DBH); or rate per foot of shrub height.

Broadcast Applications to Flower Beds and Groundcovers:

Aceleprym may be applied for white grub control in flower beds and groundcovers. Flower bed and groundcover application rates are listed in Table 7. Apply in sufficient water to uniformly cover the area being treated (a minimum of 2 gallons per 1,000 square feet is recommended for flower bed and groundcover applications). Irrigate immediately after application or allow rainfall to move the product into the soil. Aceleprym may be applied to flower beds and groundcovers either before planting or after plants have been established.

TABLE 7: Ornamental Flowers and Groundcovers Soil Treatment Application Rates

Target Pest	Product (fl oz) per. Acre	Product (fl oz) per 1,000 Square Feet	lb AI/A
White Grubs (Asiatic garden beetle, European chafer, green June beetle, Japanese beetle, May/June beetles (Phyllophaga spp.), northern masked chafer, oriental beetle and southern masked chafer)	8.0	0.184	0.104
	16.0	0.367	0.208

Bark Applications:

[illegible] trunks of flower [illegible] trees and [illegible] moderate [illegible] treatment application rates are listed in Table 8. Make applications after the emergence of adult moths and before their eggs hatch. Thorough coverage of the bark is required for satisfactory control. Adult emergence varies according to pest species, host tree, environmental conditions and geographic location. Consult your local Syngenta Professional Products representative, Cooperative Extension Service specialist or pest control advisor for regionally specific information regarding application timing.

TABLE 8: Ornamental Application Bark Treatment Rates

Target Pests	Product (fl oz) per 100 Gallons	lb AI per 100 Gallons	[illegible]	[illegible] Ai (wt/wt)
Clearwing borers, including peachtree borer	8	0.052	125	0.0625
	16	0.104	125	0.0125
	16	0.208	250	0.025
For maximum residual control of the pests listed above	32	0.4	500	0.05

Formula for Determining the Active Ingredient Content of the Finished Spray Mixture:

The following formula may be used to determine the percent active ingredient (wt/wt) that is in the spray tank after mixing Aceleprym.

$$\frac{(18.4) \times (\text{Fluid ounces of Aceleprym added to spray tank})}{(\text{Gallons of finished spray mix}) \times (128)} = \text{Percent Active Ingredient of spray mix}$$

APPLICATION EQUIPMENT PREPARATION

1. Application equipment must be clean and free of previous pesticide deposits before mixing Aceleprym.
2. Use clean, well-maintained and properly calibrated application equipment.
3. Fill sprayer tank 1/4 to 1/2 full of water.
4. Shake the container of Aceleprym well before pouring.
5. Then add Aceleprym directly to the sprayer tank.
6. Mix thoroughly to fully disperse the insecticide and continue agitation to keep the insecticide in suspension. Use mechanical or hydraulic agitation. Do not use air agitation.
7. It is recommended that the mixture not be stored in the spray or mix tank overnight.

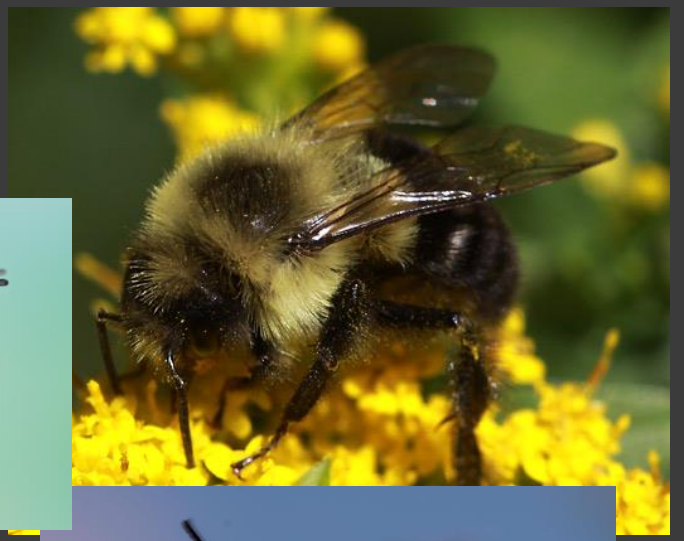
Tank-mixtures:

Aceleprym may be tank-mixed with other pesticides. When tank-mixing Aceleprym with other pesticides, observe all precautions and limitations on each separate product label. Do not exceed label dosage rates. Aceleprym may not be mixed with any product containing a label prohibition against such mixing. The physical compatibility of Aceleprym will vary with different sources of pesticide products and local cultural practices. For a tank-mixture test, prepare on a small scale (pint or quart jar) using the proper proportions of pesticides and water to ensure the physical compatibility of the mixture.

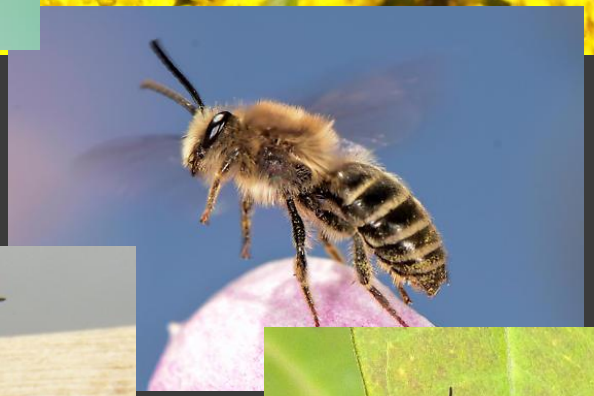
Wild Pollinators of Rhode Island:

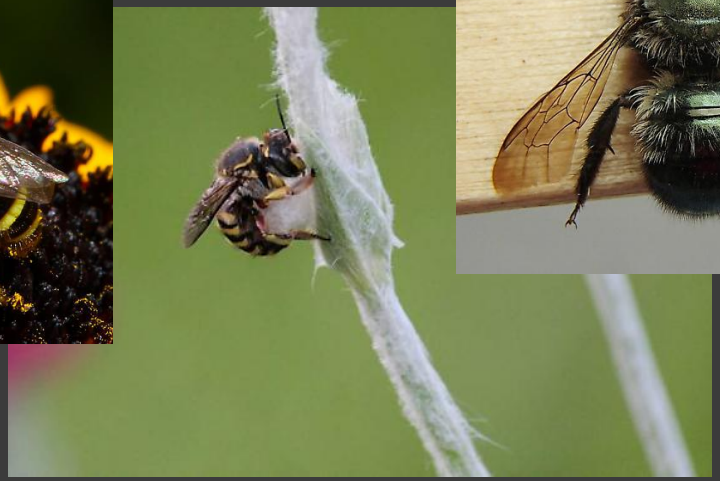
Inventory, Status, Habitats

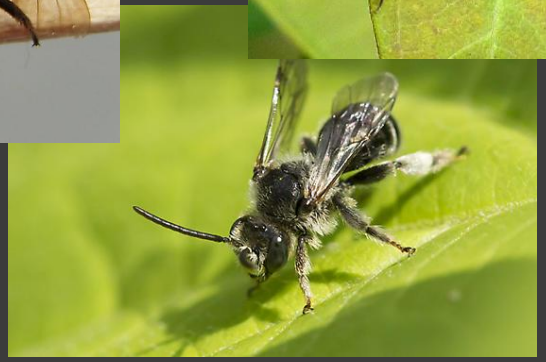
Bees



3,500 species north of Mexico
770 species in eastern North America
183 species documented in RI as of spring 2016
a complete inventory would
likely double that number







Moths

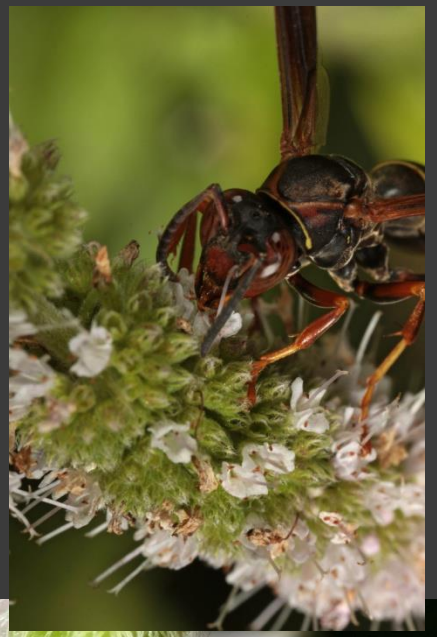
Flies

Beetles

Bats

Birds

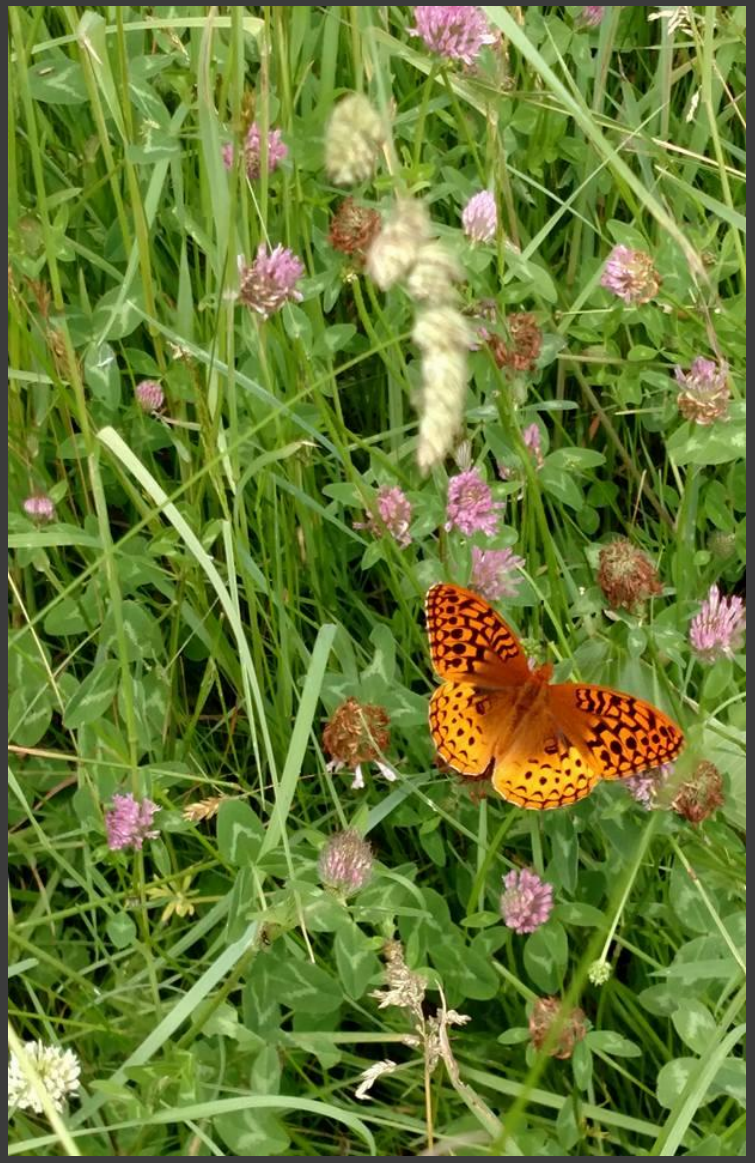
Mice



Other stuff:

- ants
- wasps
- spiders
- true bugs
- WIND

Butterflies



Why are Pollinators Important ?

Certain rare plants are largely dependent on specialized pollinators

Pollination is not necessarily an yes-no thing:
good pollination improves productivity

Certain kinds of pollination are better for certain kinds of plants

Other invertebrates as well as vertebrates such as birds and amphibians eat bees.

Colletes bees, important native pollinators, also host many parasites and inqualines, such as blister beetles or Epeolus genus of bees.

Pollinators and plant species diversity

spicebush swallowtail butterfly

Platanthera orchid

Bee decline

Apis mellifera, domestic
(documented increase in effort required to maintain hives)

Apis mellifera, feral
(documented decline)

Bumblebee species
(documented decline)

Population (possible, need more data)

Species diversity (possible, need more data)

Bombus terricola
yellow-banded bumblebee

Bombus affinis
rusty patched bumblebee

nest

find a mate

foraging for food 1

protection from predators

protection from parasites

hibernation

foraging for food 2

Bee habitat characters:

- flowers
- sandy soil substrates
- soil surface disturbance
- twiggy brush
- rodent burrows and matted grass

- Bumblebee nest density coincided most closely with the area of gardens
- secondarily with the area of grasslands
- elevated bumblebee nest density in gardens was measurable up to 1 km into adjacent farm lands with poor bee habitat

For bees, URBAN does NOT necessarily equal BAD

Domesticated bees and wild bees can thrive in urban settings
Also great for connecting with large numbers of people

THREATS TO POLLINATOR HEALTH

- In the past state bee programs recognized the threat from disease (primarily American Foul Brood)
- Threats have multiplied many times over while capacity to manage has steadily diminished:
  - European Foul Brood, small hive beetle, varroa mite, nosema
  - Pesticides more widely distributed, effects of stacked pesticides, sub-lethal residue in pollen, wax and bee bread
  - Habitat Loss – decline of pasture land, more intensive agriculture, removal of field weeds with herbicide
  - Industrial Agriculture – monoculture plantings (i.e. corn, potatoes)
  - Industrialized bee keeping including long-distance transport

THE POLLINATOR WORKING GROUP'S PRELIMINARY TOP TIERED RECOMMENDATIONS

The preliminary recommendations are organized into 4 groups:

- Regulatory
- Programmatic
- Knowledge Gaps
- Public Education

There is category overlap in the recommendations

REVIEW OF RECOMMENDATIONS

THANK YOU

For more information go to RI DEM Website:
http://www.dem.ri.gov/programs/agriculture/pollinator-working-group.php