

Fruit and Nuts – Commercial

Citrus Spray Schedule

Note: Selection of proper materials and timing of application are of primary importance for effective control of insects and diseases of citrus. The rate of pesticide product per 100 gallons used in this guide is based on a volume of 400 gallons/acre of diluted spray.

Prebloom: Jan. 15 - Feb. 15

Satsuma, Grapefruit, Temple, Valencia, Lemon, Tangelo, Tangerine

Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Spider mites	Nexter 75WP (Pyridaben)	6.6 ounces (=1 water-soluble packet/acre)			PHI = 7 days; do not make more than 2 applications/year. Allow 30 days between treatments at the lowest labeled rate. Higher rates require longer intervals. Highly toxic to bees, fish, and aquatic invertebrates. Read label.
Rust mites	Micromite 80WGS (Diflubenzuron) + 97% petroleum-based oil	6¼ fluid ounces (=2 water-soluble packet/acre)			Micromite 80WGS: PHI = 21 days; do not mix with boron products. Use sufficient water to ensure coverage. Applications may be repeated no less than 90 days apart. Active on eggs and nymphal stages but not on adult rust mites. Results are visible 3-10 days after application.
	Sulfur				Limit sulfur applications to 1 per season where supplemental rust mite control is needed. Do not mix with oils and/or do not apply within 3 weeks of oil applications to avoid fruit burn. Some sulfur formulations should not be combined with spreaders/stickers. Follow the labeled rate. Do not use more than 6 lb/100 gallons.
Asian citrus psyllid	Danitol 2.4EC (Fenpropathrin) + Horticultural oil	16-21 fluid ounces 5 pints			Use for control of overwintering adults. Do not apply if harvesting fruit. PHI = 1 day (Danitol); do not exceed 2 2/3 pints of Danitol per season. Sulfur may cause irritation to eyes. Avoid contact with eyes, skin, and, clothing. To avoid foliage/fruit burn, do not apply sulfur products when hot temperatures (above 90 F) are expected within 3 days of spraying. NOTE: Lime sulfur use – do not use this material on tangerine trees during late winter and early spring.

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Postbloom: All citrus (satsumas - when 75% petals have fallen, other oranges - when pea size.)

Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Scales, thrips	Malathion 57EC (Malathion)	5-7½ pints	1¾ pints	2 teaspoons	Malathion: PHI = 7 days; Malathion is highly toxic to honeybees. Do not apply during full bloom. Nutritional mixtures should not be used in combination with oil sprays.
	Malathion 8F (Malathion)	6 pints	1½ pints	1½ teaspoons	
Scales, mealybugs, whiteflies, citrus blackflies, Asian citrus psyllids	Supracide 2E (Methidathion)		½-2 pints	½-2 teaspoons	PHI = 14 days; make no more than two applications per season. Allow 45-day intervals between sprays; highly toxic to bees; do not apply during full bloom. In lemons do not apply more than once if tank-mixed with oil. PHI = 5 days; do not apply more than 20 quarts/acre/crop.
	Supracide 2E Plus (Methidathion)		1-2 pints	1-2 teaspoons	
	Sevin XLR plus (Carbaryl)	1.5 quarts			
Scales, whiteflies, citrus blackflies, spider mites, rust mites	Esteem 0.86 EC (Pyriproxyfen) + 1% Superior oil	16 fluid ounces			PHI = 1 day; use sufficient water to ensure enough coverage. Apply when scales are at crawler (young) stage; maximum 2 applications/season; allow 21 days between sprays.
	Nexter 75WP (Pyridaben)	6.6 ounces (1 water-soluble packet/acre)			See preceding remarks on Nexter.
	Vendex 50WP (Fenbutatin-oxide) +	2-3 pounds (2-3 water-soluble packets/acre)	8-12 ounces	1-1½ teaspoons	PHI = 7 days; apply when daily temperatures at application average above 70 F and when mite populations are beginning to build for best performance. Complete coverage is needed for optimum control. Limit to two applications/ year at 60-day intervals. Do not use Vendex on tangerines, tangelos, Reed grapefruit or Webb red blush grapefruit.
	Latron CS 7		1 quart		
Thrips	SpinTor 2SC (Spinosad)	6 fluid ounces			PHI = 1 day; do not spray more than 29 fluid ounces/acre/crop or more than two applications/year. For best results, add emulsified crop oil (follow label).

80% Petal Fall: All Citrus

Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Rust mites, broad mites, bud mites, Two-spotted spider mites, citrus thrips	Agri-mek 0.15 EC (Abamectin)	5-20 fluid ounces	1¼-5 ounces	¼ teaspoon	PHI = 7 days; always apply with a minimum of 0.20% horticultural (not dormant) spray oil. Allow 30 days between treatments. Do not apply more than 40 fluid ounces/acre/season; highly toxic to honeybees. For best results use a minimum of 500 gallons/acre of spray and no less than 0.5% oil for citrus bud mites; 100-150 gallons/acre spray for citrus leafminers; 100-250 gallons/acre spray for citrus thrips and adjust the rate of product/acre accordingly. Use

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Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
					caution when applying oils, read the label and do not spray when temperatures exceed 85 F.
	+ Ultra fine oil	10-20 fluid ounce	2½-5 ounces	¼ teaspoon	
Rust mites	Micromite 80WGS (Diflubenzuron) + 97% petroleum-based oil	6¼ fluid ounces (=2 water-soluble packet/acre)			PHI = 21 days; do not mix with boron products. Use sufficient water to ensure coverage. Applications may be repeated no less than 90 days apart; active on eggs and nymphal stages but not on adult rust mites; results visible 3-10 days after application.
Leafminers	Assail 70WP (Acetamiprid)	2 ounces			PHI = 7 days; toxic to bees exposed to direct treatment.
Leafminers, thrips	Spintor 2SC (Spinosad)	6 fluid ounces			PHI = 1 day; do not spray more than 29 fluid ounces/acre/crop or more than two applications/year. For best results add emulsified crop oil (follow label).
Aphids, citrus thrips, Asian citrus psyllid	Admire Pro 4F (Imidacloprid)	3.5-7.0 fluid ounces			Admire Pro: PHI = 0 days; do not apply during bloom or 10 days prior to bloom; limit to 20 ounces/acre/application and 40 ounces/acre/year; allow at least 10 days between applications. Limit 14.0 fluid ounces/acre per crop season.
	Admire 2F (soil-applied systemic) (Imidacloprid)	16-32 fluid ounces (or 1/8 fluid ounce/tree)			Admire 2F: PHI = 0 days; intended for containerized trees and young trees (4 ft-6 ft height); apply as soil drench. For best results apply prior to the onset of infestations. See label for soil application options.

April: All Citrus

Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Fire ants	Extinguish IGR (Methoprene)	1-1½ pounds	3-5 tablespoons/mound		Apply when ants are actively foraging.

June 15 – July 15: All Citrus

Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Thrips, leafminers	SpinTor 2SC (Spinosad)	6 fluid ounces			See the above preceding remarks on SpinTor.
	Agri-mek 0.15 EC (Abamectin)	Refer to label			See preceding remarks.
	Admire Pro 4F (Imidacloprid)	3.5-7.0 fluid ounces			PHI = 0 day; minimum interval between applications-10 days; maximum Admire Pro allowed per crop season – 40.0 fluid ounces/acre (0.5 lb AI/acre). Do not apply during bloom or within 10 days prior to bloom or when bees are actively foraging.

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Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Rust mites	Agri-mek 0.15 EC (Abamectin)	5-20 fluid ounces	1¼ -5 ounces	¼ teaspoon	See above preceding remarks on Agri-mek. Rate varies depending on insect/mite control; refer to label.
Broad mites, bud mites, two-spotted spider mites	+ Ultra fine oil	10-20 fluid ounces/acre	2½ -5 ounces	¼ teaspoon	Always use caution when spraying oil and oil combinations; read the label; do not apply when temperatures exceed 85 F; see footnotes.
Rust mites. leafminers	Micromite 80WGS (Diflubenzuron) + 97% petroleum-based oil	6¼ fluid ounces (=2 water-soluble packet/acre)			See previous remarks on Micromite 80WGS.
Mites	Ultra fine oil		1¼-1¾ gallons	3-4½ tablespoons	Always use caution when spraying oil and oil combinations; read the label. Do not apply when temperatures exceed 85 F; see footnotes.
Spider mites, whiteflies, mealybugs, scales, aphids	Summer oil +		1-1½ gallons	2½-4 tablespoons	See above for Malathion remarks.
	Malathion 57EC (Malathion)	5-7½ pints	1¾ pints	2 teaspoons	
Asian citrus psyllid, aphids, scales	Danitol (Fenpropathrin) +	16-21 1/3 fluid ounces			Use for control of overwintering adults; do not apply if harvesting fruit; PHI = 1 day; do not exceed 2 2/3 pints of Danitol/season.
	Summer Oil	4-7 pints	1-1 ¾ pints	1-2 teaspoons	
Mealybugs, whiteflies, citrus blackflies, black scales	Supracide 2E (Methidathion)		½-2 pints	½-2 teaspoons	See preceding remarks on Supracide.

Aug. 14 – Sept. 15: All Citrus

Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Aphids	Admire Pro 4F (Imidacloprid)	3.5-7.0 fluid ounces			See above for remarks.
Leaf-footed bugs	Baythroid 2E (Cyfluthrin)	2.2.4 fluid ounces			Baythroid 2: PHI = 0 days; coverage of foliage and fruits is necessary for optimal results. Use 2-3 gallons of spray/tree. If multiple applications are needed may make a first spray at 2.4 fluid ounces/acre and 2 additional sprays of 2 fluid ounces/acre at a minimum of 7-day intervals. Maximum amount/season is 6.4 fluid ounces/acre (or 0.10 lb active ingredient/acre/season).
Scales, plant bugs	Malathion 57EC (Malathion)	5-7½ pints	1¾ pints	2 teaspoons	See above for remarks on Malathion.
Citrus blackflies, whiteflies, mealybugs, scales, plant bugs	Ultra fine oils		1½ gallons	4 tablespoons	Oils may be used with all materials, particularly against whiteflies, mites, and scales; however, read the footnotes for important information.
	Supracide2E (Methidathion)		½-2 pints	½-2 teaspoons	

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Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Spider mites, rust mites	Vendex 50WP (Fenbutatin-oxide) +	2-3 pounds (2-3 water-soluble packets/acre)	8-12 ounces	1-1½ teaspoons	See preceding remarks and temperature requirements for Vendex.
	Latron CS 7		1 quart		
	Nexter 75WP (Pyridaben)	6.6 ounces (1 water-soluble packet/acre)			See preceding limitations.
Asian citrus psyllid	Mustang Max (Zeta-cyprmethrin)	4.3 fluid ounces			PHI = 1 day; apply by ground equipment using sufficient water to obtain full coverage of foliage in a minimum of 20 gallons for concentrate spray or a minimum of 100 gallons for dilute spray. Apply by air in a minimum of 10 gallons/acre. Begin applications drift precautions on this label. Do not apply more than 0.20 lb active ingredient/acre/season. Do not make applications less than 14 days apart.

Oct. 15 – Nov. 15: All Citrus

Insect	Pesticide and Formulation	Rate of Product per Acre	Amount To Use for 100 Gallons*	Amount To Use for 1 Gallon	Remarks
Spider mites, rust mites	Vendex 50WP (Fenbutatin-oxide)	2-3 pounds	8-12 ounces	1-1½ teaspoons	Performance of Vendex is reduced when daily temperatures at application average below 70 F. See preceding remarks for additional restrictions.
Rust mites	Sulfur				Sulfur: Apply postharvest only if supplemental rust mite control is needed. See preceding remarks for oil and temperature restrictions.
	Agri-mek 0.15EC (Abamectin)	5-20 fluid ounces	1¼ -5 ounces	¼ teaspoon	See details above.
Asian citrus psyllid	Sevin XLR (Carbaryl)	1.5 quarts			PHI = 5 days; do not apply more than 20 quarts/acre/crop.
Leafminers	SpinTor 2SC (Spinosad)	6 fluid ounces			
	Admire Pro (Imidacloprid)	3.5-7.0 fluid ounces			
Fire ants	Extinguish IGR (Methoprene)	1-1½ pounds/acre	3-5 tablespoons/mound		

Note: Add a spreader sticker or liquid soap to spray the mixture to obtain better coverage especially when emulsifiable concentrates are used. If rust mite control is poor, reduce speed or increase gallonage/acre if using a speed sprayer.

Mite-Resistance Management Plan: Repeated use of the same miticide is documented to result in a rapid buildup of miticide-resistant strains of mites. To reduce the potential risk of developing resistant mite populations, miticides should be alternated as part of a mite-resistance management plan. If more than one application is needed to control heavy and prolonged mite infestations, always alternate products with a different mode of action. Observe the minimum required spray intervals and restrictions on the amount of product and number of applications/area/seasons. Closely monitor mite populations to determine species, infestation levels, and the presence of predatory organisms. Use miticide sprays only when needed.

Caution: Oil emulsion sprays should not be applied to drought-stricken trees when the temperature is above 85 F and humidity less. Oil emulsion sprays applied after August 15 may inhibit solid formation, retard coloring of fruit, and reduce the tolerance of trees to cold. Follow specific instructions on the label of all pesticides.

Warning: Always wear appropriate personal protective equipment when handling and spraying pesticides. Re-entry times for workers entering groves and/or treated fields should be strictly observed; be sure to check the label for this information.

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Diaprepes Root Weevil Management Recommendation

Treat every life stage (egg, larva, adult) with at least one treatment each year. Continue treatment until Diaprepes root weevils are not found for a full year. All adult treatments should be applied in 100-300 GPA water to ensure good coverage of insecticide (unless otherwise directed by the label). Be sure to read and follow all insecticide label instructions. Remember: the label is the law!

Timing of Adult Sprays:

- First spray during peak summer flush – usually late May (scout for adults beginning in April).
- Second spray four weeks later, combined with Micromite 80SG with oil for egg sterilization – usually late June (timing will vary depending on adult emergence).

Chemical Barrier for Larval Suppression:

- Target is larvae that will burrow into the soil after hatching from eggs deposited on leaves.
- Apply about two weeks after peak adult emergence – typically late July.
- Must be applied to soil that is mostly free of vegetation.
- Uniformly apply from the trunk to the dripline of the tree to a moistened soil surface devoid of litter.
- Minimize disturbance of soil beneath the tree to maintain the barrier.
- Brigade should provide about three weeks of activity.

Insecticide	Target	Method of Application	Rate Per Acre	Comments
Micromite 80SG (Diflubenzuron)	Diaprepes root weevil egg	Apply to vegetation	6.25 ounces + 0.5% oil	Apply when adults are actively depositing eggs. Helps prevent egg hatch (oranges, grapefruit, and tangerines).
Admire Pro 4F (Imidacloprid)	Diaprepes root weevil larva	Irrig sys or apply to pre-wet soil.	14 fluid ounces	Apply when root growth is occurring. Apply to soil; remains effective for up to 4-5 months.
Brigade WSB (Bifenthrin)	Diaprepes root weevil Adult/Larva	Soil barrier	40 ounces	Apply twice per year to coincide with adult emergence. Do not exceed 80 ounce/year. Will control larvae when they burrow into the soil. Will also control adults when they emerge from the soil. Must be applied to soil that is relatively free of debris and vegetation. Avoid disturbing the soil surface after application.
Baythroid 2E (Cyfluthrin)	Diaprepes root weevil Adult	Apply to vegetation	6.4 ounces	Only a single application may be made per crop season.
Danitol 2.4EC (Fenpropathrin)	Diaprepes root weevil Adult	Apply to vegetation	16-21 ounces	Citrus trees must be 3 years or older. Do not exceed 21.33 fluid ounces/year.
Kryocide 96 WP or Prokil Cryolite 96 (Cryolite)	Diaprepes root weevil Adult	Apply to vegetation	8-10 pounds	This slow-acting stomach poison may take several days of warm weather to kill beetles. Do not exceed 90 pounds/acre/season.
Mustang (Zeta-cypermethrin)	Diaprepes root weevil Adult	Apply to vegetation	4.3 fluid ounces	Apply by ground equipment using sufficient water to obtain full coverage of foliage in a minimum of 20 gallons for concentrate spray or a minimum of 100 gallons for dilute spray. Apply by air in a minimum of 10 gallons per acre. Begin applications when pest activity is noted. Follow appropriate spray drift precautions.

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Insecticide	Target	Method of Application	Rate Per Acre	Comments
Orthene 97* ¹ (Acephate)	Diaprepes root weevil Adult	Apply to vegetation	0.5 – 0.75 pound	Apply at 100 gallons water/acre or less.
Sevin 80S ¹ (Carbaryl)	Diaprepes root weevil Adult	Apply to vegetation	5-10 pounds + 0.5% oil	Do not apply during bloom. Do not exceed 25 pounds/acre/ application.
Sevin XLR Plus ¹ (Carbaryl)	Diaprepes root weevil Adult	Apply to vegetation	6 quarts + 0.5% oil	During bloom period, apply from 1 hour after sunset until 2 hours after sunrise.
Micromite 80SG (Diflubenzuron)	Diaprepes root weevil egg	Apply to vegetation	6.25 ounces + 0.5% oil	Apply when adults are actively depositing eggs. Helps prevent egg hatch (oranges, grapefruit and tangerines).

*Nonbearing citrus only,

¹ Be sure to adjust water pH into the range of 5.5 to 6.5.