

Ornamental and Flowering Plants

Table 1. Bulbs

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Leaf-feeding caterpillars	Acelepryn (chlorantraniliprole)	See label.	1.0-2.0 ounces	Follow label. Treat when insect appears as small larvae.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/ 1,000 square feet	Follow label. Treat when insect appears as small larvae.
	Arena 50WDG (clothianidin)	See label.	Variable	Follow label. Treat when insect appears as small larvae.
	Sevin 10% dust (carbaryl)	See label.	See label.	Follow label. Treat when insect appears as small larvae.
	Sevin 50% WP (carbaryl)	2.0 tablespoons	2.0 pounds	Follow label. Treat when insect appears as small larvae.
	Conserve SC (spinosad)	0.06 fluid ounce	6.0 fluid ounces	Follow label. Treat when insect appears as small larvae.

Table 2. African Violet

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Cyclaman mites	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	Follow label.
	Ultra-Fine oil (paraffinic oil)	2/3-2.5 ounces	See label.	May be used alone for thrips, whiteflies, mealybugs, mites and aphids or in combination with the above insecticides.
	*Judo (spiromesifen)	3.0-6.0 milliliters/5 gallons	2.0-4.0 ounces	

Table 3. Annual Flowering Plants

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	See label.	Follow label.
	Distance 0.86 EC (pyriproxyfen)	0.5-2/3 teaspoon	6.0-12.0 ounces	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	0.25-0.5 teaspoon	0.25 to 0.5 pound	Follow label.
	Duraguard ME (chlorpyrifos)	0.5 ounce	1.0-1.5 quarts	Follow label.
	*Flagship 25 WG (thiamethoxam)	See label.	2.0-4.0 ounces	For greenhouses, shade houses and field nurseries.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces	Follow label.
	Malathion (57% EC)	2.0 teaspoons	1.5 pints	Follow label.
	Mavrik Aquaflow (tau-fluvalinate)	0.25-0.6 teaspoon	4-10 ounces	Follow label.
	*Merit 75WP (imidacloprid)	1.0 teaspoon/gallon	3.5 tablespoons	Follow label.
	Endeavor 50WP (pymetrozine)	1/3-2/3 teaspoon	2.5-5.0 ounces	Follow label.
	Tristar 70SW (acetamiprid)	See label.	1 packet	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/ acre.	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Caterpillars	Acelepryn (chlorantranilprole)	See label.	1.0-2.0 ounces	Follow label.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	See label.	Follow label.
	Mavrik Aquaflo (tau-fluvalinate)	0.25-0.6 teaspoon	4-10 ounces	Follow label.
	Sevin 50% WP (carbaryl)	2.0 tablespoons	2.0 pounds	Follow label.
	Sevin 10% Dust (carbaryl)	See label.	See label.	Follow label.
	*Astro 3.2 EC (permethrin)	1.0-2.0 teaspoons/3.0 gallons	4.0-8.0 ounces	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	0.25-0.5 teaspoon	0.25-0.5 pound	Follow label.
	°Condor XL (<i>Bacillus thuringiensis</i>)	See label.	0.75-1.75 pints/ acre	Follow label.
	°Crymax XL (<i>Bacillus thuringiensis</i>)	See label.	0.5-1.5 pounds/ acre	Follow label.
Mealybugs	Same as for aphids	Same as for aphids	Same as for aphids	Treat when crawlers appear; re-treat once dry.
	Tristar 70SW (acetamiprid)	See label.	1 packet	
	Kontos (spirotetramat)	1.7-3.4 ounces/100	5-8 ounces/Acre	

Table 4. Azalea

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Bark scales	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Scales: Do not use during flowering; use only 4 times during growing season; do not use on stressed plants.
	Ultra-Fine oil (paraffinic oil)	2.5-5.0 tablespoons	1.0-2.0 gallons	
	Talstar 10W (bifenthrin)	1.0 teaspoon	0.6-1.6 ounces/10.0 gallons (3.0-8.0 tablespoons/ 10.0 gallons)	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Crotch scales, azalea mealybugs	Summer oil emulsion plus	5.0 tablespoons plus 2.0 gallons plus	See label	Sprays for scale control are most effective if they are made during crawler stages. Spray April 1 to June 1 and October. <u>Time of application</u> is most important. Repeat application in 3-4 weeks.
	Malathion (57% EC)	1.0 tablespoon	2.0 pints	
	Sevin 50% WP (carbaryl)	2.0 tablespoons	2.0 pounds	
	*Merit 75 WP (imidacloprid)	1.0 teaspoon/10.0 gallons	3.5 tablespoons	
	Orthene TTO/75S (acephate)	See label.	2/3 pound (10.5 ounces)	
	Orthene TTO/97S (acephate)	0.5 teaspoon	See label	
	*Flagship (thiamethoxam)	See label.	2.0-4.0 ounces or 4.0-8.0 ounces	Not closer than 7-day intervals; for use in greenhouses, shade houses and field nurseries.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces	Follow label.
	Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.
Leafminers, Leafrollers, Leaf tiers	Acelepryn (chlorantraniliprole)	See label.	1.0-2.0 ounces	Follow label.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	Variable	Follow label.
	Avid 0.15 EC (abamectin)	0.5 teaspoon	8.0 ounces	Follow label.
	*Azatin XL (azadirachtin)	See label.	10.0-16.0 ounces	Follow label.
	*Astro 3.2 EC (permethrin)	1.0-2.0 teaspoons	4.0-8.0 ounces	Follow label.
	Orthene TTO/75S (acephate)	0.5 teaspoon	4.0 ounces	Follow label.
	Orthene TTO/97S (acephate)	See label.	See label.	Follow label.
	*Conserve SC (spinosad)	0.06 fluid ounce	6.0 fluid ounces	Follow label.
	Citation (cyromazine)	See label.	2.66 ounces	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
Peony scales	Same as bark scale	Same as bark scale	Same as bark scale	Spray about May 1 to June 1. Repeat application in 3-4 weeks.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Spider mites (all species)	Avid 0.15 EC (abamectin)	0.25 teaspoon	4.0 ounces	Follow label instructions. Make application when mites first appear and repeat in 7-10 days.
	Malathion (57% EC)	1.0 tablespoons	1.5 pints	Follow label.
	*Mesuro 75 WP (methiocarb)	See label.	0.5-1 pound/50 gallons/acre	Repeat treatment as necessary when populations build up again. Alternating materials will provide better control than using the same material each time mites occur.
	Talstar 10 WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10.0 gallons	Follow label.
	Floramite 50% (bifenazate)	1/3-2/3 teaspoon	2.0-4.0 ounces	Do not use with oils or spreader stickers. Treat when symptoms first appear.
	Conserve SC (spinosad)	0.2 fluid ounce	22.0 fluid ounces	Follow label.
	Ornamite (propargite)	1.0 ounce/6.25 gallons	1.0 pound	Follow label.
	Ultra-Fine oil (paraffinic oil)	2.5-5.0 tablespoons	1.0-2.0 gallons	Follow label.
	*Judo (spiromesifen)	See label	2.0-4.0 ounces	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Do not use during flowering. Use only four times during growing season. Do not use on stressed plants.
	*Ovation SC (clofentezine)	See label.	2.0 ounces	One application per crop cycle in greenhouses, lath, shade houses, or outdoor ornamentals.
	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	Follow label.
	Kontos (spirotetramat)	1.7-3.4 ounces/100	5-8 ounce/Acre	Follow label.
	Pylon (chlorfenapyr)	See label.	2.6-5.2 ounces	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Thrips, lace bugs	Acelepryn (chlorantraniliprole)	See label.	2.0-4.0 ounces	Follow label.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	Variable	Follow label.
	Malathion (57% EC)	1.0-1.5 teaspoons	1.0-1.5 pints	Follow label.
	Mavrik Aquaflow (tau-fluvalinate)	0.25-0.6 teaspoon	4-10 ounces	Follow label.
	*Merit 75 WP (imidacloprid)	1.0 teaspoon/10.0 gallons	3.5 tablespoons	Follow label.
	Merit 2.5G (imidacloprid)	Rate based on plant height	See label.	Follow label.
	*Astro 3.2 EC (permethrin)	1.0-2.0 teaspoons/3 gallons	4.0-8.0 ounces	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	0.5 teaspoon	8.0 ounces	Follow label.
	°Conserve SC (spinosad)	0.06-0.1 ounce	6.0-11.0 ounces	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
Zenith (imidacloprid)	See label.	1.6 ounces	Follow label.	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Tea scales, Camellia scales	Ultra-Fine oil (paraffinic oil)	2.5-5.0 ounces	1.0-2.0 gallons	Can be used alone or in combination with insecticides.
	*Dursban 50W (chlorpyrifos)	See label.	2.0-4.0 pounds	<ul style="list-style-type: none"> Sprays for scale control are most effective if applied during the crawler stages. Prune nongrowing branches on inside of plants. Remove heavily infested leaves. Follow label.
	°°Distance 0.86 EC (pyriproxyfen)	2/3-1.5 teaspoons	8.0-12.0 ounces	
	Safari (dinotefuran)	See label.	8.0-12.0 ounces	
	Summer oil emulsion	5.0 tablespoons	2.0 gallons	
	Sevin 50% WP (carbaryl)	2.0 tablespoons	2.0 pounds	
	*Merit 75WP (imidacloprid)	2.0 teaspoons/10.0 gallons	3.5 tablespoons	
	Merit 2.5G (imidacloprid)	Rate based on plant height	See label.	
	Zenith (imidacloprid)	See label.	1.6 ounces	
	Meridian 25WP (thiamethoxam)	See label.	2.0-8.5 ounces	
	Orthene TTO/75S (acephate)	See label.	2/3 pound	(Crawlers only)
	Orthene TTO/97S (acephate)	0.5 teaspoon	8.0 ounces	Follow label.
	°°Distance 0.86 EC (pyrproxyfen)	0.5-2/3 teaspoon	8.0-12.0 ounces	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
Peony scales	Same for tea scale and camellia scale.	See label.	See label.	Prune dead and non-growing branches. Spray stems thoroughly about May to June.
Spider mites	Same for spider mites on azaleas.	See label.	See label.	Same as for azaleas.
Rust mites	Pylon (chlorfenapyr)	See label.	2.6-5.2 ounce	Follow label.
	Sevin 2T (carbaryl)	See label.	2.0 pounds	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Avid (abamectin)	See label.	4.0 ounces	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Treat when insects appear on young spring growth.
	Malathion (57% EC)	2.0 teaspoons	1.5 pints	Follow label.
	Zenith 75 (imidacloprid)	See label.	1.6 ounces	Follow label.
	*Flagship 25WG (thiamethoxam)	See label.	2.0-4.0 ounces	For greenhouses, shade houses, and field nurseries.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces	Follow label.
	Orthene (15.6% EC) (acephate)	1.0 tablespoons	3.0 pints	Follow label.
	Talstar 10WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10.0 gallons	Follow label.
	*Merit 75WP (imidacloprid)	1.0 teaspoon/10.0 gallons	3.5 tablespoons	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	0.25-0.5 teaspoon	0.25-0.5 pound	Follow label.
	Endeavor 50WP (pymetrozine)	1/3-2/3 teaspoon	2.5-5.0 ounces	Follow label.
	Tristar 70SP (acetamiprid)	See label.	1 packet	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label	Follow label.
	Meridian 25WP (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.
∞Distance IGR (pyriproxyfen)	See label.	6.0-8.0 ounces	Follow label.	
Cranberry root worm beetles	Sevin 10% Dust (carbaryl)	See label.	See label.	Apply in late afternoon.
	Sevin 80% WP (carbaryl)	4.0 teaspoons	1.25 pounds	Apply in late afternoon.
	Malathion (57% EC)	2.0 teaspoons	1.5 pints	Apply in late afternoon.
Euonymous scales	Same as Tea scales	See label.	See label.	Prune out dead and dying branches then spray.

Table 5. Canna Lily

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Leafrollers	Sevin 10% Dust (carbaryl)	See label.	See label.	Treat weekly as long as insects are present.
	°Azatin XL (azadirachtin)	See label.	See label.	
	Battle WP (lambda-cyhalothrin)	1.0-2.0 gms	1.2-4.8 ounces	
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Chili Thrips	Orthene (acephate)	See label.	10 2/3 ounces	Homeowners
	Merit 2F (imidacloprid)	See label.	1.5 ounce	
	Spinosad	See label.	8 ounce	
	Tristar (acetamiprid)	See label.	3-6 sol pkg	Nursery and Landscape Maintenance
	Safari (dinotefuran)	See label.	3/4 -1.5 pounds	
	*Flagship (thiamethoxam)	See label.	8 ounces	
	Avid (abamectin)	See label.	8 ounces	
	Aria (flonicamid)	See label.	3-4 packets	Greenhouse Nursery and Landscape Materials
	Pylon (chlorfenapyr)	See label.	10-20 ounces	
	Overture (pyridalyl)	See label.	8 ounce	

Table 6. Chrysanthemum

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label. Treat when aphids first appear.
	Talstar 10WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10 gallons	Follow label. Treat when aphids first appear.
	Malathion (57% EC)	1.0 tablespoons	1.0 quart	Follow label. Treat when aphids first appear.
	Mavrik Aquaflow (tau-fluvalinate)	0.25-0.6 teaspoon.	4-10 ounces	Follow label. Treat when aphids first appear.
	*Merit 75 WP (imidacloprid)	1 teaspoon/10 gallons	3.5 tablespoons	Follow label. Treat when aphids first appear.
	Tristar 70SP (acetamiprid)	See label.	1 packet	Follow label. Treat when aphids first appear.
	Endeavor 50 WP (pymetrozine)	1/3-2/3 teaspoon/gal	2.5-5.0 ounces	Follow label. Treat when aphids first appear.
	Distance 0.86 EC (pyriproxyfen)	1/3-2/3 teaspoon	6.0-12.0 ounces	Follow label. Treat when aphids first appear.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label. Treat when aphids first appear.
	Orthene TTO/97S (acephate)	See label.	4.0 ounces	Follow label. Treat when aphids first appear.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label	Follow label. Treat when aphids first appear.
	Zenith 75 (imidacloprid)	See label.	1.6 ounces	Follow label. Treat when aphids first appear.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces	Follow label. Treat when aphids first appear.
Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Caterpillars	Acelepryn (chlorantraniliprole)	See label.	1.0-2.0 ounces	Watch for small caterpillars feeding in terminal buds or under leaves and treat when first appearing and weekly thereafter.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	
	Sevin 10% Dust (carbaryl)	See label.	See label.	
	Orthene TTO/75S (acephate)	See label.	2/3 pound	
	Orthene TTO/97S (acephate)	See label.	4.0 ounces	
	*Astro 3.2 EC (permethrin)	1.0-2.0 teaspoons/ 3.0 gallons	4.0-8.0 ounces	
	Conserve SC (spinosad)	0.06 fluid ounce	6.0 fluid ounces	
Mealybugs	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.Treat when insects appear.
	Arena 50WDG (clothianidin)	See label.	See label.	Follow label.Treat when insects appear.
	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Follow label.Treat when insects appear.
	Talstar 10 WP (bifenthrin)	0.6-1.6 ounces/10 gallons	See label.	Follow label.Treat when insects appear.
	Sevin 50% WP (carbaryl)	2.0 tablespoons	2.0 pounds	Follow label.Treat when insects appear.
	*Merit 75 WP (imidacloprid)	1 teaspoon/10 gallons	3.5 tablespoons	Follow label.Treat when insects appear.
	Kontos (spirotetramat)	1.7-3.4 ounces/100 gallons	5-8 ounces/Acre	Follow label.Treat when insects appear.
	Tristar 70SP (acetamiprid)	See label.	2 packet	Follow label.Treat when insects appear.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.Treat when insects appear.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Follow label.Treat when insects appear.
	*Flagship 25WG (thiamethoxam)	See label.	2.0-4.0 ounces	For greenhouses, shade houses and field nurseries.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces-spray 12.0-24.0 ounces-drench	Follow label.
	Zenith 75 (imidacloprid)	See label.	1.6 ounces	Follow label.
	Ultra-Pure oil	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre	
Termites	Dursban 4 EC (chlorpyrifos)	1.0 fluid ounce	1.0 quart	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Thrips	Malathion (57% EC)	2 teaspoons	1.5 pints	Start spraying when thrips first appear.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces	Start spraying when thrips first appear.
	Mavrik Aquaflow (tau-fluvalinate)	0.25-0.6 teaspoon	4-10 ounces	Start spraying when thrips first appear.
	*Merit 75WP (imidacloprid)	1.0 teaspoon/10.0 gallons	3.5 tablespoons	Start spraying when thrips first appear.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Start spraying when thrips first appear.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Start spraying when thrips first appear.
	Overture 35WP (pyridalyl)	See label.	8.0 ounces	Start spraying when thrips first appear.
	*MesuroI 75WP (methiocarb)	See label.	0.5-1.0 pound/50 gallons/acre	2 sprays; 5 days apart.
	Conserve SC (spinosad)	0.06 fluid ounce	6.0 fluid ounces	Follow label.
	Zenith 75 (imidacloprid)	See label.	1.6 ounces	Follow label.
	Spinosad	See label.	6.0-11.0 ounces	Follow label.
Leafminers	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	°Citation (cyromazine)	See label.	2.66 ounces/acre	Follow label.
	°Azatin XL (azadirachtin)	See label.	See label.	Follow label.
	Avid 0.15 EC (abamectin)	0.5 teaspoon	8.0 ounces	Follow label.
	Conserve SC (spinosad)	0.2 fluid ounce	22.0 fluid ounces	Follow label.
	*Astro 3.2 EC (permethrin)	1-2 teaspoons/3 gallons	4.0-8.0 ounces	Follow label.
	Pounce 3.2 EC (permethrin)	1.0 teaspoon	20.0 ounces	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Spider mites	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Treat when mites first begin to appear on foliage.
	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	Treat when mites first begin to appear on foliage.
	Talstar 10 WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/10 gallons	Treat when mites first begin to appear on foliage.
	*MesuroI 75 WP (methiocarb)	See label.	0.5-1pound/50 gallons/acre	Treat when mites first begin to appear on foliage.
	Floramite (bifenazate)	1/3-2/3 teaspoon/gal	2.0-4.0 ounces	Treat when mites first begin to appear on foliage.
	Ultra-Fine oil (parafinic oil)	See label.	See label.	Treat when mites first begin to appear on foliage.
	M-PEDE (potassium salts of fatty acids)	3.0 tablespoons	0.5-2.0 gallons	Treat when mites first begin to appear on foliage.
	*Judo (spiromesifen)	See label.	2.0-4.0 ounces	Treat when mites first begin to appear on foliage.
	*Ovation SC (chlorfentazine)	See label.	2.0 ounces	Treat when mites first begin to appear on foliage.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	One application per crop cycle in greenhouse, lath, shade houses or outdoor ornamentals.
	Avid (abamectin)	See label.	4 ounces	Follow label.

Table 7. Crape Myrtle

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label. Treat when aphids first appear to prevent sooty mold stain.
	Arena 50WDG (clothianidin)	See label.	See label.	Follow label. Treat when aphids first appear to prevent sooty mold stain.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter	See label.	Follow label. Treat when aphids first appear to prevent sooty mold stain.
		1.0-2.5 ounces summer	See label.	Follow label. Treat when aphids first appear to prevent sooty mold stain.
	Talstar 10 WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10 gallons	Follow label. Treat when aphids first appear to prevent sooty mold stain.
	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Follow label. Treat when aphids first appear to prevent sooty mold stain.
	Endeavor 50 WP (pymetrozine)	1/3-2/3 teaspoon/gal	2.5-5.0 ounces	Follow label. Treat when aphids first appear to prevent sooty mold stain.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Make slurry with 4.0 tablespoons Orthene and 1.0 tablespoons water. Paint band on trunks twice width of diameter in April and late May.
	*Endeavor (pymetrozine)	1/3-2/3 teaspoon	2.5-5.0 ounces	Follow label.
	Malathion	1.0 tablespoon	3.0 pints	Follow label.
	*Merit 75 WP (imidacloprid)	1.0 teaspoon/10 gallons	3.5 tablespoons	Follow label.
	*Flagship 25WG (thiamethoxam)	See label.	2.0-4.0 ounces	For greenhouses, shade houses and field nurseries.
	Zenith 75 (imidacloprid)	See label.	1.6 ounces	Follow label.
	Tristar 70SP (acetamiprid)	See label.	1 packet	Follow label.
Safari (dinotefuran)	See label.	4.0-8.0 ounces	Follow label.	
Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Bark scales	Arena 0.25G (clothianidin)	Follow labeled rate for drench application.	See label.	When treating multi-trunk trees, measure the circumference of each trunk at breast height and add the numbers together (16 + 15 + 17 = 48 inches). Divide this number by 3 if the label for the product you are using specifies the rate based on inches of trunk diameter, rather than circumference.
	Arena 50WDG (clothianidin)	Follow labeled rate for drench application.	See label.	
	Safari (dinotefuran)	Follow labeled rate for drench application.	See label.	
	Merit or Bayer Advanced Garden Tree and Shrub Insect Control (imidacloprid)	Follow labeled rate for drench application.	See label.	
	Meridian 25 WG (thiomethoxam)	Follow labeled rate for drench application.	See label.	

Table 8. Dahlia

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Spider mites	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Ultra-Fine oil (parafinic oil)	See label.	See label.	Follow label.
	Avid 0.15 EC (abamectin)	0.25 teaspoon	4.0 ounces	Follow label.
	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	Follow label.
	Kontos (spirotetramat)	1.7-3.4 ounces/100	5-8 ounce/acre	Follow label.
	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Follow label.
	Floramite (bifenazate)	1/3-2/3 teaspoon/gal	2.0-4.0 ounces	Follow label.
Termites	Same as for Chrysanthemum	See label.	See label.	Follow label.

Table 9. Daylily

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	See label.	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Make 3 applications of Malathion.
	Talstar 10WP (bifenthrin)	0.6-1.6 ounces/10 gallons	See label.	Spray 4 weeks apart beginning in January.
	**Distance 0.86 EC (pyriproxyfen)	1/3-2/3 teaspoon	6.0-12.0 ounces	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Follow label.
	Endeavor 50WP (pymetrozine)	1/3-2/3 teaspoon/gal	2.5-5.0 ounces	Follow label.
	*Merit 75WP (imidacloprid)	1.0 teaspoon/10 gallons	3.5 tablespoons	Follow label.
	Tristar 70WSP (acetamiprid)	See label.	1 packet/100	Follow label.
	Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.
Spider mites	Avid 0.15 EC (abamectin)	0.25 teaspoon	4.0 ounces	Make two applications 2-3 weeks apart when mites appear. Do not use with oils or spreader stickers.
	Floramite (bifenazate)	2.0-4.0 ounces/acre	1/3-2/3 teaspoon/gal	Follow label.
	*MesuroI 75WP (methiocarb)	See label.	0.5-1 pound/50 gallons/acre	Follow label.
	Ultra-Fine oil (parafinic oil)	See label.	See label.	Apply as needed up to 8 pounds/acre/ year.
	*Judo (spiromesifen)	See label.	2.0-4.0 ounces	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	Follow label.

Table 10. Gardenia

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Whiteflies	Kontos (spirotetramat)	1.7-3.4 ounces/100	5-8 ounce/acre	Follow label.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	See label.	Follow label.
	Forbid 4F (spiromesifen)	See label.	2.0-4.0 ounces	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Ultra-Fine oil (parafinic oil)	2.5-5.0 ounces	1.0-2.0 gallons	Can be used alone or in combination with insecticides.
	Zenith 75 (imidacloprid)	See label.	1.6 ounces	Follow label.
	Talstar 10 WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 50.0 gallons	Treat when adults are emerging and laying eggs.
	*Judo (spiromesifen)	See label.	2.0-4.0 ounces	Follow label.
	Astro 3.2 EC (permethrin)	1.0-2.0 teaspoons/3.0 gallons	4.0-8.0 ounces	Follow label.
	*Flagship 25 WG (thiamethoxam)	See label.	2.0-4.0 ounces	For greenhouses, shade houses and field nurseries.
	*Merit 75W (imidacloprid)	1.0 teaspoon/10.0 gallons	3.5 tablespoons	Follow label.
	Tristar 70SP (acetamiprid)	See label.	1 packet	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Follow label.
	Orthene + Tame (acephate + fenpropathrin)	See label.	10 2/3 ounces	Follow label.
	Endeavor 50 WP (pymetrozine)	1/3-2/3 teaspoon/gal	2.5-5.0 ounces	Follow label.
	°Azatin XL (azadirachtin)	See label.	6.0-10.0 ounces	Follow label.
	°°Distance 0.86 EC (pyriproxyfen)	1/3-2/3 teaspoon	6.0-12.0 ounces	Follow label.
	Summer oil emulsion	0.5 pint	2.0 gallons	Treat April 1, April 15 and Oct. 1.
Malathion (57% EC)	1.0 tablespoons	1.5 quarts	Follow label.	
Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.	

Table 11. Holly

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Tea scales	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Ultra-Fine oil (parafinic oil)	2.5-5.0 ounces	1.0-2.0 gallons	Follow label.
San Jose scales, camellia scales	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Follow label.
	Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Follow label.
Spider mites	Ultra-Fine oil (parafinic oil)	2.5-5.0 ounces	1.0-2.0 gallons	Follow label.
	*MesuroI 75WP (methiocarb)	See label.	0.5-1.0 pound/50 gallons/acre	Follow label.
	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	Follow label.
	Talstar 10WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/50 gallons	Follow label.
	Avid 0.15EC (abamectin)	0.25 teaspoon	4.0 ounces	Follow label.
	Malathion 57% EC	2.0 teaspoons	1 1/3 pounds	Follow label.
	Floramite (bifenazate)	1/3-2/3 teaspoon	2.0-4.0 ounces	Follow label.
	*Judo (spiromesifen)	See label.	2.0-4.0 ounces	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
Kontos (spirotetramat)	1.7-3.4 ounces/100 gallons	5-8 ounces/acre	Follow label.	

Table 12. Peach And Quince, Flowering

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	See label	Follow label.
	Talstar 10WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10 gallons	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Follow label.
	Malathion (57% EC)	1.0 tablespoon	3.0 pints	Treat when aphids appear.
	*Merit 75 WP (imidacloprid)	1.0 teaspoon/10 gallons	3.5 tablespoons	Follow label.
	Tristar 70SP (acetamiprid)	See label.	1 packet	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.
Scales	Winter oil emulsion	0.5 pint	6.0 gallons	Apply during dormant season.

Table 13. Poinsettia

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Whiteflies	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	See label	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Forbid 4F (spiromesifen)	See label.	2.0-4.0 ounces	Follow label.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces	Follow label.
	Orthene TTO/75S (acephate)	1.0 teaspoon	2/3-1.0 pound	Follow label.
	Orthene TTO/97S (acephate)	0.5 teaspoon	8.0-12.0 ounces	Follow label.
	Distance 0.86 EC (pyriproxyfen)	1/3-2/3 teaspoon	6.0-12.0 ounces	Follow label.
	Mavrik Aquaflow (tau-fluvalinate)	See label.	4.0-10.0 ounces	Follow label.
	Talstar 10 WP (bifenthrin)	See label.	3.0-8.0 tablespoons/ 10 gallons	Follow label.
	Endeavor 50% (pymetrozine)	10.0 ounces/acre	See label	Follow label.
	Tame 2.4 EC + Orthene 75S (fenprothrin + acephate)	See label.	10 2/3 ounces + 16.0 ounces	Follow label.
	Tristar 70WSP (acetamiprid)	See label.	2.0-4.0 packets	Follow label.
	Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Follow label.
*Merit 75 WP (imidacloprid)	1.0 teaspoon/10 gallons	3.5 tablespoons	Follow label.	

Table 14. Pyracantha

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids, lace bugs	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Talstar 10 WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10 gallons	Follow label.
	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Follow label.
	Ultra-Fine oil (parafinic oil)	2.5-5.0 tablespoons	1.0-2.0 gallons	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Follow label.
	Tristar 70WSP (acetamiprid)	See label.	1 packet	Follow label.
	Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.
	*Merit 75 WP (imidacloprid)	1.0 teaspoon/10 gallons	3.5 tablespoons	Follow label.

Table 15. Rose

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Aphids	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Follow label.
	Zenith 75 (imidacloprid)	See label.	1.6 ounces/300	Follow label.
	*Merit 75 WP (imidacloprid)	1.0 teaspoon/10 gallons	3.5 tablespoons	Follow label.
	Talstar 10 WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10 gallons	Follow label.
	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Follow label.
	Meridian 25WG (thiamethoxam)	See label.	2.0-8.5 ounces	Drench, 6.0-17.0 ounces/acre.
	Tristar 70WSP (acetamiprid)	See label.	1 packet	Follow label.
	Ultra-Fine oil (parafinic oil)	2.5-5.0 tablespoons	1.0-2.0 gallons	Follow label.
	Safari (dinotefuran)	See label.	4.0-8.0 ounces	Follow label.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Follow label.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Spider mites	M-PEDE (potassium salts of fatty acids)	3.0 tablespoons	0.5-2.0 gallons	Follow label. Apply when mites appear.
	*MesuroI 75 WP (methiocarb)	See label.	0.5-1.0 pound/50 gallons/acre	Follow label. Apply when mites appear.
	Malathion (57% EC)	1.0 tablespoons	3.0 pints	Follow label. Apply when mites appear.
	Talstar 10 WP (bifenthrin)	1.0 teaspoon	3.0-8.0 tablespoons/ 10 gallons	Follow label. Apply when mites appear.
	Avid 0.15 EC (abamectin)	0.25 teaspoon	4.0 ounces	Follow label. Apply when mites appear.
	Floramite (bifenazate)	0.5-2/3 teaspoon/gal	2.0-4.0 ounces/acre	Follow label. Apply when mites appear.
	Ultra-Fine oil (parafinic oil)	2.5-5.0 tablespoons	1.0-2.0 gallons	Follow label. Apply when mites appear.
	*Judo (spiromesifen)	See label.	2.0-4.0 ounces	Follow label. Apply when mites appear.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label	Follow label. Apply when mites appear.
	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	Follow label. Apply when mites appear.
Thrips – outside/ greenhouse	Orthene TTO/75S (acephate)	See label.	2/3 pound	Treat plants at 3-day intervals when buds begin to show. Make 2 applications, 5 days apart; alternate with other materials.
	Orthene TTO/97S (acephate)	See label.	4.0 ounces	
	Orthene + Tame (acephate + fenpropathrin)	See label.	10 2/3 ounces	
	Sevin 10% Dust (carbaryl)	See label.	See label.	
	Sevin 50% WP (carbaryl)	2.0 tablespoons	2.0 pounds	
	*MesuroI 75 WP (methiocarb)	See label.	0.5-1.0 pound/50 gallons acre	
	Mavrick 2E (tau-fluvalinate)	0.25-0.5 teaspoon	2.0-5.0 ounces	
	Malathion (57% EC)	1.0 tablespoons	1.0 quart	
	*Merit 75 WP (imidacloprid)	1.0 teaspoon/10 gallons	3.5 tablespoons	
	Spinosad	See label.	6.0-11.0 ounces	
Overture 35WP (pyridalyl)	See label.	8 ounce		
Beetles	Sevin 10% Dust (carbaryl)	See label.	See label.	Apply when damage appears on foliage.
	Sevin 50% WP (carbaryl)	2.0 tablespoons	2.0 pounds	Apply when damage appears on foliage.
	Battle (lambda-cyhalothrin)	See label.	1.5-5.0 ounces	Apply when damage appears on foliage.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Stinging caterpillars	Acelepryn (chlorantraniliprole)	See label.	1.0-2.0 ounces	Apply when damage appears on foliage.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Apply when damage appears on foliage.
	Sevin Carbaryl (10% Dust) (carbaryl)	See label.	See label.	Apply when damage appears on foliage.
	Sevin Carbaryl (50% WP) (carbaryl)	2.0 tablespoons	2.0 pounds	Apply when damage appears on foliage.
	Orthene TTO/75S (acephate)	See label.	2/3 pound	Apply when damage appears on foliage.
	Orthene TTO/97S (acephate)	See label.	8.0 ounces	Apply when damage appears on foliage.
	*Astro 3.2 EC (permethrin)	1.0-2.0 teaspoons/3 gallons	4.0-8.0 ounces	Apply when damage appears on foliage.
	Pounce 3.2 EC (permethrin)	0.5 teaspoon	4.0-8.0 ounces	Apply when damage appears on foliage.
	°Condor XL (<i>Bacillus thuringiensis</i>)	See label.	0.75-1.75 pints/acre	Apply when damage appears on foliage.
	°Crymax XL (<i>Bacillus thuringiensis</i>)	See label.	0.5-1.5 pounds/acre	Apply when damage appears on foliage.
	DeltaGard GC (deltamethrin)	1.0 teaspoon	4.0-8.0 ounces	Apply when damage appears on foliage.
	Ultra-Pure oil (mineral oil)	2.5-4.0 ounces winter 1.0-2.5 ounces summer	See label.	Apply when damage appears on foliage.

Greenhouse

Table 16. Greenhouse-Grown Ornamentals

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Thrips, whiteflies, mealybugs, scales, caterpillars, sawflies, fungus gnats, aphids	Forbid 4F (spiromesifen)	See label.	1.4-4.0 ounces	White flies only.
	Arena 0.25G (clothianidin)	See label.	3.0-3.6 pounds/1,000 square feet	Follow label.
	Arena 50WDG (clothianidin)	See label.	See label.	Follow label.
	Tristar 70WSP (acetamiprid)	See label.	1-4 packets	Follow label.
	°Azatin XL (azadirachtin)	See label.	10.0-16.0 ounces	Follow label.
	*Astro 3.2EC (permethrin)	See label.	1.0-2.0 teaspoons/3 gallons	Follow label.
	Pedestal (novaluron)	See label.	6.0-8.0 ounces	Whiteflies, thrips, caterpillars.
	Marathon 1% G (imidacloprid)	3.0 pounds/cubic yard of growing media	See label.	Follow label for amounts to use in individual containers.
	Ultra-Fine oil (parafinic oil)	2.5-5.0 tablespoons/gal	See label.	Follow label.
	Marathon 60WP (imidacloprid)	See label	See label.	Follow label.
	Marathon II (imidacloprid)	See label	See label.	Follow label.
	*Flagship (thiamethoxam)	See label	2.0-4.0 ounces	Follow label.
	°Conserve SC (spinosad)	0.06-0.1 ounce	6.0-11.0 ounces	Follow label.
	°°Ornazin (IGR) (azadirachtin)	0.25 teaspoon-0.5 teaspoon	8.0-16.0 ounces	Follow label.
Endeavor 50% (pymetrozine)	1/3-2/3 teaspoon or 2.5-5.0 ounces or 10.0 ounces/acre	See label.	Aphids, whiteflies.	
Leafminers	°Conserve SC (spinosad)	0.2 fluid ounce	22.0 fluid ounces	Follow label.
	Pedestal (novaluron)	See label	6.0-8.0 ounces	Follow label.
Spider mites	Forbid 4F (spiromesifen)	See label	2.0-4.0 ounces	Follow label.
Broad mites	Ultra-Fine oil (parafinic oil).	2.5-5.0 tablespoons	See label.	Follow label for plants covered. Use in rotation with other miticides; no more than 2 consecutive applications; 3 total per year per crop.
	Pylon (chlorfenapyr)	0.25 teaspoon-0.5 teaspoon	2.6-5.2 ounces	
Cyclamen mites	Tetrasan 5WDG (etoxazole)	See label.	8.0-16.0 ounces	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Rust mites	Avid 0.15EC (abamectin)	2/3 teaspoon	4.0 ounces	Follow label.
	Endeavor 50% (pymetrozine)	1/3-2/3 teaspoon or 2.5-5.0 ounces or 10.0 ounces/acre	See label.	Aphids and whiteflies. Not for carnation, dianthus, calanchoe, poinsettia, rose, salvia, zinnia; do not spray with oil, fertilizer or surfactants.
	Endeavor (pymetrozine)	1/4-1/2 teaspoon or 2.5-5.0 ounces or 10.0 ounces/acre	See label.	Follow label.
	Floramite SC (bifenazate)	2/3-1.5 teaspoons	4.0-8.0 ounces	Follow label.
	Talstar F (bifenthrin)	0.12-0.4 ounces	12.0-40.0 ounces	Follow label.
Beet armyworms, loopers, thrips, leafhoppers, leafminers.	Acelepryn (chlorantraniliprole)	1.0-2.0 ounces	See label.	Caterpillars only.
	°Condor XL (<i>Bacillus thuringiensis</i>)	0.75-1.75 pints/acre	See label.	Caterpillars only.
	°Citation (cyromazine) (Leafminers)	See label.	2.66 ounces/100/acre	Follow label.
	°Conserve SC (spinosad)	0.06-0.1 ounce	6.0-11.0 ounces	Thrips: use lower rates. Caterpillars and leafminers: use higher rates.
Whiteflies	Forbid 4F (spiromesifen)	See label.	2.0-4.0 ounces	Whiteflies only.
Armyworms, leafrollers, loopers, spider mites, whiteflies, fungus gnats, thrips	Tristar 70WSP (acetamiprid)	See label.	1-4 packets/100	Greenhouse Roses. Follow label for varieties.
	Pounce 3.2 EC (permethrin)	See label.	8.0 ounces (0.2 pounds/A.I.)	Greenhouse Roses. Follow label for varieties.
	*Astro 3.2 EC (permethrin)	See label.	4.0-8.0 ounces	Greenhouse Roses. Follow label for varieties.
	*Mesuro 75 WP (methiocarb)	See label.	0.5-1.0 pound/50 gallons/acre	Greenhouse Roses. Follow label for varieties.
	Attain TR (bifenthrin)	See label.	See label.	Release based on square footage.
	1300 Orthene TR (acephate)	See label.	8.0 ounces	Follow label.
	Preclude TR (fenoxycarb)	See label.	See label.	Follow label.
	Orthene TTO/75S (acephate)	See label.	See label.	Follow label.
	Ultra-Pure oil (mineral oil)	2/3-2.5 ounces	0.5-2.0 gallons	Follow label.
	Ultra-Fine oil (paraffinic oil)	2/3-2.5 ounces	0.5-2.0 gallons	Follow label.
	oConserve SC (spinosad)	See label.	6.0-11.0 ounces/100	Follow label.
Flagship 25WG (thiamethoxam)	See label.	8 ounces/acre	Follow label.	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Imported fire ants	Transport (acetamiprid + bifenthrin)	1 packet	See label.	Perimeter treatment – 1,000 square feet; follow label.
	Over'n Out (fipronil)	2.0 pounds/1,000 square feet	See label.	Follow label.
	Orthene TTO/75S (acephate)	2.0 teaspoons/mound	See label.	Apply dry formulation as a dust to tops of mounds. Distribute as evenly as possible.
	Orthene TTO/75S (acephate)	1.0-2.0 ounces in 5.0 gallons water	See label.	Apply 1 gallon of finished mixture to mound covering 3-4-square-foot area around mound; may burn grass slightly.
	Top Choice (fipronil)	87.0 pounds/acre	See label.	Follow label.
	Chipco Choice (fipronil)	12.5 pounds/acre	4.3 ounces/1,000 square feet	Follow label.
	Gardstar (permethrin)	5.0-10.0 milliliters/ gallon/mound	See label.	Follow label.

Nursery Stock (Field Grown)

Table 17. Nursery Stock (Field Grown)

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Beet armyworms, loopers, thrips, leafhoppers, leafminers, whiteflies	Acelepryn (chlorantraniliprole)	See label.	2.0-4.0 ounces	Caterpillars.
	Arena 0.25G (clothianidin)	See label.	133-160 pounds/ acre	Follow label.
	Astro 3.2EC (permethrin)	See label.	1.0-2.0 teaspoons/ 3 gallons/4.0-8.0 ounces	Follow label.
	Avid 1.5 EC (abamectin)	See label.	See label.	Follow label.
	°Crymax (<i>Bacillus thuringiensis</i>)	See label.	See label.	Caterpillars only.
	Pounce 3.2EC (permethrin)	See label.	4.0-8.0 ounces	Do not spray Salvia, Dieffenbachia or Pteris fern.
	Endeavor 50% (pymetrozine)	See label.	10.0 ounces/acre	Aphids, whiteflies.
	Talstar 10 WP (bifenthrin)	1.0-2.0 tablespoons	1.7-3.5 ounces	Follow label.
Judo (spiromesifen)	See label	2.0-4.0 ounces	Mites or whiteflies only.	
Whiteflies, aphids, thrips, caterpillars, fungus gnats, sawflies	°°Ornazin (IGR) (azadirachtin)	0.25-0.5 teaspoon	8.0-16.0 ounces	Follow label.
Aphids, whiteflies	Endeavor (pymetrozine)	0.25-0.5 teaspoon	10.0 ounces/acre	Follow label.
Fire ants	Talstar T&O 0.2G, Flowable (bifenthrin)	See label.	See label.	Varies with bulk density of potting media.
	°°Distance (pyriproxyfen)	1.0-4.0 tablespoons/mound Apply at 0.35 to 0.5 ounce/1,000 square feet	See label.	Not approved as quarantine treatment. Varies with bulk density of potting media.
	Extinguish (methoprene)	3.0-5.0 tablespoons/mound to perimeter of 4 feet	See label.	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Imported fire ants	Meridian 25WG (thiamethoxam)	See label.	12.7-17.0 ounces/acre	1.0 gallons/6 inch, drench mound; larger use – 2.0-3.0 gallons, drench.
	Amdro or Siege fire ant bait (hydramethylnon)	1.0 to 1.5 pounds/acre or 5 level teaspoons/mound	See label.	Broadcast uniformly with ground equipment. Prolonged exposure to air will turn oil base rancid. Close container tightly after use. Use within 3 days after opening; apply when ants are active; distribute uniformly 3-4 feet around base of mound.
	Astro (permethrin)	17.0-34.0 ounces/acre, 0.4-0.8 ounce/1,000 square feet	See label.	Follow label.
	Firestar (fipronil)	1.5-15.0 pounds/acre	See label.	Follow label.
	Organic Solution Fire Ant Killer	See label	See label.	Follow label.
	PT 370 Ascend (Climch/Varsity)	5.0-7.0 tablespoons/mound or 1.0 pound/acre	See label.	Turf, lawns, noncrop areas
	Citrex	See label.	See label.	Organic.
	Citrex	8.0 ounces/gallon	See label.	Mound treatment.
	°Logic 1% (Award)	1.0-1.5 pounds/acre	1.0-3.0 tablespoons/mound	Follow label.
	Talstar G (bifenthrin)	100-200 pounds/acre	2.3-4.6 ounces/ 1,000 square feet	Follow label.
	Talstar F (bifenthrin)	0.5-10.0 ounces/acre	20.0-40.0 ounces/ acre	Follow label.
	Scimitar GS, CS (lambda-cyhalothrin)	3.4-7.0 milliliters/1,000 square feet	See label.	Submerge container or ball until completely saturated. Do not remove container, burlap or plastic.
	Battle GS (lambda-cyhalothrin)	3.0-6.0 gms/1,000 square feet or 5.0-10.0 ounces/acre	See label.	Follow label.
	Ceasefire (bifenthrin)	0.5-5.5 ounces/1,000 square feet or 1.5-15.0 pounds/acre	See label.	Follow label.
	°Conserve SC (spinosad)	0.1 ounce 1.0-2.0 gallons/mound depending on size	1.0 ounce/10 gallons	Follow label.
	Advion fire ant bait (indoxacarb)	0.5 ounces/1,000 square feet	1.5 pounds/acre	Do not disturb mounds prior to treatment
	Orthene TTO/75S (acephate)	2 teaspoons/mound	See label.	Mound treatment only. Apply dry formulation as a dust to tops of mounds; distribute as evenly as possible.
Sevin 50WP (carbaryl)	3.0 pounds/100 gallons	See label.	Apply 2.0 gallons solution over mound.	
Sevin SL (carbaryl)	1.5 quarts/100 gallons	See label.	Thoroughly wet mound and surrounding area to 4-foot diameter.	

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Imported fire ants	Sevin 80S (carbaryl)	See label.	2.0 pounds	For best results, apply in cool weather.
	Sevin XLR Plus (carbaryl)	3.0 tablespoons/2.0 gallons/mound	See label	65 F-80 F early morning or late evening hours.
	Amdro Pro (hydramethylnon)	See label.	See label.	Follow label.
	^{oo} Distance (pyriproxyfen)	1.5 pounds/acre	See label.	Follow label.
	^{oo} Logic/Award II (abamectin)	1.5 pounds/acre	See label.	Follow label.
	Grenade ER (lambda-cyhalothrin)	0.2-0.4 ounce/gal	See label.	Follow label.
	Premise (imidacloprid)	1.0-1.5 pounds/acre	See label.	Follow label.
	Esteem (pyriproxyfen)	2.0-4.0 tablespoons/mound	2.0 pounds/acre	Follow label.
	^{oo} Distance 0.86EC (pyriproxyfen)	3.0-4.0 tablespoons/mound Apply at 0.35 to 0.5 ounces/1,000 square feet	See label.	Not approved as quarantine treatment.
	^{oo} Extinguish (methoprene)	3.0-5.0 tablespoons/mound to perimeter of 4.0 feet or 1.0-1.5 pounds/acre	See label.	Follow label.
^{oo} Extinguish Plus (methoprene + hydramethylnon)	Same as Extinguish	See label.	These 2 are a combination of Amdro and Extinguish.	
Whiteflies	Talstar 10WP (bifenthrin)	1.0 tablespoon/2.0 gallons 3.0-8.0 tablespoons/10 gallons	See label.	Follow label.
Two-spotted mites	Endeavor 50% (pymetrozine)	See label.	10.0 ounces/acre	Mites only.
	^o Conserve SC (spinosad)	0.2 ounce	22.0 ounces/acre	Follow label.
Mealybugs	Judo (spiromesifen)	2.0-4.0 ounces or 4.0-8.0 ounces	See label.	Aphids and whiteflies.
Aphids	*Flagship (thiamethoxam)	See label.	2.0-4.0 ounces	Mealybugs and aphids.
Leafrollers	Talstar 10WP (bifenthrin)	3.0-8.0 tablespoons/4 gallons 5.0-12.0 tablespoons/10 gallons	See label.	Follow label.
Pill bugs	Transport (acetamiprid + bifenthrin)	1 packet/1,000 square feet/acre	See label.	Follow label.
	Astro (permethrin)	See label.	4.0-8.0 ounces	Ants, aphids, worms, thrips, gnats, mealybugs, whiteflies.
	*Mesurol 75WP (methiocarb)	0.5-1.0 pound/50 gallons/acre	See label.	Follow label.

Pest	Insecticide	To Make 1 gallon	To Make 100 gallons	Remarks
Armyworms	Acelepryn (chlorantraniliprole)	See label.	2.0-4.0 ounces/ acre	Follow label.
	Arena 0.25G (clothianidin)	See label.	80-160 pounds/acre	Follow label.
	°Azatin XL (azadirachtin)	5.0-16.0 ounces/acre	See label.	Caterpillars only.
	°Crymax (<i>Bacillus thuringiensis</i>)	0.5-1.5 pounds/acre	See label.	Caterpillars only.
	°Condor XL (<i>Bacillus thuringiensis</i>)	0.75-1.75 pints/acre	See label.	Caterpillars only.
	*MesuroI 75WP (methiocarb)	0.5-1.0 pound/50 gallons/acre	See label.	Follow label.
	Talstar 10WP (bifenthrin)	2.0 tablespoons (5.0-12.0 tablespoons/10 gallons)	See label.	Follow label.
Mites	Avid 0.15EC (abamectin)		8.0 ounces	Follow label.
	Floramite (bifenazate)	1/3-2/3 teaspoons	2.0-4.0 ounces/acre	Follow label.
	Talstar 10WP (bifenthrin)	2.0 tablespoons	5.0-12.0 tablespoons/10 gallons	Follow label.
	Conserve SC (spinosad)	0.2 ounce	22.0 ounces/acre	Follow label.
	TetraSan 5WDG (etoxazole)	See label.	8.0-16.0 ounces/ acre	Follow label.
Grasshoppers	Decathlon 20WP (cyfluthrin)	See label.	1.3-1.9 ounces	Greenhouse and nursery.
Crickets	Orthene TTO/97S (acephate)	0.5 ounce/1,000 square feet	1.31 pounds/acre	Follow label.
	Sevin SL (carbaryl)	1.5-3.0 ounces/1,000 square feet	2.0-4.0 quarts/acre	Follow label.
	Scimitar (lambda-cyhalothrin)	3.4-7.0 milliliters/ 1,000 square feet	5.0-10.0 ounces/acre	Follow label.
	DeltaGard 5SC (deltamethrin)	0.4-0.6 ounce/1,000 square feet	17.5-26.0 ounces/acre	Follow label.
	Battle (lambda-cyhalothrin)	1.5-5.0 ounces/93 gallons	See label.	Follow label.
	Tempo 20WP (beta-cyfluthrin)	5.0 gms/93 gallons	See label.	Follow label.
	Tempo SC Ultra (beta-cyfluthrin)	See label.	1.5-5.4 ounces	Follow label.
Millipedes, centipedes	Transport (acetamiprid + bifenthrin)	1 packet/1,000 square feet	See label.	Follow label.

Pink Hibiscus Mealybug Control Strategies and Current Chemical Control Recommendations

The following list of recommendations by the LSU AgCenter shows products that may be effective in treating pink hibiscus mealybug (*Maconellicoccus hirsutis*) in nurseries or stock dealers. Additional materials will be added, as available. For additional product information, labeled rates or guidelines for application, contact the local LSU AgCenter extension service office.

Table 18. For Quarantine Treatments

Chemical	Application Method	Rate	Interval	Comments
Imidacloprid (such as Marathon)	Soil drench	See label rates.	Initial treatment	Soil drench must be followed by a foliar application of either Bifenthrin, Chlorpyrifos, or Acephate.
Dinotefuran (such as Safari)	Soil drench	See label rates.	Initial treatment	
Thiamethoxam (such as Flagship)	Soil drench	See label rates.	Initial treatment	
Bifenthrin (such as Talstar)	Foliar application	See label rates.	Following Imidacloprid Treatment	Apply with Ultra-Fine oil or other oil; follow-up treatments as needed.
Acephate (such as Orthene)	Foliar application	See label rates.	Following Imidacloprid Treatment	May be applied in conjunction with Bifenthrin unless phytotoxicity prohibits.

Table 19. For Preventative/Prophylactic Treatments*

Chemical	Application Method	Rate	Interval	Comments
Acephate (such as Orthene)	Foliar application	See label rates.	As needed	Follow-up treatments as needed.
Acetamiprid (such as Tristar)	Foliar application	See label rates.	As needed	Apply with Ultra-Fine oil or other oil; follow-up treatments as needed.
Thiamethoxam (such as Flagship)	Foliar application	See label rates.	As needed	
Bifenthrin (such as Talstar)	Foliar application	See label rates.	As needed	Apply with Ultra-Fine oil or other oil.
Imidacloprid (Marathon-Merit)	Foliar application	See label rates.	As needed	Follow-up treatments as needed.
Buprofezin (such as Talus) IGR	Foliar application	See label rates.	As needed	Follow-up treatments as needed.
Imidacloprid + Cyfluthrin (such as Discus)	Foliar application	See label rates.	As needed	Follow-up treatments as needed.
Insecticidal soaps	Foliar application	See label rates.	As needed	Follow-up treatments as needed.
Pesticidal oils, Ultra-Fine oils	Foliar application	See label rates.	As needed	Follow-up treatments as needed.
Pyriproxyfen (such as Distance) IGR	Foliar application	See label rates.	As needed	Apply with Ultra-Fine oil or other oil; follow-up treatments as needed.
Dinotefuran (such as Safari)	Foliar application	See label rates.	As needed	Follow label.

*Professional use only; *Biological; **GR; WP = Wettable Powder; EC = Emulsifiable Concentrate

Note: Ultra-Pure oils and Ultra-Fine oils can be used with insecticides to enhance pest management on most ornamentals. Rates vary with time of year. Do not spray oils during bloom.

***Note:** Limited information is available concerning phytotoxicity of these products. Test on a few plants before application or consult the Extension Service agent. When using new materials, phytotoxicity trials should be conducted in your nursery under your specific conditions. The use of trade names in this publication is solely for the purpose of providing specific information. The LSU AgCenter does not guarantee or warrant the products named and references to them in this publication. It does not signify our approval to the exclusion of other products of suitable composition. All chemicals should be used in accordance with directions on the manufacturer's label. Use pesticides safely. Read and follow directions on the manufacturer's label.

pH adjustments should be made for each spray application. Use a digital pH pen for accurate reading. Where needed, add a buffer to water mix, and re-check until pH is between 5.5 and 6.5 before adding insecticide to water. The average pH for Louisiana is 8.3 with a range of 4.6-12.0.

*Professional use only; °Biological; °IGR; WP = Wettable Powder; EC = Emulsifiable Concentrate

Note: Ultra-Pure oils and Ultra-Fine oils can be used with insecticides to enhance pest management on most ornamentals.

Rates vary with time of year. Do not spray oils during bloom.

