

# Vegetables – Commercial

## Residues

Federal laws prohibit the sale of food products that contain more than the specifically permitted amounts of pesticide residues. The recommendations in this guide are within these limits, and only insecticides that have been approved at the rates and time intervals specified are included. Disregarding the standards established by the Environmental Protection Agency could result in unnecessary losses and inconveniences. The kind and amount of pesticide present in food products are the responsibility of the food producer.

Specific instructions for the safe and effective use of farm chemicals must be given on the container label by law. It is your responsibility to carefully read and follow these label instructions and precautions.

## Application checklist

To obtain satisfactory control of vegetable insects:

1. Use one of the insecticides recommended for the particular crop against the particular pest.
2. Use the correct amount of insecticide.
3. Follow the recommended schedule of applications whenever regular applications are indicated.
4. Use hollow cone nozzles, not herbicide nozzles.
5. Set the nozzles about 20 inches from the surface to be sprayed.
6. Use sufficient pressure to obtain a full spray pattern for the nozzle; the manufacturer's list recommended psi for each style of the nozzle. Excessive pressure will increase the drift and decrease the deposit and should generally be avoided.

Use a sufficient spray to cover plants thoroughly, especially when fungicides are combined with insecticides. The amount of spray may be increased by slowing the ground speed of the sprayer or by using larger nozzles. Increasing pressure is not recommended.

## Dosages and formulations

Dosages of sprayable powders (water-soluble or wettable powders) and liquids are given as the amount of formulated product that should be used in 50 gallons of spray. Sufficient spray should be applied to provide thorough coverage of the plants.

Granular insecticides commonly used for soil insect control are stated as the formulated product. Rates given are based on a broadcast application unless otherwise stated.

The formulations listed are not necessarily all that are available. If another formulation is used convert to the proper dosage using those given in these recommendations as a guide.

Most insecticides are available as an emulsifiable concentrate (EC) that is based on solvents and/or oils or as a wettable powder (WP). Wettable powders are safer than emulsions to use on tender foliage. Certain insecticides are available as water-soluble (WS) powders and should not be confused with wettable powders. Water soluble powders go into solution while wettable powders merely form suspensions that settle out on standing.

Some insecticides are marketed as flowable. This formulation is generally less toxic to foliage than the standard EC.

Whenever possible, the formulations of emulsifiable concentrates have been quoted in pounds of active ingredient per gallon (example: 5 pounds EC). This was done because in many products the percentage of ingredients will vary due to the use of different solvents. Malathion, for example, is 5 pounds EC yet may be formulated anywhere from 55%-57% of active material.

## Precautions

Phosphate and carbamate insecticides such as Parathion, Azinphos methyl, Methomyl, and Trithion are highly toxic to humans and animals. Take special precautions in handling and applying these chemicals and others of similar nature. Check the label carefully and observe all safety precautions. Wash at once and change clothes if spillage occurs. Bathe promptly after use and wash clothes before re-use. Generally, symptoms of phosphate insecticide poisoning include blurred vision, headache, abdominal cramps, and tightness of the chest.

**Note:** Take special precautions when mixing Methomyl. Wear a recommended respirator. Do not inhale the dust or powder.

**Warning:** Re-entry times for workers entering groves and/or treated fields should be strictly observed. Be sure to check the label for this information.

**pH:** Adjust pH before adding insecticide; the optimum range is 5.5-6.0 for most insecticides. Diazinon needs no adjustment. Test water to adjust. DO NOT JUST ADD BUFFER.

**Spreader Stickers:** Needed on waxy leaf plants. May be used on most crops. Overdose will burn foliage.

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## ARTICHOKE

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
Leaf hoppers, Psyllids	Bifenthrin (Capture 2EC)	6.4 ounces	5	Observe label.
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	1	
	Permethrin (Ambush, Pounce) 25W	6.4-19.2 ounces	0	
	Thiamethoxam (Platinum)	5.0-8.0 ounces	30	

## BEANS (LIMA AND SNAP)

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
Aphids	Bifenthrin (Brigade 2EC)	1.6-6.4 fluid ounces	3	Observe label.  Do not feed treated vines to livestock.
	Imidacloprid (Admire Pro)	7-10 fl. ounces	21	
	Lambda-cyhalothrin (Varrrior II)	1.28 to 1.92 oz/A	3	
	Malathion 5EC	1.0 pint	1	
	Malathion 25WP	2.5 pounds	1	
	Naled (Dibrom 8EC)	0.5 pint	1	
Bean leaf beetles, flea beetles, leaf hoppers	Carbaryl (Sevin) 50WP	2.0 pounds	None	-Observe label. -At pod set: begin weekly applications when the longest pods are 1 inch long and continue throughout harvest for maximum pod protection. Add an insecticide for the control of mites or leafminers as needed.
	Carbaryl (Sevin) 80S	1.0 pound	None	
Cucumber beetles, Mexican bean beetles	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	3	Observe label.
	Carbaryl (Sevin) 50WP	2.0 pound	None	
	Carbaryl (Sevin) 80S	1.25 pound	None	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	3	
	Malathion 5EC	1.0 pint	1	
	Malathion 25WP	2.5 pounds	1	
	Zeta-cypermethrin (various)	1.4-4.3 ounces		
Bean leaf beetles, cucumber beetles, earworms, leafhoppers, lima bean pod borers, stink bugs	Bifenthrin (Brigade, Capture 2EC)	2.1-6.4 fluid ounces	3	Observe label. Observe label. Observe label. Observe label. Observe label.
	Carbaryl (Sevin) 50WP	2.0 pounds	None	
	Carbaryl (Sevin) 80S	1.25 pounds	None	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	3	
	Zeta-cypermethrin (various)	1.4-4.3 ounces		
Mites	Bifenazate (Acramite)	16-24 fluid ounces	3	Observe label.
Leafminers	Naled (Dibrom 8EC)	0.5 pint	1	Do not feed treated vines to meat or dairy animals.

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Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
	Spinetoram (Radiant SC)	C4-8 fluid ounces	3(succulent) 28(dried)	Observe label.

### BEET

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Imidacloprid (Admire Pro 4.6F soil)	4.4-10.5 ounces	21	Must be applied to soil. May be applied to direct-seeded crops in-furrow at seed or transplant depth. Do not exceed 12 ounces/acre/season.
<b>Armyworms, beet webworms</b>	Spinetoram (Radiant SC)	5-10 fluid ounces	1	Observe label.
<b>Flea beetles or webworms</b>	Carbaryl (Sevin) 80S	0.6 pound	3 (14 if tops are used for food)	Observe label.
	Methomyl (Lannate LV)	0.75-3.0 pints	0 roots, 10 tops	
	Methomyl (Lannate SP)	0.25-1.0 pound	0 roots, 10 tops	
<b>Leafminers</b>	Spinetoram (Radiant SC)	6.0-10.0 ounces	7	Observe label.
<b>Vegetable weevils</b>	Carbaryl (Sevin) 50WP	0.5 pound	3	Observe label.
	Malathion 5EC	1.0 pint	7	
	Malathion 25WP	2.5 pounds	7	

### BRUSSELS SPROUTS

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Acetamiprid (Assail 3OSG)	2-3 ounces	7	Observe label.
	Pymetrozine (Fulfill)	2.75 ounces	7	
	Imidacloprid (Admire Pro 4.6F)	4.4-10.5 ounces	21	
<b>Diamondback moths, imported cabbage worms, loopers</b>	<i>Bacillus thuringiensis</i>			Use maximum rate recommended by manufacturer.
	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	Observe label.
	Emamectin benzoate (Proclaim)	2.4-4.8 ounces	7	
	Indoxacarb (Avaunt)	3.5 ounces	3	
	Methomyl (Lannate LV)	1.5-3.0 pints	3	
	Methomyl (Lannate SP)	0.25-1.0 pound	3	
	Permethrin (Ambush 2EC)	3.26-4.0 ounces	1	Do not use in home plantings.
	Permethrin (Ambush 25WP)	3.2-6.4 ounces	1	Do not apply more than eight applications per season.
	Permethrin (Pounce 3.2 EC)	2.0-4.0 ounces	1	
	Novaluraon (Rimon 0.83EC)	6.0-12.0 fluid ounces	7	
Spinetoram (Radiant SC)	5-10 fl. ounces	1		

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Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
	Tebufenozide (Confirm 2F)	6.0-8.0 ounces	7	
	Zeta-cypermethrin (various)	2.4-4.3 ounces		
<b>Whiteflies</b>	Acetamiprid (Assail 30SG)	2.5-4.0 ounces	7	Observe label.
	Dinotefuran (Venom 70SG)	1.0-4.0 ounces (foliar)	1	Do not apply more than 6 ounces per season foliar.
	Dinotefuran (Venom 70SG)	5.0-6.0 ounces (soil)	21	Observe label.
	Pymetrozine (Fulfill)	2.75 ounces	7	
	Spiromesifen (Oberon 2SC)	7-8.5 fluid ounces	21	

## CABBAGE AND BROCCOLI

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Diamondback moths, imported cabbage worms, loopers,</b>	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	Observe label.
	Emamectin benzoate (Proclaim)	2.4-4.8 ounces	7	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	3	
	Indoxacarb (Avaunt)	3.5 ounces	3	
	Methomyl (Lannate LV)	1.5-3.0 pints	3	
	Methomyl (Lannate SP)	0.25-1.0 pound	3	Do not use in plantings.
	Permethrin (Ambush 2EC)	3.2-6.4 ounces	1	-Observe label.
	Permethrin (Ambush 25WP)	3.2-6.4 ounces	1	-Loopers are most difficult to control; watch for loopers on underside of leaf along borders. Treat on 7-day schedule and change to 5 days for heavy infestations. Use a wetting agent according to manufacturer's instructions.
	Permethrin (Pounce 3.2 EC)	2.0-4.0 ounces	1	
	Tebufenozide (Confirm 2F)	6.0-8.0 ounces	7	
Zeta-cypermethrin (various)	2.4-4.3 ounces			
<b>Leafminers, thrips</b>	Spinosad (SpinTor 2SC)	3.0-10.0 ounces	1	Observe label.
<b>Root aphids, root maggots</b>	Diazinon AG500	2.0-3.0 quarts	7-broccoli 21-cabbage	Broadcast just before planting and immediately incorporate into the top 3-4 inches of soil.
<b>Whiteflies</b>	Acetamiprid (Assail 30SG)	2.5-4 ounces	7	Use spreader stick to improve control.
	Dinotefuran (Venom 70SG)	1-4 ounces (foliar)	1	Observe label.
	Spiromesifen (Oberon 2SC)	7.0-8.5 fluid ounces	7	Do not exceed 25.5 fluid ounces per acre per season.
<b>Wireworms</b>	Diazinon AG500	3.0-4.0 quarts	14	

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## CANTALOUPE

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Bifenthrin (Various) 2EC	2.6-6.4 ounce	3	Limit 2 applications after bloom.
	Flonicamid (Beleaf 50SG)	2-2.8 ounce	0	
	Pymetrozine (Fulfill 50WDG)	2.7 ounce	0	Apply before aphids reach damage level. Do not exceed 5.5 ounces per season per acre.
<b>Cucumber beetles, melon worms, pickleworms, squash bugs, squash vine borers</b>	Bifenthrin (Capture 2EC)	5.12-6.4 ounces	3	Observe label.
	Carbaryl (Sevin) 50WP	1.0 pound	None	
	Carbaryl (Sevin) 80S	0.6 pound	None	
	Esfenvalerate (Asana XL)	5.6-9.8 ounces	3	
	Permethrin (Ambush 25W)	6.4-12.8 ounces	3	
<b>Cutworms</b>	Diazinon AG500	2.0-4.0 quarts	3	Observe label.
<b>Leafminers</b>	Naled (Dibrom 8EC)	0.25-0.5 pint	1	Apply within one week of planting.
	Oxamyl (Vydate 10G)	40-60 pounds (broadcast)		
	Oxamyl (Vydate L) 2EC	2.0-4.0 pints	1	Observe label.
	Permethrin (Pounce 2.5WP)	12.8 ounces	1	
	Permethrin (Pounce 3.2EC)	8.0 ounces	1	
	Spinetoram (Radiant SC)	5-10 fluid ounces	3	
<b>Spider mites</b>	Bifenazate (Acramite 50VWS)	.75 – 1.0 pound	3	Observe label.
	Bifenthrin (Capture 2EC)	5.12-6.4 ounces	3	
	Permethrin (Ambush 25W)	6.4-12.8 ounces	0	
	Abamectin (Agri-Mek) 0.15EC	8-16 ounces	7	
	Spiromesifen (Oberon 2 SG)	7-8.5 fl. ounces	7	
<b>Wireworms</b>	Diazinon AG500	3.0-4.0 quarts	3	Observe label.

## CARROT

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Thiamethoxam (Actara 25 WPG)	1.5-3 ounces	7	Observe label.
<b>Armyworms, flea beetles, leafhoppers,</b>	Beta-cyfluthrin (Baythroid 2EC)	1.6-2.8 ounces	0	Observe label.
	Carbaryl (Sevin) 50WP	0.5 pound	None	
	Carbaryl (Sevin) 80S	0.6 pound	None	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	7	
	Malathion 5EC	1.0-1.5 pints	7	

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Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
	Methomyl (Lannate LV)	1.0-3.0 pints	1	Radiant will not control leafhoppers; no more than 4 applications per year.
	Methomyl (Lannate SP)	0.33-1.0 pound	1	
	Spinetoram (Radiant SC)	3.0-6.0 fluid ounces	3	
<b>Vegetable weevils</b>	Malathion 5EC	1.0 pint	7	Observe label.
<b>Wireworms</b>	Diazinon AG500	3.0-4.0 quarts	14	Observe label.

## CAULIFLOWER

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Imidacloprid (Provado 1.6FL)	3.75 ounces	7	Observe label.
	Pymetrozine (Fulfill)	2.75 ounces	7	
<b>Diamondback moths, flea beetles, loopers</b>	Esfenvalerate (Asana 1.9EC)	1.7-3.4 ounces	1	-Observe label. -Loopers are most difficult to control; watch for loopers on underside of leaf along borders. Treat on a 7-day schedule and change to 5 days for heavy infestations. Use a wetting agent according to manufacturer's instructions. Add <i>Bacillus thuringiensis</i> to sprays to increase control.
	Permethrin (Ambush 2EC)	3.2-6.4 ounces	1	
	Permethrin (Ambush 25WP)	3.2-6.4 ounces	1	
<b>Imported cabbage worms</b>	<i>Bacillus thuringiensis</i>			Use maximum amount recommended by manufacturer.
	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	Observe label.
	Emamectin benzoate (Proclaim)	2.4-4.8 ounces	7	
	Indoxacarb (Avaunt)	3.5 ounces	1	
	Methomyl (Lannate LV)	0.75-3.0 pints	3	Do not use in home plantings.
	Methomyl (Lannate SP)	0.25-1.0 pound	3	
	Permethrin (Pounce 2.5WP)	3.2-6.4 ounces	1	Observe label.
	Permethrin (Pounce 3.2EC)	24.0 ounces	1	
	Spinetoram (Radiant SC)	5-10 fluid ounces	1	
	Tebufenozide (Confirm 2F)	6.0-8.0 ounces	7	
Zeta-cypermethrin (various)	2.4-4.3 ounces			
<b>Mole crickets</b>	Diazinon AG500	1.0 quart	7	Observe label.
<b>Root maggots</b>	Diazinon AG500	2.0-3.0 pints	7	Observe label.
<b>Whiteflies</b>	Acetamiprid (Assail 30SG)	2.5-4 ounces	7	Observe label.
	Spiromesifen (Oberon 2SC)	7-8.5 ounces		
<b>Wireworms</b>	Diazinon AG500	3.0-4.0 quarts	7	Observe label.

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## COLLARDS AND GREENS

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Acetamiprid (Assail 30SG)	2.0-3.0 ounces	7	Observe label.
	Imidacloprid (Admire Pro)	4.4-10.5 ounces	21	Observe label. Will also control flea beetles.
	Malathion 5EC	1.0 pint	7	Observe label.
	Malathion 25WVP	2.5 pounds	7	
	Pymetrozine (Fulfill)	2.75 ounces	7	
	Spirotetramat (Movento 25C)	4.0-5.0 fluid ounces	1	Do not exceed 10 fluid ounces/season.
<b>Caterpillars, loopers</b>	<i>Bacillus thuringiensis</i>		0	Use maximum rate recommended by manufacturer. On foliage every 7 days. Apply to both sides of leaves when larvae are small.
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	7	Collards only.
	Emamectin benzoate (Proclaim 5WDG)	2.4-4.8 ounces	14	Observe label.
	Indoxacarb (Avaunt 30WDG)	2.5-3.5 ounces	3	
	Permethrin (Ambush 25W)	3.2-6.4 ounces	1	
	Permethrin (Pounce 25WVP)	3.2-6.4 ounces	1	
	Spinetoram (Radiant SC)	5-10 fluid ounces	1	
	Zeta-cypermethrin (various))	2.24-4.0 ounces	1	
<b>Flea beetles</b>	Carbaryl (Sevin) 50WVP	3.0 pounds	14	Observe label.
<b>Stinkbugs</b>	Acetamiprid (Assail 30SG)	3.0-4.0 ounces	7	Observe label.
	Clothianidin (Belay 2.13SC)	3.4 ounces (foliar) 9.0-12.0 oz. (soil)	21 (foliar)	Soil application at plant only.
<b>Whiteflies</b>	Acetamiprid (Assail 30SG)	2.5-4.0 ounces	7	Observe label.
	Spiromesifen (Oberon 2SC)	7.0-8.5 fluid ounces	7	
	Spirotetramat (Movento 25C)	4.0-5.0 fluid ounces	1	Do not exceed 10 fluid ounces/season.

## CUCUMBER

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Acetamiprid (Assail 30SG)	2.5-4 ounces	0	Observe label.
	Fonicamid (Beleaf 50SG)	2-2.8 ounces	0	
	Pymetrozine (Fulfill)	2.75 ounces	14	
	Thiamethoxam (Actara)	2.0-3.0 ounces	None	
	Thiamethoxam (Platinum)	5.0-8.0 ounces	30	

# Vegetables – Commercial

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Cucumber beetles, vegetable weevils</b>	Malathion 5EC	1.0 pint	7	Observe label.
	Methomyl (Lannate LV)	1.5-3.0 pints	1.5 (1-day) > 1.5 (3-days)	
	Methomyl (Lannate SP)	0.5-1.0 pound	0.5 (1-day) > 0.5 (3-days)	
<b>Leafminers</b>	Abamectin (Agri-Mek) 0.15EC	8.0-16.0 ounces	7	Observe label.
	Naled (Dibrom 8EC)	0.5-0.75 pint	None	
	Permethrin (Pounce 3.2 EC)	4.0-8.0 ounces	To harvest	Not more than 1.6 pounds/A.I./acre per season.
	Permethrin (Pounce 25 WP)	6.4-12.8 ounces	To harvest	
	Rynaxypyr (Coragen 1.6SC)	5-7.5 fluid ounces	1	Soil, foliar or drip chemigation.
	Spinetoram (Radiant SC)	6-8 ounces	1	Observe label.
<b>Melon worms, pickleworms, squash bugs, squash vine borers</b>	Bifenthrin (various)	2.6-6.4 ounces	3	Observe label. Limit 19.2 fluid ounces per acre per season; allow 7 days between applications.
	Carbaryl (Sevin) 50WP	1.0 pound	None	
	Carbaryl (Sevin) 80S	0.6 pound	None	Observe label.
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	3	
	Permethrin (Ambush 25W)	0.1-0.2 pound	None	Not more than 1.6 pounds
	Permethrin (Pounce 3.2 EC)	4.0-8.0 ounces	To harvest	
	Permethrin (Pounce 25 WP)	6.4-12.8 ounces	To harvest	Observe label.
	Rynaxypyr (Coragen 1.67SC)	3.5-5 fluid ounces	1	Foliar or drip.
Spinetoram (Radiant SC)	5.0-10.0 fluid ounces	1	Observe label.	
<b>Spider mites</b>	Abamectin (Agri-Mek) 0.15EC	5-16 ounces	7	On foliage as needed; no more than 2 applications.
	Bifenazate (Acramite 50WS)	.75-1 pound	3	Do not exceed 1 application/season.
	Bifenthrin (Brigade) 2EC	2.6-6.4 ounces	7	Observe label.
	Fenpropathrin (Danitol 2.4EC)	10.66 ounces	7	
	Spiromesifen (Oberon 25G)	7-8.5 fluid ounces	7	

## EGGPLANT

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Imidacloprid (Admire Pro)	1.3-2.2 fluid ounces	0	Observe label. Foliar treatment.
	Malathion 5EC	1.0 pint	3	
	Malathion 25WP	3.5 pounds	3	
	Naled (Dibrom 8EC)	0.5 pint	1	
	Thiamethoxam (Actara)	2.0-4.0 ounces	None	



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Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Colorado potato beetles, flea beetles, horn worms, thrips, tomato fruitworms</b>	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	Observe label.
	Carbaryl (Sevin) 50WP	2.0 pounds	None	
	Carbaryl (Sevin) 80S	1.5 pounds	None	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	1	
	Imidacloprid (Admire 2F)	10.0-24.0 ounces		
	Indoxacarb (Avaunt)	3.5 ounces	3	
	Permethrin (Ambush 25WP)	0.1-0.2 pound	3	
	Permethrin (Pounce 3.2 EC)	8.0 ounces	3	
	Rynaxypyr (Coragen 1.67SC)	3.5-5.0 fluid ounces	1	Foliar or drip chemigation.
	Tebufozate (Confirm 2F)	6.0-8.0 ounces	7	Observe label.
Zeta-cypermethrin (various)	2.4-4.3 ounces			
<b>Spider mites</b>	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 fluid ounces	7	Observe label.
	Bifenazate (Acramite 50WS)	.75-1.0 pound	3	
	Fenbutatin-oxide (Vendex 50WP)	2.0-3.0 pounds	3	
	Fenpyroximate (Portal 0.4EC)	2 pints	3	
	Spiromesifen (Oberon 2SG)	7.0-8.5 fluid ounces	7	
<b>Whiteflies</b>	Thiamethoxam (Platinum)	5.0-8.0 ounces	30	Observe label.
	Thiamethoxam (Actara)	2.0-4.0 ounces	0	
	Acetamiprid (Assail 30SG)	2.5-4.0 ounces	7	No more than one every 7 days. Do not exceed four applications per season or 7 ounces/season.
	Spiromesifen (Oberon 2EC)	7.0-8.5 SC	7	Do not exceed three apps/season

## ENGLISH PEA

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids, cabbage loopers, cutworm</b>	Bifenthrin (Capture 2EC)	1.6-6.4 ounces	3	Observe label.
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	1	
	Imidacloprid (Admire Pro 4.6F)	1.2 fluid ounces	7	
	Malathion 5EC	1.0 pint	3	
	Pymetrozine (Fulfill 50WPG)	2.75 ounces	14	

# Vegetables – Commercial

## IRISH POTATO

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
Aphids, caterpillars, Colorado potato beetles, cucumber beetles, flea beetles, flea hoppers, leafhoppers, plant bugs, psyllids	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	14	Observe label.
	Acetamiprid (Assail 30SG)	1.5-4.0 ounces	7	
	Carbaryl (Sevin) 80S	0.6 pound	None	Foliage applications only.
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	1	Observe label.
	Imidacloprid (Admire Pro 4.6F)	1.2 fluid ounces	7	Observe label. Foliar treatment.
	Indoxacarb (Avaunt)	3.5-6.0 ounces	7	Observe label.
	Permethrin (Ambush 25W)	0.05-0.2 pound	7	
	Permethrin (Pounce 3.2 EC)	4.0-8.0 ounces	7	
	Pymetrozine (Fulfill)	2.75 ounces	14	
	Spinetoram (Radiant SC)	6.0-8.0 fluid ounces	7	
	Spinosad (Blackhawk 36WG)	1.7-3.3 ounces	3	
	Thiamethoxam (Actara)	1.5 ounces	14	
	Thiamethoxam (Platinum)	5.0-8.0 ounces	30	
Caterpillars	Methomyl (Lannate LV)	0.75-3.0 pints	10	Do not use in home plantings.
	Methomyl (Lannate SP)	0.25-1.0 pound	14	Observe label.
Mites	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	14	Observe label.
Whiteflies	Imidacloprid (Provado 1.6 F)	3.25 ounces	7	Observe label.
	Pymetrozine (Fulfill)	2.75 ounces	14	
	Thiamethoxam (Actara)	1.5 ounces	14	
	Thiamethoxam (Platinum)	5.0-8.0 ounces	30	
Wireworms	Ethoprop (Mocap 15G)	1.4 pounds per 1,000 ft. row	90	Observe label.

## LETTUCE

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
Aphids	Acetamiprid (Assail 30SG)	2-4 ounces	7	Do not apply more than 1 every 7 days; do not exceed 4 apps./year.
	Imidacloprid (Admire Pro 4.6F)	1.0-3.0 fluid ounces	7	Observe label.
	Malathion 5EC	1.0-2.0 pints	7 (head) 14 (leaf)	
	Pymetrozine (Fulfill)	2.75 ounces	7	
	Spinosad (SpinTor 2SC)	1.5-3.0 ounces	1	
	Spirotetramat (Movento 2SC)	4.0-5.0 fluid ounces	3	Do not exceed 10 fluid ounces/season.

## Vegetables – Commercial

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Caterpillars</b>	<i>Bacillus thuringiensis</i>			Use maximum rate recommended by manufacturer.
	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	Observe label. Observe label. Observe label.
	Emamectin benzoate (Proclaim)	2.4-4.8 ounces	7	
	Indoxacarb (Avaunt)	2.5-3.5 ounces	3	
	Permethrin (Ambush 25W)	0.1-0.2 pounds	1	Do not feed refuse leaves to livestock. On leaf lettuce, do not use more than 2 applications per season; head lettuce only.
	Permethrin (Pounce 3.2 EC)	4.0-8.0 ounces	7	Observe label.
	Permethrin (Pounce 25WP)	6.4-12.8 ounces	1	
	Spinosad (SpinTor 2SC)	1.5-3.0 ounces	1	
	Tebufozide (Confirm)	6.0-8.0 ounces	7	
	Zeta-cypermethrin (various)	2.4-4.3 ounces		
<b>Leafhoppers, leafminers</b>	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	7	Observe label.
	Bifenthrin (various)	2.6-6.4 ounces	7	
	Imidacloprid (Provado 1.6F)	3.75 fluid ounces	7	Check label for plant-back restrictions.
	Malathion 25WP	2.0-5.0 pounds	7 (head) 14 (leaf)	Observe label.
<b>Wireworms</b>	Diazinon AG500	3.0-4.0 quarts	14	Observe label.

### OKRA

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Imidacloprid (Admire Pro 4.6F)	1.3-2.2 fluid ounces	0	Observe label.
	Malathion 5EC	1.0 pint	1	
	Malathion 25WP	2.5 pounds	1	
<b>Beetles, leaf-footed bugs stink bugs</b>	Bifenthrin (Brigade 2EC)	2.6-6.4 ounces	7	Observe label.
	Buprofezin (Courier 40SC)	9-13.6 ounces	1	Observe label.
	Carbaryl (Sevin) 50WP	2.0 pounds	None	Observe label. Sevin will not control stinkbugs.
	Carbaryl (Sevin) 80S	1.25 pounds	None	
	Zeta-cypermethrin (various)	2.24-4 ounces	1	Observe label.
<b>Corn earworms</b>	Carbaryl (Sevin) 50WP	2.0 pounds	None	Observe label.
	Carbaryl (Sevin) 80S	1.25 pounds	None	
	Spinosad (SpinTor 2SC)	1.5-8.0 ounces	1	

# Vegetables – Commercial

## ONION, SHALLOT

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
Onion thrips, thrips	Acetamiprid (Assail 70WP)	2.1 – 3.4 ounces	7	Observe label.
	Malathion 5EC	0.6 pint	3	
	Malathion 25WP	1.5 pounds	3	
	Permethrin (Ambush 25W)	9.6-19.2 ounces	1	
	Permethrin (Pounce 25WP)	9.6-19.2 ounces	1	
	Spinetoram (Radiant SC)	6-8 fluid ounces	1	
	Zeta-cypermethrin (various)	2.4-4.3 ounces		
Onion maggots	Diazinon AG500	2.0-4.0 quarts	14	Observe label.

## PARSLEY

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
Aphids	Imidacloprid (Admire 4.6F)	7-10 ounces	21	Soil application.
	Imidacloprid (Provado 1.6F)	3.75 ounces	0	Observe label.
	Malathion 5EC	1.0 pint	21	
	Pymetrozine (Fulfill)	2.75 ounces	7	
Caterpillars, loopers	<i>Bacillus thuringiensis</i>		None	Observe label.
	Permethrin (Ambush 25W)	0.4-0.8 pound	1	
Flea beetles	Carbaryl (Sevin) 50W	2.0-4.0 pounds	14	Observe label.
	Malathion 5EC	1.0-2.0 pints	21	
	Methomyl (Lannate LV)	1.5-3.0 pints	10	
	Methomyl (Lannate SP)	0.5-1.0 pounds	10	
	Tebufozide (Confirm 2F)	6.0-8.0 ounces	7	

## PEPPERS

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
Aphids	Imidacloprid (Admire Pro)	7.0-14.0 ounces	21	Soil or foliar application.
	Methomyl (Lannate LV)	1.5-3.0 pints	3	Observe label.
	Methomyl (Lannate SP)	0.5-1.0 pound	3	
	Naled (Dibrom 8EC)	0.5 pint	1	
	Oxamyl (Vydate L)	2.0-4.0 pints	7-14	
	Thiamethoxam (Actara)	2.0-4.0 ounces	0	
Thiamethoxam (Platinum)	5.0-8.0 ounces	30		
Flea beetles, hornworms, leaf-	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	Observe label.

# Vegetables – Commercial

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>footed bugs, tomato fruitworms, yellow-striped armyworms</b>	Carbaryl (Sevin) 50WP	2.0 pounds	None	Observe label.
	Carbaryl (Sevin) 80S	1.25 pounds	None	
	Methomyl (Lannate LV)	1.5-3.0 pints	3	
	Methomyl (Lannate SP)	0.5-1.0 pound	3	
	Permethrin (Pounce 3.2 EC)	4.0-8.0 ounces	3	
	Spinosad (SpinTor 2SC)	1.5-8.0 ounces	1	
	Tebufenozide (Confirm 2F)	6.0-8.0 ounces	7	
	Zeta-cypermethrin (various)	2.4-4.3 ounces		
<b>Leafminers</b>	Abamectin (Agri-Mek) 0.15EC	8.0-16.0 ounces	7	Observe label.
	Cyromazine (Trigard 75WP)	2.66 ounces	0	
	Oxamyl (Vydate L)	2.0-4.0 pints	7-14	
	Permethrin (Pounce 3.2EC)	4.0-8.0 ounces	3	
	Spinosad (SpinTor 2SC)	1.5-8.0 ounces	1	
<b>Pepper weevils</b>	Acephate (Orthene) 75S	0.66 pound	7	Do not use on bell peppers. Use in conjunction with pyrethroids. -Observe label. - (General Comment) Begin spray application for control of pepper weevil as soon as damage is observed. Spray on 3- to 4-day schedule until control is obtained (usually 3 weeks). Destroy all pepper plants when through harvesting.
	Acetamiprid (Assail 30SG)	4.0 ounces	7	
	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	
	Carbaryl (Sevin) 80S	2.5 pounds	None	
	Esfenvalerate (Asana XL)	5.8-9.7 ounces	7	Bell peppers only.
	Permethrin (Ambush 25WP)	6.4-12.8 ounces	3	
	Permethrin (Pounce 3.2EC/25WP)	4.0-8.0 ounces	3	
<b>Spider mites</b>	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	7	Observe label.
	Bifenazate (Acramite 50WS)	.75-1.0 pound	3	No more than 1 app./season; will not control broad mite.
	Bifenthrin (Capture 2EC)	2.1-6.4 ounces	7	Observe label.
	Fenpyroximate (Portal .4EC)	2 pints	3	
	Spiromesifen (Oberon)	7.0-8.5 fluid ounces	7	Do not exceed 3 applications/season.
<b>Vegetable weevils, thrips</b>	Malathion 57EC	1.0 pint	7	-Late afternoon and evening spraying is best. Clearing or treating dead lands and ditch banks is effective. -Observe label.
	Imidacloprid (Admire Pro 4.6F)	7.0-14.0 ounces	21	
	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	7	
	Spinetoram (Radiant SC)	4.0-8.0 ounces	1	
<b>Whiteflies</b>	Imidacloprid (Admire 2F)	16.0-32.0 ounces	21	Soil application.

# Vegetables – Commercial

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
	Imidacloprid (Admire Pro)	1.3-2.2 ounces	0	Foliar application. Minimum interval between foliar applications: 5 days. Do not use more than 6.7 fluid ounces/acre per crop season.
	Pymetrozine (Fulfill)	2.75 ounces	7	Observe label.
	Thiamethoxam (Actara)	2.0-4.0 ounces	None	
	Thiamethoxam (Platinum)	5.0-8.0 ounces	30	

## PUMPKIN

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids, whiteflies</b>	Pymetrozine (Fulfill)	2.75 ounces	7	Observe label.
	Bifenthrin (Brigade 2EC)	2.6-6.4 fluid ounces	3	
	Imidacloprid (Admire 2F)	16.0-24.0 ounces	21	Soil application.
	Thiamethoxam (Actara)	2.0-4.0 ounces	None	Observe label.
<b>Cucumber beetles, melon worms, pickleworms, squash bugs, squash vine borers</b>	Carbaryl (Sevin) 50WP	1.0 pound	None	-Observe label. - Make first application for cucumber beetle when seedlings first crack soil; repeat as needed.
	Carbaryl (Sevin) 80S	0.6 pound	None	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	3	
	Permethrin (Pounce 3.2 EC)	8.0 ounces	1	
	Permethrin (Ambush 25WP)	6.4-12.8 ounces		
	Permethrin (Pounce 25WP)	12.8 ounces	1	
	Spinosad (SpinTor 2SC)	4.0-8.0 ounces	3	
<b>Spider mites</b>	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	7	Observe label.
	Bifenazate (Acramite 50WS)	.75-1.0 pound	3	No more than 1 application/season
	Spiromesifen (Oberon 2SG)	7-8.5 ounces	7	No more than 3 applications/season.

## RADISHES

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids, dipterous leafminers, flea beetles,</b>	Beta-cyfluthrin (Baythroid)	1.6-2.8 ounces	None	Observe label.
	Carbaryl (Sevin) 50WP	1.0 pound	3	
	Carbaryl (Sevin) 80S	0.6 pound	3	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	7	
	Imidacloprid (Admire Pro)	1.2 fluid ounces	7	Observe label. Foliar treatment.
	Spinosad (SpinTor 2SC)	3.0-6.0 ounces	7	Observe label.
<b>Wireworms</b>	Diazinon AG500	3.0-4.0 quarts	14	Observe label.

# Vegetables – Commercial

## SOUTHERN PEA

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Imidacloprid (Admire Pro)	7.0-10.5 fluid ounces	21	Soil or foliar application.
	Malathion 5EC	1.0 pint	1	Observe label.
	Malathion 25WP	2.5 pounds	1	
<b>Corn earworms, cowpea curculios, stinkbugs</b>	Bifenthrin (Capture 2EC) Capture 2EC	2.1-6.4 ounces	3	Observe label.
	Carbaryl (Sevin) 50WP	2.0 pounds	None	Carbaryl should be applied as a spray rather than a dust. Will not control stinkbugs.
	Carbaryl (Sevin) 80S	1.25 pounds	None	
	Methomyl (Lannate LV)	0.75-3.0 pints	3	Do not graze or feed treated forage to livestock.
	Methomyl (Lannate SP)	0.25-1.0 pound	3	Observe label.
	Spinosad (SpinTor 2SC)	3.0-6.0 ounces	3	
	Zeta-cypermethrin (various)	2.4-4.3 ounces		

## SPINACH

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Acetamiprid (Assail SG)	2.0-4.0 ounces	7	Do not apply more than once every 7 days; do not exceed 5 apps/season.
	Fonicamid (Beleaf 50SG)	2.0-2.8 ounces	0	Observe label.
	Imidacloprid (Admire Pro)	4.4-10.5 fluid ounces	21	Soil or foliar application.
	Malathion 5EC	1.0 pint	7	Observe label.
	Spirotetramat (Movento 2SC)	4.0-5.0 fluid ounces	3	Do not exceed 10 fluid ounces/ season.
<b>Caterpillars, flea beetles, loopers</b>	Indoxacarb (Avaunt 30SG)	2.5-3.5 ounces	3	-Observe label. -Spray on 5- to 7-day schedule or as needed. Apply sufficient spray to cover foliage completely.
	Methomyl (Lannate 90SP)	0.5 pound	7	
	Permethrin (Pounce 3.2 EC)	4.0 ounces	1	
	Permethrin (Ambush 25WP, Pounce 25WP)	6.4 ounces	1	
	Spinosad (SpinTor 2SC)	1.5-10.0 ounces	1	
	Tebufenozide (Confirm 2E)	6.0-8.0 ounces	7	
<b>Leafminers</b>	Cyromazine (Trigard 75WP)	2.66 ounces	7	Observe label.
	Spinetoram (Radiant SC)	6.0-10.0 ounces	1	

# Vegetables – Commercial

## SQUASH (SUMMER AND WINTER)

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Acetamiprid (Assail 30SG)	2.5-4.0 ounces	0	
	Bifenthrin (Capture 2EC)	2.6-6.4 fluid ounces	3	Limit 19.22 fluid ounces/season –2 applications post bloom; allow 7 days between applications.
	Pymetrozine (Fulfill 50WDG)	2.75 ounces	0	
<b>Cucumber beetles</b>	Bifenthrin 2EC	2.6-6.4 fluid ounces	3	Limit 19.22 fluid ounces/season – 2 applications post bloom; allow 7 days between applications.
	Imidacloprid (Admire Pro 4.6F)	7.0-10.5 fluid ounces	21	
	Dinotefuran (Venom 70SG)	3.0-4.0 oz. (foliar) 5.0-6.0 oz. (soil)	1 21	
<b>Leafminers</b>	Bifenthrin (Capture 2EC)	5.12-6.4 ounces	3	Observe label.
	Cyromazine (Trigard 75WP)	2.66 ounces	7	
	Naled (Dibrom 8EC)	0.5-1.0 pint	None (summer) 1 day (winter)	
	Oxamyl (Vydate L)	2.0-4.0 pints	1	Leafminers only.
	Permethrin (Pounce 3.2 EC)	4.0-8.0 ounces	To harvest	Not more than 1.6 pounds/A.l./acre per season.
	Permethrin (Pounce 25WP)	6.4-12.8 ounces	To harvest	Observe label.
	Spinetoram (Radiant SC)	6.0-10.0 ounce	1	
	Spinosad (SpinTor 2SC)	4.0-8.0 ounces	3	
<b>Melon worms, pickleworms, squash bugs, squash vine borers</b>	Carbaryl (Sevin) 50WP	1.0 pound	None	Observe label.
	Permethrin (Pounce 3.2EC)	4.0-8.0 ounces	To harvest	Not more than 1.6 pounds/A.l./acre per season.
	Permethrin (Pounce 25WP)	6.4-12.8 ounces	To harvest	Observe label.
	Acetamiprid (Assail 30WG)	5.3 ounces	0	
	Bifenthrin (Capture 2EC)	5.12-6.4 ounces	3	
	Spinosad (SpinTor 2SC)	4.0-8.0 ounces	3	
	Methomyl (Lannate LV)	1.5-3.0 pints	3	
	Methomyl (Lannate SP)	0.5-1.0 pound	3	
	Esfenvalerate (Asana XL)	1.7-3.4 ounces	3	
<b>Spider mites</b>	Bifenthrin (Capture 2EC)	5.12-6.4 ounces	7	Observe label.
<b>Whiteflies</b>	Imidacloprid (Admire 2F)	16.0-24.0 ounces	21	Soil application.
	Pymetrozine (Fulfill)	2.75 ounces	7	Observe label.
	Spiromesifen (Oberon 2SC)	7.0-8.5 fluid ounces	7	Do not apply more than 3 apps/season
	Thiamethoxam (Platinum)	5.0-8.0 ounces	30	Observe label.



# Vegetables – Commercial

## SWEET CORN

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Corn rootworms, wireworms</b>	Bifenthrin(Various)	0.4-8.0 oz./1,000 linear feet/row	0	Apply as 5-7 in T-band over open seed furrow.
<b>Cutworms</b>	Beta-cyfluthrin (Baythroid XL)	0.8-1.6 fluid ounces	0	Observe label.
	Bifenthrin (Brigade 2EC)	2.1-6.4 fluid ounces	1	
	Esfenvalerate (Asana XL)	4.8 ounces	1	
<b>European corn borers, fall armyworms</b>	Bifenthrin(Various)	0.4-8.0 oz./1,000 linear feet/row	0	Apply as 5-7 in T-band over open seed furrow.
	Carbaryl (Sevin) 50WP	4.0 pounds	None	Observe label.
	Carbaryl (Sevin) 80S	2.5 pounds	None	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	1	
	Indoxacarb (Avaunt 30DG)	2.5-3.5 ounces	3	For control of European corn borer in whorl stage only. Do not apply more than 14 ounces per acre per crop.
	Permethrin (Ambush 25WP)	6.4-12.8 ounces	1	(General comment) For best control apply to silks when silks first appear on 2-day schedule until silks wilt.
	Permethrin (Pounce 3.2 EC)	4.0-8.0 ounces	1	
	Permethrin (Pounce 25WP)	6.4-12.8 ounces	1	
	Rynaxypyr (Coragen 1.67SC)	3.5-5.0 fluid ounces		
	Spinetoram (Radiant SC)	3.0-6.0 ounces	1	Do not apply more than 36ounces per acre per season.
	Spinosad (SpinTor 2EC)	1.5-6.0 ounces	1	Observe label.
Zeta-cypermethrin (Fury 2EC)	2.4-4.3 ounces	3	Observe label.	
<b>Seed corn maggots</b>	Diazinon AG500	2.0-4.0 quarts	7	Observe label.

## FIELD TOMATO

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids, flea beetles</b>	Acetamiprid (Assail 30SG)	2.0-4.0 ounces	7	Do not apply more than once every 7 days. Do not exceed 5 apps/season.
	Dimethoate 4EC	0.5-1.0 pint	7	Do not exceed rate as leaf damage may occur.
	Flonicamid (Beleaf 50SG)	2.0-2.8 ounces	0	Will not control flea beetles.
	Imidacloprid (Admire Pro 4.6F)	7.0 fluid ounces	21	Short-term protection at planting. May also be applied to transplants in the planting house.
	Pymetrozine (Fulfill 50WDG)	2.75 ounce	0	For aphids only.
	Spirotetramat (Movento 2SC)	4.0-5.0 fluid ounces	1	Do not exceed 10 fl. ounces/ season.
	Thiamethoxam (Platinum 2SC)	5.0-11.0 ounces	30	May be applied to direct-seeded crops. Do not exceed 11 ounces/ A/season. Check label for plant-back restrictions for a number of crops.
	Thiamethoxam (Actara 25 WDG)	2.0-3.0 ounces	0	For foliar applications.
<b>Armyworms</b>	<i>Bacillus thuringiensis</i> (Crymax WDG)	0.5-1.5 pounds	0	Start application when larvae are small and continue at 5- to 7-day intervals during periods of infestation.
	<i>Bacillus thuringiensis</i> (Dipel 2X)	0.5-1 pound	0	

# Vegetables – Commercial

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
	<i>Bacillus thuringiensis</i> (XenTari)	0.5-1 pound	0	
	Emamectin benzoate (Proclaim 5WDG)	2.4-4.8 ounces	7	Apply when larvae are first observed.
	Indoxacarb (Avaunt 30DG)	3.5 ounces	3	Do not apply more than 14 oz/A/crop. Minimum interval b/w sprays is 5 days.
	Methoxyfenozide (Intrepid 2F)	4.0-10.0 ounces	1	Use low rates for early-season applications; 6-10 ounces for mid- to late-season applications.
	Rynaxypyr (Coragen 1.67SC)	3.5-5.0 fluid ounces	1	Foliar or drip chemigation. Observe label.
	Spinetoram (RadiantSC)	5.0-10.0 ounces	1	
<b>Cabbage loopers, hornworms, pinworms, tomato fruitworms</b>	<i>Bacillus thuringiensis</i> (Crymax WDG)	0.5-1.5 pound	0	Do not tank-mix <i>Bacillus thuringiensis</i> formulations with Dyrene.
	<i>Bacillus thuringiensis</i> (Dipel 2X)	0.5-1 pound	0	
	Beta-cyfluthrin (Baythroid XL)	1.6-2.8 fluid ounces	0	Do not exceed 16.8 fluid ounces per acre per season.
	Bifenthrin (various)	2.6-6.4 fluid ounces	1	
	Emamectin benzoate (Proclaim 5WDG)	2.4 - 4.8 ounces	7	
	Esfenvalerate (Asana XL 0.66 EC)	4.8-9.6 ounces	1	
	Fenpropathrin (Danitol 2.4 EC)	10.667 fluid ounces	3	Use a spray volume of 25-120 gallons per acre. Do not exceed 2.667 pints (42.667 fluid oz.) per acre per season.
	Gamma-cyhalothrin (Proaxis 0.5EC)	2.56-3.84 fluid oz.	5	
	Indoxacarb (Avaunt 30DG)	2.5-3.5 ounces	3	Do not apply more than 14oz./A/crop. Minimum interval b/w sprays is 5 days.
	Lamda-cyhalothrin (Warrior II)	1.28-1.92 ounces	5	Do not exceed 2.88 pints/A/season. Do not use on cherry tomatoes.
	Methomyl (Lannate 2.4LV)	1.5-3.0 pints	1	Methomyl may increase leafminer infestation .
	Methoxyfenozide (Intrepid 2F)	4.0-10.0 ounces	1	Use low rates for early-season applications; 6-10 ounces for mid- to late-season applications.
	Rynaxypyr (Coragen 1.67SC)	3.5-5 fluid ounces	1	Foliar or drip chemigation, observe label. Must be applied uniformly to root zone.
	Spinetoram (Radiant SC)	5.0-10.0 ounces	1	
	Zeta-cypermethrin + bifenthrin (Mustang Max .8EC)	2.24-4.0 ounces	1	
<b>Colorado potato beetles</b>	Acetamiprid (Assail 30SG)	1.5-2.5 ounces	7	For soil, foliar or transplant drench treatment.
	Imidacloprid (Admire Pro 4.6F)	7.0 fluid ounces	21	Foliar or drip chemigation. Observe label.
	Rynaxypyr (Coragen 1.67SC)	3.5-5.0 fluid ounces	1	
	Spinetoram (Radiant SC)	5.0-10.0 ounces	1	
	Thiamethoxam (Actara 25 WDG)	2.0-3.0 ounce	0	For foliar applications.
	Thiamethoxam (Platinum 2SC)	5.0-11.0 ounces	30	May be applied to direct-seeded crops. Do not exceed 11 ounces/ A/season. Check label for plant-back restrictions for a number of crops.
<b>Cutworms</b>	Beta-cyfluthrin (Baythroid XL)	1.6-2.8 fluid ounces	0	Do not exceed 16.8 fluid ounces per acre per season.

# Vegetables – Commercial

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
	Esfenvalerate (Asana XL 0.66 EC)	4.8-9.6 ounces	1	
	Gamma-cyhalothrin (Proaxis 0.5EC)	2.56-3.84 fl.oz.	5	
	Lamda-cyhalothrin (Warrior II)	1.28-1.92 ounces	5	Do not exceed 2.88 pints/A/season. Do not use on cherry tomatoes.
	Zeta-cypermethrin (various)	3.2-4.0 ounce	1	
<b>Leafminers</b>	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	7	Do not exceed 48 fluid ounces per acre per season or more than 2 sequential applications.
	Cyromazine (Trigard 75WP)	2.66 ounce	0	See label for plant-back restrictions.
	Spinetoram (Radiant SC)	6.0-8.0 ounces	1	Do not exceed 29 fluid ounces per acre per season.
<b>Spider mites</b>	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	7	Do not exceed 48 fluid ounces per acre per season or more than 2 sequential applications.
	Bifenazate (Acramite 50VS)	0.75-1.0 pound	3	Do not make more than 1 application per season.
	Spiromesifen (Oberon 2SG)	7.0-8.5 fluid ounces	7	Do not exceed 3 applications per season.
<b>Stinkbugs</b>	Bifenthrin (various)	2.6-6.4 fluid ounces	1	
	Fenpropathrin (Danitol 2.4 EC)	10.667 fluid ounces	3	Use a spray volume of 25-120 gallons per A. Do not exceed 2.667 pints (42.667 fl. oz.) per acre per season.
	Gamma-cyhalothrin (Proaxis 0.5EC)	2.56-3.84 fluid ounces	5	
	Lamda-cyhalothrin (Warrior II)	1.28-1.92 ounces	5	
	Thiamethoxam (Actara 25 WDG)	3.0-5.5 ounces	0	Do not exceed 11 oz. /A/season.
	Zeta-cypermethrin + bifenthrin (Mustang Max .8EC)	3.2-4.0 ounces	1	
<b>Thrips</b>	Dimethoate 4EC	0.5-1 pint	7	
	Dinotefuran (Venom 70SG)	1.0-4.0 oz. foliar	1	See comments under Whitefly for app. instructions and restrictions.
		5.0-6.0 ounces soil	21	
	Methomyl (Lannate 2.4LV)	1.5-3 pints	1	On foliage as needed.
	Spinetoram (Radiant SC)	6.0-10.0 ounces	1	Controls thrips on foliage, not in flowers.
<b>Whiteflies</b>	Acetamiprid (Assail 30SG)	2.5-4.0 ounces	7	Do not apply more than once every 7 days. Do not exceed 5 apps./ season.
	Buprofezin (Courier 40 SC)	9.0-13.6 fluid ounces	7	Use sufficient water to ensure good coverage. Do not apply more than 2 per crop cycle; allow 28 days between applications.
	Dinotefuran (Venom 70SG)	1-4oz foliar	1	Do not follow soil apps with apps of other neonicotinoid insecticides (Actara or Venom) Use only one app. method. May also control stink bugs.
	Dinotefuran (Venom 70SG)	5-6 ounce soil	21	
	Imidacloprid (Admire Pro)	1.3-2.2 fluid ounces	0	Foliar application. Minimum interval between foliar applications: 5 days. Maximum = 6.7 fluid ounces per acre per crop season.
	Imidacloprid (Admire Pro 4.6F Soil)	7.0-10.5 fluid ounces	21	Do not follow soil apps. with apps. of other neonicotinoid insecticides (Actara, Provado or

# Vegetables – Commercial

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
				Venom). Residual activity will increase with increasing rates applied. Use higher rate for late-season or continuous infestations. Trickle irrigation will also control aphids and stink bugs.
	Pyriproxfen (Knack 0.86EC)	8.0-10.0 ounces	14	Do not apply more than 2 apps. per growing season. Do not make apps. closer than 14 days.
	Spiromesifen (Oberon 2SG)	7.0-8.5 fluid ounces	7	Do not exceed 3 applications per season.
	Spirotetramat (Movento 2SC)	4.0-5.0 fluid ounces	1	Do not exceed 10 fl. ounces /season.
	Thiamethoxam (Actara)	3.0-5.5 ounces	0	Actara is for foliar applications.
	Thiamethoxam (Platinum 2SC)	5.0-11.0 ounces	30	Do not follow soil apps. with apps. of other neonicotinoid insecticides (Actara, Provado or Venom). May be applied to direct-seeded crops. Do not exceed 11 oz per acre per season. Check label for plant-back restrictions for a number of crops.
<b>Wireworms</b>	Diazinon AG 500	2.0-4.0 quart	0	Broadcast before planting and incorporate. Wireworms may be a problem in fields previously in pasture, corn or soybeans.

## TURNIP

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Imidacloprid (Admire Pro)	4.4-10.5 ounces	21	Greens only.
	Naled (Dibrom 8EC)	0.5 pint	1	Observe label.
	Malathion 5EC	1.0 pint	7	
	Malathion 25WVP	2.5 pounds	3	
		Pymetrozine (Fulfill)	7.75 ounces	7
<b>Cabbage loopers, diamondback moths</b>	Emamectin benzoate (Proclaim 5WDC)	2.4-4.8 ounces	14	For turnip greens only.
	Esfenvalerate (Asana XL)	5.8-9.6 fluid ounces	7	Observe label.
	Indoxacarb (Avaunt 30WDG)	2.5-3.5 ounces	3	
	Spinetoram (Radiant SC)	3.0-6.0 fluid ounces	1	
<b>Caterpillars, flea beetles, loopers</b>	<i>Bacillus thuringiensis</i>			Use maximum rate recommended by manufacturer.*
	*Spray on 5- to 7-day schedule. Apply sufficient spray to cover foliage completely.			Observe label.
	Imidacloprid (Ambush 25V)	3.2-6.4 ounces	1	
	Naled (Dibrom 8EC)	0.51 pint	1	
	Spinetoram (Radiant IC)	3-6 fl. ounces	1	
	Tebufenozide (Confirm 2F)	6.0-8.0 ounces	7	

# Vegetables – Commercial

## WATERMELON

Insects	Insecticide and Formulations	Rate/A	Cutoff Date	Remarks, Restrictions, or Limitations
<b>Aphids</b>	Bifenthrin (Brigade 2EC)	2.6-6.4 fluid ounces	3	Observe label.
	Imidacloprid (Admire Pro)	7.0-10.5 ounces	21	Soil or foliar application.
	Naled (Dibrom 8EC)	0.25-0.5 pint	1	Observe label.
	Pymetrozine (Fulfill)	2.75 ounces	7	
	Thiamethoxam (Actara)	2.0-4.0 ounces	0	
<b>Cucumber beetles</b>	Acetamiprid Assail 30SG	2.5-5.3 ounces	0	Observe label.
	Dinotefuran (Venom 70 SG)	1.0-4.0 ounces (foliar); 5.0-6.0 ounces (soil)	1	
	Imidacloprid (Admire Pro 4.6F)	7.0-10.5 fluid ounces	21	
<b>Cutworms</b>	Esfenvalerate (Asana XL)	4.8-9.6 ounces	3	Observe label.
	Permethrin (Various) 25W	12.8 ounces	0	
	Permethrin (Various) 3.2EC	8.0 fluid ounces	0	
<b>Leafminers</b>	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	21	Observe label.
	Cyromazine (Trigard 75WP)	2.66 ounces	0	
	Spinetoram (Radiant SC)	8.0 ounces	3	
<b>Melon worms, pickleworms</b>	Bifenthrin (Capture 2EC)	5.12-6.4 ounces	3	Observe label.
	Carbaryl (Sevin) 50WP	1.0 pound	None	Observe label.
	Carbaryl (Sevin) 80S	0.6 pound	None	
	Esfenvalerate (Asana XL)	5.8-9.6 ounces	1	
	Oxamyl (Vydate L)	2.0-4.0 pints	1	Not more than 1.6 pounds active ingredient per acre per season.
	Permethrin (Pounce 3.2EC)	4.0-8.0 ounces	None	
	Permethrin (Pounce 25WP)	6.4-12.8 ounces	None	Observe label.
	Abamectin (Agri-Mek 0.15EC)	8.0-16.0 ounces	7	
	Bifenazate (Acramite 50WG)	0.75-1.0 pound	3	
	Bifenthrin (Brigade 2EC)	2.6-6.4 ounces	3	
	Etoxazole (Zeal 72WP)	2.0-3.0 ounces	7	
Spiromesifen (Oberon 2SG)	7.0-8.5 fluid ounces	7		
<b>Spider mites</b>	Spiromesifen (Oberon 2SG)	7.0-8.5 fluid ounces	7	Observe label.
<b>Whiteflies</b>	Acetamiprid (Assail 30SG)	2.5-5.3 ounces	0	Observe label.
	Buprofezin (Courier 40SC)	9.0-12.5 fluid ounces	7	
	Pymetrozine (Fulfill)	2.75 ounces	7	
	Spiromesifen (Oberon 70SC)	7.0-8.5 fluid ounces	7	
	Thiamethoxam (Actara)	2.0-4.0 ounces	0	

# Vegetables – Commercial

## General Pests

<b>Pest</b>	<b>Insecticide</b>	<b>Rate</b>	<b>Restrictions and Limitations</b>
<b>Blister beetles</b>	Carbaryl	1.0 pound active ingredient per acre	Apply as spot treatment as needed. Observe label.
	Malathion	1.0 pound active ingredient per acre	
<b>Snails, slugs</b>	Metaldehyde bait	10 pounds of 25% bait	Apply to soil around plants. Do not contaminate edible parts. Observe label.