

Chapter 10. Minor Vegetable Crop Production¹

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Celery, Okra, and Parsley Botany and Planting

Celery—*Apium graveolens*, Apiaceae (Umbelliferae)

Okra—*Abelmoschus esculentus*, Malvaceae

Parsley—*Petroselinum crispum*, Apiaceae (Umbelliferae)

Table 1. Planting information for celery, okra, and parsley.

Planting Dates	Celery	Okra	Parsley
North Florida	Aug–Feb	Mar–Jun	Sept–Mar
Central Florida	Sept–Mar	Feb–Aug	Sept–Mar
South Florida	Oct–Mar	Jan–Mar/Aug–Oct	All year
Planting Information			
Distance between rows (in)	18–40	36–60	6–12
Distance between plants (in)	6–12	4–10	drilled
Seeding depth (in)	on surface	0.5–1.0	0.25
Seed per acre (lb)	1–2	6–81	6–8
Days to maturity from seed	75–90	60–70	70–80
Plant population (acre)	58,080	43,560	1 million+

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Use pesticides safely. Read and follow directions on the manufacturer's label.

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Cultivars

Table 2. Common cultivars of celery, okra, and parsley.

Celery	Okra	Parsley
Tall Utah 52-70R Improved*	Annie Oakley II (H ¹)	Dark Green Italian (PL)
	Cajun Delight (H)	Forest Green (CL ¹)
	Clemson Spineless	Improved Market Gardeners (CL)
	Clemson Spineless 80	Jade (CL, H)
	Millionaire (H)	
	North and South (H)	
	Spike (H)	

* Note the vast majority of celery production in Florida uses proprietary varieties
¹H=hybrid, CL=curly leaf, PL=plain leaf

The following tables list registered pesticides that should be integrated with other pest management methods. Additional information on integrated management methods can be requested from UF/IFAS Extension horticulture or agriculture agents. A list of local UF/IFAS Extension offices is available at <https://sfyl.ifas.ufl.edu/find-your-local-office/>.

Table 3. Herbicides approved for managing weeds in celery. Contact: Ramdas Kanissery, UF/IFAS Southwest Florida Research and Education Center.

Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
Labels change frequently. Be sure to read a current product label before applying any chemical.			
*** PREPLANT/PREEMERGENCE ***			
Bensulide 5.0–6.0	(Prefar) 4 E 5–6 qt	8	Broadleaf and grass weeds. Incorporate mechanically 1–2 inches deep or with irrigation 2–4 inches deep.
Carfentrazone up to 0.031	(Aim) 2 EC up to 2 fl oz	14	Apply as a preplant burndown for emerged broadleaf weeds. Use crop oil concentrate, methylated seed oil, or nonionic surfactant at recommended rates. Maximum rate of 0.096 lb a.i./A per season. No pretransplant interval.
Glyphosate	(various formulations) consult labels	9	Emerged broadleaf and grass weeds. Apply as a preplant burndown. Consult label for individual product directions.
Pelargonic acid	(Scythe) 4.2 EC 3%–10% v/v	27	Emerged broadleaf and grass weeds. Apply as a preplant burndown treatment. Scythe is a contact and postemergent/nonresidual herbicide and can be tank-mixed with residual/preemergence herbicides to lengthen control.
Prometryn 1.0–2.0	(Caparol) 4 L 2–4 pt	5	Most annual broadleaf and grass weeds. Do not exceed 1 application. Consult label for rotational crop restrictions.
Pyraflufen ethyl 0.0008–0.003	(ET Herbicide/Defoliant) 0.5–2.0 fl oz	14	Broadleaf and grass weeds. Burndown preplant application 1 day before planting. Include a nonionic surfactant or crop oil concentrate in the spray solution.
S-metolachlor 0.95–1.26	(Dual Magnum) 1.0–1.33 pt	15	Broadleaf, grass weeds, and nutsedge. Label is a Third-Party Registration (TPR, Inc.), and authorization and waiver agreements must be obtained prior to use. Rates are based on soil organic matter.
Trifluralin 0.5	(Treflan, Trifluralin) 4 EC 1 pt (Treflan, Trifluralin) 10 G 5 lb	3	Annual broadleaf and grass weeds. Do not apply to muck soils. For mineral soils with 2%–5% organic material, apply 0.75 lb a.i./A. Incorporate 4 inches or less within 8 hr of application.
*** POSTTRANSPLANT/POSTEMERGENCE ***			
Carfentrazone up to 0.031	(Aim) 2 EC up to 2 fl oz	14	Emerged broadleaf weeds. Apply as hooded application to row middles only. Use crop oil concentrate or nonionic surfactant at recommended rates. May be tank-mixed with other herbicides. Do not exceed 6.1 fl oz per cropping season. PHI 0 days.
Clethodim 0.09–0.13 0.07–0.12	(Arrow) 2 EC 6–8 fl oz (Select Max) 1 EC 9–16 fl oz	1	Perennial and annual grass weeds. In fields with heavy grass pressure or larger grass weeds, use higher rates or repeat applications 14 days apart. Use a crop oil concentrate at 1% v/v in the finished spray volume. Use a nonionic surfactant with Select Max. PHI 30 days.

Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
Linuron 0.5–1.0	(Lorox DF) 50 DF 1–2 lb	7	Broadleaf and grass weeds. Apply after transplanting but before celery is 8 inches tall. Do not apply when temperatures exceed 85°F nor as a tank mix with surfactants, nitrogen, or fertilizer solution. PHI 45 days.
Pelargonic acid	(Scythe) 4.2 EC 3%–10% v/v	27	Emerged broadleaf and grass weeds. Direct spray to row middles with hooded or shielded sprayer. Product is a contact, nonselective herbicide with no residual control. May be tank-mixed with several soil residual compounds.
Prometryn 0.8–1.6	(Caparol) 4 L 1.6–3.2 pt	5	Broadleaf weeds. Apply 1 application during the 2-to-6-week period after transplanting. Weeds should not exceed 2 in.
Sethoxydim 0.28	(Poast) 1.5 EC 1.5 pt	1	Emerged grass weeds. A maximum of 3 pt/A per season. Include a crop oil concentrate. Unsatisfactory results may occur if applied to grasses under stress. PHI 30 days.
S-metolachlor 0.95–1.26	(Dual Magnum) 1.0–1.33 pt	15	Broadleaf, grass weeds, and nutsedge. Label is a Third-Party Registration (TPR, Inc.), and authorization and waiver agreements must be obtained prior to use. Rates are based on soil organic matter.
*** CELERY SEEDBEDS ***			
Prometryn 0.6–0.8	(Caparol) 4 L 1.2–1.6 pt	5	Broadleaf weeds. Apply once per year to seedbeds. Apply after celery has 2–5 true leaves. Apply after seedbed covers have been removed for at least 1 week.

Table 4. Herbicides approved for managing weeds in okra. Contact: Ramdas Kanissery, UF/IFAS Southwest Florida Research and Education Center.

Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
Labels change frequently. Be sure to read a current product label before applying any chemical.			
*** PREEMERGENCE ***			
Carfentrazone up to 0.031	(Aim) 2 EC up to 2 fl oz	14	Apply as a preplant burndown for emerged broadleaf weeds. Use crop oil concentrate, methylated seed oil, or nonionic surfactant at recommended rates. Maximum rate of 0.096 lb a.i./A per season. No pretransplant interval.
Flumioxazin up to 0.128	(Chateau EZ) up to 4 fl oz	14	Annual broadleaf weeds. Apply to row middles of raised plastic-mulched beds that are at least 4 inches higher than the treated row middle and 24-inch bed width. Label is a Third-Party Registration (TPR, Inc.). Use without a signed authorization is a waiver of liability and is a misuse of the product. Tank-mix with a burndown herbicide to control emerged weeds. 0-day pretransplant interval.
Glyphosate	(various formulations) consult labels	9	Emerged broadleaf and grass weed control. Apply as a preplant burndown for emerged weeds. Read label for individual product directions.
Lactofen 0.25–0.5	(Cobra) 2 EC 16–32 fl oz	14	Broadleaf weeds. Apply to row middles only with a shielded or hooded sprayer. A minimum of 24 fl oz/A is required for residual control. Add a crop oil concentrate or nonionic surfactant for control of emerged weeds. Registration is through Third-Party Registration (TPR, Inc.), and a copy of the label must be on-hand at time of application. PHI 30 days.
Mesotrione 0.19	(Callisto) 4 L 6 fl oz	28	Broadleaf and grass weeds. Apply to row middles only. Leave 1 ft of untreated area or 6 inches on either side of the plant row. Injury risk is greatest on coarse-textured soils (sand, sandy loam, or loamy sand). Apply as one preemergence application OR one postemergence application. Callisto will cause whitening of the okra leaves.
Paraquat 0.5–1.0	(Gramoxone) 2 SL 2.0–4.0 pt	22	Emerged broadleaf and grass weed control. Apply one application before crop emergence. Do not exceed 8 pt/A per season. Consult label for new restrictions.
Pelargonic acid	(Scythe) 4.2 EC 3%–10% v/v	27	Broadleaf and grass weeds. Scythe is a contact, nonselective herbicide with no residual activity. May be tank-mixed with trifluralin for soil residual activity. Consult label for rates and other information.
Prometryn 0.75–1.5	(Caparol) 4 L 1.5–3.0 pt	5	Apply after planting, but before crop emergence. Apply as one preemergence application at 3 pt OR 1 preemergence application at 1.5 pt followed by 1 POST directed application at 1.5 pt. Do not exceed 3 pt/A per crop cycle.
Sulfentrazone 0.07–0.09	(Willowood sulfentrazone) 4SC 2.25–3.0 fl oz	14	Broadleaf and grass weed control, nutsedge suppression. Do not apply on sands with less than 1% organic matter. Do not apply more than 12 fl oz/A within a 12-month period. Should be trialed on a small area to find suitable rate for the soil type in your area.

Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
Trifluralin 0.5–0.75	(Treflan, Trifluralin) 4 EC 0.5–1.5 pt (Treflan, Trifluralin) 10 G 5.0–7.5 lb	3	Annual broadleaf and grass weeds. Incorporate 4 inches or less within 8 hr. Results in Florida are erratic on soils with low organic matter and clay contents. Note precautions against planting nonregistered crops within 5 months.
*** POSTEMERGENCE ***			
Carfentrazone up to 0.031	(Aim) 2 EC up to 2 fl oz	14	Emerged broadleaf weeds. Apply to row middles only with a hooded sprayer. Maximum rate of 0.096 lb a.i./A per season. Rates apply to mineral and muck soils. Use crop oil concentrate or nonionic surfactant at recommended rates. PHI 0 days.
Glyphosate	(various formulations) consult labels	9	Emerged broadleaf and grass weeds. Apply to row middles only with a hooded sprayer. PHI 14 days.
Halosulfuron 0.024–0.05	(Sandea) 75 WG 0.5–1.0 oz	2	Broadleaf and purple/yellow nutsedge weeds. Apply to row middles of direct-seeded or transplanted okra. If plastic is used, prevent herbicide contact with the plastic. Do not apply more than 2 oz/A per 12-month period. PHI 30 days.
Lactofen 0.25–0.5	(Cobra) 2 EC 16–32 fl oz	14	Broadleaf weeds. Apply to row middles only with a shielded or hooded sprayer. A minimum of 24 fl oz/A is required for residual control. Add a crop oil concentrate or nonionic surfactant for control of emerged weeds. One POST application may be made per growing season at 18 days after transplanting. Cobra contacting green foliage or fruit can cause excessive injury. Registration is through Third-Party Registration (TPR, Inc.), and a copy of the label must be on hand at time of application. PHI 30 days.
Mesotrione 0.09	(Callisto) 4 L 3 fl oz	28	Broadleaf and grass weeds. Direct spray with hooded sprayer to minimize contact with okra plants. Okra must be at least 3 inches tall. Use of a nonionic surfactant is required. Injury risk is greatest on coarse-textured soils. Apply as 1 preemergence or one postemergence application. PHI 28 days.
Paraquat 0.5–1.0	(Gramoxone) 2 SL 2.0 pt	22	Emerged broadleaf and grass weeds. Apply to row middles only and do not allow contact to okra plants. Limit of 2 applications after crop emergence. Do not exceed 8 pt/A per season. PHI 60 days. Consult label for new restrictions.
Pelargonic acid	(Scythe) 4.2 EC 3%–10% v/v	27	Broadleaf and grass weeds. Apply to row middles only with a shielded sprayer.
Prometryn 0.75	(Caparol) 4 L 1.5 pt	5	Apply 1 postemergence application directed to the base of the crop. If a preemergence application was made, do not exceed 3 pt/A PHI 14 days.
Sethoxydim 0.19–0.28	(Poast) 1.5 EC 1.0–1.5 pt	1	Grass weeds. Efficacy will be decreased if grass weeds are under stress. Include a crop oil concentrate or methylated seed oil in the spray. PHI 14 days.

Table 5. Herbicides approved for managing weeds in parsley. Contact: Ramdas Kanissery, UF/IFAS Southwest Florida Research and Education Center.

Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Crops	Weeds Controlled/Remarks
Labels change frequently. Be sure to read a current product label before applying any chemical.				
*** PREEMERGENCE ***				
Bensulide 5.0–6.0	(Prefar) 4 E 5–6 qt	8	Parsley	Annual broadleaf and grass weeds. Incorporate or irrigate 1–2 inches deep within 36 hr of application. Consult label for rotation restrictions.
Carfentrazone up to 0.031	(Aim) 2 EC up to 2 fl oz	14	Parsley, cilantro	Apply as a preplant burndown for emerged broadleaf weeds. Use crop oil concentrate, methylated seed oil, or nonionic surfactant at recommended rates. Maximum rate of 0.096 lb a.i./A per season. No pretransplant interval.
Glyphosate	(various formulations) consult labels	9	Parsley, cilantro	Control emerged broadleaf and grass weeds. Consult individual labels for restrictions.
Linuron 0.5–1.5	(Lorox DF) 50 DF 1–3 lb	7	Parsley, cilantro	Mineral and muck soils. Apply after planting and before crop emergence. Use lower rates on coarse soils.
Pelargonic acid	(Scythe) 4.2 EC 3%–10% v/v	27	Parsley, cilantro	Controls emerged weeds. Apply before emergence of crop. Product is a contact, nonselective, foliar-applied herbicide. There is no residual activity.
Prometryn 1.0–1.6	(Caparol) 4 L 1.0 pt	5	Parsley, cilantro	A single preemergence application can be applied up to 14 days after planting. A 2nd application can be made up to 30 days prior to harvest. Do not apply on sand or loamy sand. Read label for rotation restrictions.
Pyraflufen ethyl 0.001–0.003	(ET Herbicide/ Defoliant) 0.5–2.0 fl oz	14	Parsley	Emerged broadleaf and grass weeds. Plant 1 day after application. Apply as a preplant burndown treatment.
*** POSTEMERGENCE ***				
Carfentrazone up to 0.031	(Aim) 2 EC up to 2 fl oz	14	Parsley, cilantro	Emerged broadleaf control. Post-direct hooded application to row middles. Read the label for adjuvant requirements. PHI 0 days.
Clethodim 0.09–0.13 0.07–0.12	(Arrow) 2 EC 6–8 fl oz (Select Max) 1 EC 9–16 fl oz	1	Parsley, cilantro	Annual and perennial grass control. Read the label for required adjuvants.
Linuron 0.5	(Lorox DF) 50 DF 1 lb	7	Parsley, cilantro	Apply after the crop has a minimum of 3 true leaves or crop injury may result. Apply when weeds are in the 1–3 true leaf stage. Do not exceed 3 lb/A of Lorox per season. PHI 30 days.
Prometryn 0.5	(Caparol) 4 L 1.0 pt	5	Parsley, cilantro	An application can be made up to 30 days prior to harvest. Another application can be applied after harvest to the new regrowth. Do not use on sand or loamy sands. Read label for rotation restrictions.
Sethoxydim 0.19–0.28	(Poast) 1.5 EC 1.0–1.5 pt	1	Parsley, cilantro	Growing grass weeds. Decreased efficacy if weeds are under stress. Do not exceed 3.0 pt/A per season. Include a crop oil concentrate in the spray solution. PHI 15 days.

Table 6. Insecticides approved for management of arthropod pests of celery. Contact: Julien Beuzelin, UF/IFAS Everglades Research and Education Center.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
Labels change frequently. Be sure to read a current product label before applying any chemical. Please refer to chapter 19 for information on biopesticides, including materials labeled for certified organic production.						
Aphids	1B	Malathion 5EC, 8F (malathion)	5EC: 2.4 pt 8F: 1–1.5 pt	24	7	Maximum of 2 applications per year.
	1B	Orthene 97 (acephate)	0.5–1.0 lb	24	21	Do not use more than 2 lb a.i./A per season. All tops must be removed before shipment.
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	12	7	Maximum of 32 fl oz/A per season.
	3A	*Fastac CS (alpha-cypermethrin)	3.2–3.8 fl oz	12	1	Maximum of 11.4 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	3A	*Pounce 25 WP (permethrin)	6.4–12.8 oz	12	1	Maximum of 0.8 lb a.i./A per season.
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Actara (thiamethoxam)	1.5–3.0 oz	12	7	Maximum of 11 oz/A per season.
	4A	Admire Pro (imidacloprid)	Soil: 4.4–10.5 fl oz	12	45	Maximum of 10.5 fl oz/A per year.
	4A	Assail 30SG Assail 70WP (acetamiprid)	30SG: 2.0–4.0 oz 70WP: 0.8–1.7 oz	12	7	30SG: Maximum of 20.0 oz/A or 0.375 lb a.i. per year. 70WP: Maximum of 8.5 oz/A or 0.375 lb a.i. per year.
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12	Foliar: 7 Soil: 21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	12	30	Maximum of 13 fl oz/A per season.
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	12	7	Do not apply more than 14 oz/A per growing season. An adjuvant may be used when applying to celery.
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	4	1	Maximum of 28 fl oz/A per crop season. Maximum of 3 crop seasons per year.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	10 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
	9B	Fulfill (pymetrozine)	2.75 oz	12	7	Apply when aphids first appear, before populations build to damaging levels. 2 applications (maximum allowed) may be needed to control persistent aphid populations.
	9B	PQZ (pyrifluquinazon)	2.4–3.2 fl oz	12	1	Maximum of 4.8 fl oz/A per crop cycle.
	9D	Versys (afidopyropen)	1.5 fl oz	12	0	Maximum of 14 fl oz/A per season.
	21A	Torac (tolfenpyrad)	14–21 fl oz	12	1	Do not apply until at least 14 days after emergence or after transplanting. Do not apply more than 42 fl oz/A per crop cycle; apply no more than twice per crop or 4 times per year.
	23	Movento (spirotetramat)	4.0–5.0 fl oz	24	3	Do not apply more than 10 fl oz/A per crop.
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	12	1	Maximum of 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Verimark), including all application types. For best performance, use an adjuvant.
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	4	N/A— applied at planting	Maximum of 13.5 fl oz at planting or 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Exirel), including all application types.
	29	Beleaf 50 SG (flonicamid)	2.0–2.8 oz	12	0	Do not apply more than 8.4 oz/A per season. Begin applications before pests reach damaging levels.
	-	Aza-Direct (azadirachtin)	1–2 pt, up to 3.5 pt	4	0	OMRI-listed. ²
	-	BotaniGard ES Mycotrol ESO (<i>Beauveria bassiana</i> strain GHA)	0.25–1 qt	4	0	Apply in sufficient water to cover foliage, typically 5–100 gal/A. Compatible in tank mix with some fungicides. Mycotrol ESO OMRI-listed. ²
	-	Grandevo (<i>Chromobacterium</i> <i>subtsugae</i> strain PRAA4-1)	1–3 lb	4	0	OMRI-listed. ²
	-	JMS Stylet-Oil, Saf-T-Side, Suffoil-X, Sun Spray 98.8%, others (oil, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	4	0	Organic Stylet-Oil, Saf-T-Side, and Suffoil-X are OMRI-listed. ²
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	Neemix 4.5 EC (azadirachtin)	4–16 fl oz	12	0	OMRI-listed. ²
	-	Requiem EC (extract of <i>Chenopodium</i> <i>ambrosioides</i>)	2.0–4.0 qt	4	0	Apply before pests reach damaging levels.
	-	Trilogy (extract of neem oil)	0.5%–2.0% v/v	4	0	Apply morning or evening to reduce potential for leaf burn. OMRI-listed. ²

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
Caterpillars (includes beet armyworm, cabbage looper, celery leaf-tier, corn earworm, cutworms, fall armyworm)	1A	*Lannate LV, *SP (methomyl)	LV: 0.75–3 pt SP: 0.25–1.0 lb	48	7	Do not apply more than 21 pt/A of LV or 7 lb/A SP per season.
	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	12	14	Maximum of 6 qt/A per year.
	1B	Orthene 97 (acephate)	1.0 lb	24	21	Do not use more than 2 lb a.i./A per season. All tops must be removed before shipment.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	12	7	Maximum of 32 fl oz/A per season.
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	12	1	Maximum of 11.4 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	3A	*Pounce 25 WP (permethrin)	3.2–12.8 oz	12	1	Maximum of 0.8 lb a.i./A per season.
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	12	30	Do not exceed more than 13 fl oz/A per season.
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	12	7	Do not apply more than 14 oz/A per growing season. An adjuvant may be used when applying to celery.
	5	Entrust SC (spinosad)	1.5–10.0 fl oz	4	1	Maximum of 29 oz/A per year. OMRI-listed. ²
	5	Radiant SC (spinetoram)	5–10 fl oz	4	1	Maximum of 6 applications, no more than 2 consecutive applications before rotating to another MOA.
	6	*Proclaim (emamectin benzoate)	2.4–4.8 oz	12	7	Provides suppression of leafminers. Rotate with other products with different modes of action.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.
	11A	Agree WG (<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>)	0.5–2.0 lb	4	0	Apply when larvae are small for best control. OMRI-listed. ²
	11A	Biobit HP (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	4	0	Treat when larvae are young. Good coverage is essential. Can be used in the greenhouse. OMRI-listed. ²
	11A	Crymax WDG (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	4	0	Use high rate for armyworms. Treat when larvae are young.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
	11A	Deliver (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.25–1.5 lb	4	0	Use higher rates for armyworms. OMRI-listed. ²
	11A	DiPel DF (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	4	0	Treat when larvae are young. Good coverage is essential. See label for rates for specific pests. For organic production.
	11A	Javelin WG (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.12–1.5 lb	4	0	Treat when larvae are young. Thorough coverage is essential. OMRI-listed. ²
	11A	Xentari DF (<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>)	0.5–2.0 lb	4	0	Treat when larvae are young. Thorough coverage is essential. May be used in the greenhouse. Can be used in organic production.
	18	Confirm 2F (tebufenozide)	6–8 fl oz	4	7	Maximum of 40 fl oz/A per season.
	18	Intrepid 2F (methoxyfenozide)	4–10 fl oz	4	1	Maximum of 64 fl oz/A per year.
	22	Avaunt Avaunt eVo (indoxacarb)	3.5 oz eVo: 3.5–6.0 oz	12	3	Maximum of 14 oz/A per crop and 56 oz/A per year (Avaunt) or 18 oz/A per crop and 72 oz/A per year (Avaunt eVo).
	28	Coragen (chlorantraniliprole)	3.5–7.5 fl oz	4	1	May be applied via drip chemigation in addition to foliar and various soil application methods.
	28	Exirel (cyantraniliprole)	7.0–20.5 fl oz	12	1	Maximum of 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Verimark), including all application types.
	28	Verimark (cyantraniliprole)	5.0–13.5 fl oz	4	N/A— applied at planting	Maximum of 13.5 fl oz at planting or 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Exirel), including all application types.
	32	Spear-Lep (GS-omega/kappa-Hctx-Hv1a)	1–2 pt	4	0	Must be tank-mixed with a <i>Bacillus thuringiensis</i> (<i>Bt</i>) product. Maximum of 10 gal/A per year.
	-	Aza-Direct (azadirachtin)	1–2 pt, up to 3.5 pt	4	0	OMRI-listed. ²
	-	Grandevo (<i>Chromobacterium</i> <i>subtsugae</i> strain PRAA4-1)	1–3 lb	4	0	OMRI-listed. ²
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	Neemix 4.5 EC (azadirachtin)	4–16 fl oz	12	0	OMRI-listed. ²
Fire ants	7A	Extinguish (S-methoprene)	1–1.5 lb	4	0	Slow-acting IGR (insect growth regulator). Best applied early spring and fall where crop will be grown. Colonies will be reduced after 3 weeks and eliminated after 8–10 weeks. May be applied by ground equipment or aerially.
Flea beetles	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	12	14	Maximum of 6 qt/A per year.
	3A	*Ambush 25W (permethrin)	6.4–12.8 oz	12	1	Do not apply more than 128 oz/A per season.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	12	7	Maximum of 32 fl oz/A per season.
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	12	1	Maximum of 11.4 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Actara (thiamethoxam)	1.5–3.0 oz	12	7	Maximum of 11 oz/A per season.
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12	Foliar: 7 Soil: 21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	12	30	Do not exceed 13 fl oz/A per season.
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	12	7	Do not apply more than 14 oz/A per growing season. An adjuvant may be used when applying to celery.
	21A	Torac (tolfenpyrad)	14–21 fl oz	12	1	Do not apply until at least 14 days after emergence or after transplanting. Do not apply more than 42 fl oz/A per crop cycle and apply no more than twice per crop or 4 times per year.
Grasshoppers	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.
	4A	Belay (clothianidin)	Soil: 9–12 fl oz	12	21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
Leafhoppers	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	12	14	Maximum of 6 qt/A per year.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	12	7	Maximum of 32 fl oz/A per season.
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	12	1	Maximum of 11.4 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Actara (thiamethoxam)	1.5–3.0 oz	12	7	Maximum of 11 oz/A per season.
	4A	Admire Pro (imidacloprid)	4.4–10.5 fl oz	12	45	Do not apply more than 0.38 lb a.i./A (10.5 fl oz/A) per year.
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12	Foliar: 7 Soil: 21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	12	30	Do not exceed more than 13 fl oz/A per season.
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	12	7	Do not apply more than 14 oz/A per growing season. An adjuvant may be used when applying to celery.
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	4	1	Maximum of 28 fl oz/A per crop season. Maximum of 3 crop seasons per year.
	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	12	7	Do not make more than 2 applications per crop cycle. IGR targets immatures.
	21A	Torac (tolfenpyrad)	14–21 fl oz	12	1	Do not apply until at least 14 days after emergence or after transplanting. Do not apply more than 42 fl oz/A per crop cycle and apply no more than twice per crop or 4 times per year.
	-	Aza-Direct (azadirachtin)	1–2 pt, up to 3.5 pt	4	0	OMRI-listed. ²
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	JMS Stylet-Oil, Saf-T-Side, Suffoil-X, Sun Spray 98.8%, others (oil, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	4	0	Organic Stylet-Oil, Saf-T-Side, and Suffoil-X are OMRI-listed. ²
Leafminers	1A	*Vydate L (oxamyl)	2–4 pt	48	21	Do not apply more than 24 pt/A per season.
	1B	Dimethoate 4EC (dimethoate)	1 pt	48	7	Do not apply more than 3 pt/A per year.
	3A	*Ambush 25W (permethrin)	6.4–12.8 oz	12	1	Do not apply more than 128 oz/A per season.
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Belay (clothianidin)	Soil: 9–12 fl oz	12	21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	5	Entrust SC (spinosad)	1.5–10.0 fl oz	4	1	Maximum of 29 oz/A per year. OMRI-listed. ²
	5	Radiant SC (spinetoram)	5–10 fl oz	4	1	Maximum of 6 applications; no more than 2 consecutive applications before rotating to another MOA.
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	12	7	No more than 2 sequential applications. Must be used with an adjuvant (but not binder-sticker types). Not for use on leafy vegetables grown for transplant.
	6	*Proclaim (emamectin benzoate)	2.4–4.8 oz	12	7	Provides suppression of leafminers. Rotate with other products with different modes of action.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.
	17	Trigard (cyromazine)	2.66 oz	12	7	Do not make more than 6 applications per crop.
	28	Coragen (chlorantraniliprole)	5.0–7.5 fl oz	4	1	May be applied via drip chemigation in addition to foliar and various soil application methods.
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	12	1	Maximum of 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Verimark), including all application types. For best performance, use an adjuvant.
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	4	N/A— applied at planting	Maximum of 13.5 fl oz at planting or 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Exirel), including all application types.
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	Neemix 4.5 EC (azadirachtin)	4–16 fl oz	12	0	OMRI-listed. ²
	-	Requiem EC (extract of <i>Chenopodium ambrosioides</i>)	2.0–4.0 qt	4	0	Apply before pests reach damaging levels.
	-	SunSpray 98.8%, JMS Stylet-Oil, Saf-T-side, others (oils, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	4	0	See label for cautions on tank mixes. Organic Stylet-Oil and Saf-T-Side are OMRI-listed. ²

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/ Acre	REI (Hours)	Days to Harvest	Remarks ²
Plant bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	12	14	Repeat as needed, up to 5 times, at least 7 days apart.
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	12	7	Maximum of 32 fl oz/A per season.
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	29	Beleaf 50 SG (flonicamid)	2.0–2.8 oz	12	0	Do not apply more than 8.4 oz/A per season. Begin applications before pests reach damaging levels.
Planthoppers	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	12	7	Do not make more than 2 applications per crop cycle. IGR targets immatures.
Stink bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	12	14	Repeat as needed, up to 5 times, at least 7 days apart.
	3A	*Fastac CS (alpha-cypermethrin)	3.2–3.8 fl oz	12	1	Maximum of 11.4 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	3.2–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
Two-spotted spider mite	1B	Malathion 5EC, 8F (malathion)	5EC: 2.4 pt 8F: 1–1.5 pt	24	7	Maximum of 2 applications per year.
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	12	7	Maximum of 32 fl oz/A per season.
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	12	7	No more than 2 sequential applications. Must be used with an adjuvant (but not binder-sticker types). Not for use on leafy vegetables grown for transplant.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.
	-	Suffoil-X (mineral oil)	1–2 gal/100 gal	4	0	OMRI-listed. ²

¹ Mode of Action (MOA) codes for plant pest insecticides from the Insecticide Resistance Action Committee (IRAC) Mode of Action Classification v. 11.1 January 2024. Number codes are used to distinguish the main insecticide mode of action groups, with additional letters for certain subgroups within each main group. All insecticides within the same group (with same number) indicate same active ingredient or similar mode of action. This information must be considered for the insecticide resistance management decisions. - = unknown, or a mode of action that has not been classified yet.

² Information provided in this table applies only to Florida. Be sure to read a current product label before applying any product. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by UF/IFAS Extension nor discrimination against similar products or services not mentioned. OMRI-listed: listed by the Organic Materials Review Institute for use in organic production.

* Restricted use insecticide.

Table 7. Insecticides approved for managing insect pests of okra crops. Contact: Dakshina Seal, UF/IFAS Tropical Research and Education Center.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	Max Rate Product per Season	REI (Hours)	Days to Harvest	Remarks ²
Aphids	1B	*Malathion 5EC Malathion 8F (malathion)	5EC: 1.5 pt 8F: 1.2 pt	5EC: 9.5 pt per year 8F: 6.0 pt per year	12	1	
	3A	*Brigade 2 EC (bifenthrin)	2.1–6.4 fl oz	12.8 fl oz	12	1	
	3A	PyGanic 5.0 (pyrethrins)	4.5–15.6 fl oz	10 applications	12	0	OMRI-listed. ²
	4A	Admire Pro (imidacloprid)	Soil: 7–14 fl oz Foliar: 1.3–2.2 fl oz	Soil: 14 fl oz Foliar: 6.7 fl oz	12	Soil: 21 Foliar: 0	Do not apply to both soil and foliage. Do not use other 4A insecticides if imidacloprid is used.
	4A	Assail 30SG (acetamiprid)	2.0–4.0 oz	16 oz	12	7	
	4D	Sivanto Prime (flupyradifurone)	Foliar: 7.0–14 fl oz Soil: 21–28 fl oz	28 fl oz per year	4	Foliar: 1 Soil: 45	
	9D	Sefina Inscalis (afidopyropen)	3.0 fl oz	28 fl oz	12	0	
	23	Movento (spirotetramat)	4–5 fl oz	10.0 fl oz	24	1	
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	0.4 lb a.i.; see label	12	1	
	29	Beleaf 50 SG (flonicamid)	2.8–4.28 oz	8.4 oz	12	0	
	-	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed. ² Antifeedant, repellent IGR.
	-	Azatin O (azadirachtin)	5–16 fl oz	as needed	4	0	OMRI-listed. ² Antifeedant, repellent IGR. Rate depends on pest. See label.
	-	BotaniGard ES BotaniGard 22WP (<i>Beauveria bassiana</i> strain GHA)	ES: 0.25–1.0 qt 22WP: 0.50–2.0 qt	no limit	4	0	Compatible in tank mix with some fungicides.
	-	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	2–3 lb	none	4	0	OMRI-listed. ²
	-	Neemix 4.5 (azadirachtin)	4–16 fl oz	2.0 g a.i. per application	4	0	OMRI-listed. ² Antifeedant, repellent IGR. May be used in greenhouses.
	-	Sun Spray 98.8%, JMS Stylet Oil, Saf-T-Side, others (oil, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	no limit	4	0	OMRI-listed. ² See label for tank-mix cautions.
- + 3A	BotaniGard Maxx (<i>Beauveria bassiana</i> strain GHA + pyrethrins)	0.25–2.0 qt	no limit	12	0		

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	Max Rate Product per Season	REI (Hours)	Days to Harvest	Remarks ²
Beetles (including cucumber beetles, flea beetles)	1B	*Malathion 5EC Malathion 8F (malathion)	5EC: 1.9 pt 8F: 1.2 pt	5EC: 9.5 pt per year 8F: 6.0 pt per year	12	1	Do not graze or feed forage to livestock.
	3A	*Capture LFR (bifenthrin)	3.4–6.8 fl oz	0.2 lb a.i.	12	at plant	
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	
	3A	PyGanic 5.0 (pyrethrins)	4.5–15.6 fl oz	10 applications	12	0	OMRI-listed. ²
	3A + 28	Besiege (lambda-cyhalothrin + chlorantraniliprole)	5–10 fl oz	31 fl oz	24	Edible podded succulent shelled: 7 Dry shelled: 21	
	4A	Admire Pro (imidacloprid)	Soil: 7–14 fl oz Foliar: 1.3–2.2 fl oz	Soil: 14 fl oz Foliar: 6.7 fl oz	12	Soil: 21 Foliar: 0	Do not apply to both soil and foliage. Do not use other 4A insecticides if imidacloprid is used.
	4A	Assail 30SG (acetamiprid)	1.5–2.5 oz	16 oz	12	7	
	15	Rimon 0.83 EC (novaluron)	9–12 fl oz	36.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects.
	-	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed. ² Antifeedant, repellent IGR.
Caterpillars (including armyworms, loopers, tomato fruitworm—also known as corn earworm, caterpillars, cutworms)	1A	Sevin 4F, XLR Plus (carbaryl)	4F: 1–1.5 qt XLR: 1–1.5 qt	6 qt per year	12	3	
	3A	*Asana XL (esfenvalerate)	5.8–9.6 fl oz	38.4 fl oz	12	1	Do not feed or graze livestock on treated vines.
	3A	*Brigade 2 EC (bifenthrin)	2.1–6.4 fl oz	12.8 fl oz	12	1	
	3A	*Capture LFR (bifenthrin)	3.4–6.8 fl oz	0.2 lb a.i.	12	at plant	
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	
	3A	PyGanic 5.0 (pyrethrins)	4.5–15.6 fl oz	10 applications	12	0	OMRI-listed. ²
	3A + 28	Besiege (lambda-cyhalothrin + chlorantraniliprole)	5–10 fl oz	31 fl oz	24	Edible podded succulent shelled: 7 Dry shelled: 21	
	5	Entrust SC (spinosad)	1.5–2.5 fl oz	9.0 fl oz	4	1	OMRI-listed. ²
	5	Radiant SC (spinetoram)	5–10 fl oz	34 fl oz	4	1	
	6 + 28	Minecto Pro (cyantraniliprole + abamectin)	5.5–10.0 oz	0.4 lb a.i.; see label	12	Greenhouse tomato: 1 All other crops: 7	

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	Max Rate Product per Season	REI (Hours)	Days to Harvest	Remarks ²
	11A	Crymax WDG (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	no limit	4	0	Use high rate for armyworms. Treat when larvae are young.
	11A	Deliver (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.25–1.5 lb	as needed	4	0	OMRI-listed. ² Use higher rate for armyworms.
	11A	DiPel (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	no limit	4	0	Can be used in organic production.
	11A	Javelin WG (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.12–1.50 lb	no limit	4	0	OMRI-listed. ² Treat when larvae are young. Thorough coverage is essential.
	11A	Xentari DF (<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>)	0.5–2.0 lb	no limit	4	0	OMRI-listed. ²
	15	Rimon 0.83 EC (novaluron)	9–12 fl oz	36.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects.
	18	Intrepid (methoxyfenozide)	4–16 fl oz	64 fl oz	4	1	
	22	Avaunt (indoxacarb)	2.5–3.5 oz	14 oz	12	3	
	28	Coragen (chlorantraniliprole)	3.5–7.5 fl oz	15.4 fl oz of chlorantraniliprole products	4	1	
	28	Exirel (cyantraniliprole)	7.0–13.5 fl oz	0.4 lb a.i. of cyantraniliprole or cyazapyr products	12	1	
	-	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed. ² Antifeedant, repellent, IGR.
	-	Azatin O (azadirachtin)	5–16 fl oz	as needed	4	0	OMRI-listed. ² Antifeedant, repellent, IGR. Rate depends on pest. See label.
	-	BotaniGard 22WP (<i>Beauveria bassiana</i> strain GHA)	0.50–2.0 qt	no limit			Contact dealer if an adjuvant must be used. Compatible in tank mix with some fungicides.
	-	BotaniGard ES (<i>Beauveria bassiana</i> strain GHA)	0.25–1.0 qt	no limit	4	0	May be used in greenhouses.
	-	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	1–3 lb	no limit	4	0	OMRI-listed. ²
	-	Neemix 4.5 (azadirachtin)	4–16 fl oz	20 g a.i.	4	0	OMRI-listed. ² Antifeedant, repellent, IGR.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	Max Rate Product per Season	REI (Hours)	Days to Harvest	Remarks ²
	- + 3	BotaniGard Maxx (<i>Beauveria bassiana</i> strain GHA + pyrethrins)	0.25–2.0 qt	no limit			
Fire ants	7A	Extinguish (S-methoprene)	1–1.5 lb broadcast	as needed	4	0	IGR. Colonies will get reduced after 3 weeks and eliminated after 8–10 weeks.
	7C	Esteem Ant Bait (pyriproxyfen)	1.5–2.0 lb	0.134 lb a.i.	12	1	IGR. Apply at first sign of ant activity.
Leafminers	3A	*Brigade 2 EC (bifenthrin)	2.1–6.4 fl oz	12.8 fl oz	12	7	
	5	Entrust SC (spinosad)	2–3 fl oz	9 fl oz	4	1	OMRI-listed. ²
	5	Radiant SC (spinetoram)	6–10 fl oz	34 oz per year	4	1	Use adjuvant for leafminer.
	6 + 28	Minecto Pro (cyantraniliprole + abamectin)	5.5–10.0 oz	0.4 lb a.i.; see label	12	Greenhouse tomato: 1 All other crops: 7	
	15	Rimon 0.83 EC (novaluron)	12 fl oz	36.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects.
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	0.4 lb a.i.; see label	12	1	
	28	VeriMark (cyantraniliprole)	6.75–13.5 fl oz	13.5 oz of cyantraniliprole or cyazapyr products	4	1	Apply at planting or in drip.
	-	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed. ² Antifeedant, repellent, IGR.
	-	Azatin O (azadirachtin)	5–16 fl oz	as needed	4	0	OMRI-listed. ² Antifeedant, repellent, IGR. Rate depends on pest. See label.
	-	Neemix 4.5 (azadirachtin)	4–7 oz	20 g a.i.	4	0	OMRI-listed. ² Antifeedant, repellent, IGR.
	-	Sun Spray 98.8%, JMS Stylet Oil, Saf-T-Side, others (oil, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	no limit	4	0	OMRI-listed. ² See label for tank-mix cautions.
Mites	3A	PyGanic 5.0 (pyrethrins)	4.5–15.6 fl oz	10 applications	12	0	OMRI-listed. ²
	6 + 28	Minecto Pro (cyantraniliprole + abamectin)	5.5–10.0 oz	0.4 lb a.i.; see label	12	Greenhouse tomato: 1 All other crops: 7	
	10B	Zeal (etoxazole)	2.0–3.0 oz	3.0 oz	12	7	
	20B	Kanemite 15 SC (acequinocyl)	31 fl oz	62 oz	12	1	
	20D	Acramite-50WS (bifentzate)	0.50–1.0 lb	1.0 lb	12	3	
	21A	Portal (fenpyroximate)	2.0 pt	4.0 pt	12	1	

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	Max Rate Product per Season	REI (Hours)	Days to Harvest	Remarks ²
	23	Movento (spirotetramat)	4–5 fl oz	10.0 fl oz	24	1	
	-	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed. ² IGR.
	-	Sun Spray 98.8%, JMS Stylet Oil, Saf-T-Side, others (oil, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	no limit	4	0	OMRI-listed. ²
	-	Trilogy (extract of neem oil)	1.0%–2.0% v/v	as needed	4	0	OMRI-listed. ²
Stink bugs	1A	Sevin 4F, XLR Plus (carbaryl)	4F: 1–1.5 qt XLR: 1–1.5 qt	6 qt per year	12	3	
	3A	*Brigade 2 EC (bifenthrin)	2.1–6.4 fl oz	12.8 oz	7	1	
	3A	*Mustang Maxx (zeta-cypermethrin)	3.2–4.0 fl oz	24 fl oz	12	1	
	3A	PyGanic 5.0 (pyrethrins)	4.5–15.6 fl oz	10 applications	12	0	OMRI-listed. ²
	15	Rimon 0.83 EC (novaluron)	12 fl oz	36.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects.
Thrips	4A	Admire Pro (imidacloprid)	Soil: 7–14 fl oz	Soil: 10.5 fl oz	12	Soil: 21	Soil application only for thrips. Do not use other 4A insecticides if imidacloprid is used.
	5	Entrust SC (spinosad)	1.25–2.5 oz	9.0 oz	4	1	OMRI-listed. ²
	6 + 28	Minecto Pro (cyantraniliprole + abamectin)	5.5–10.0 oz	0.4 lb a.i.	12	Greenhouse tomato: 1 All other crops: 7	
	15	Rimon 0.83 EC (novaluron)	12 fl oz	24.0 fl oz	12	1	Rimon disrupts molting and has no effect on adult insects.
	-	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed. ² Antifeedant, repellent, IGR.
	-	BotaniGard 22WP (<i>Beauveria bassiana</i> strain GHA)	1.0–2.0 qt	as needed	4	0	Compatible in tank mix with some fungicides.
	-	BotaniGard ES (<i>Beauveria bassiana</i> strain GHA)	1.0–2.0 qt	as needed	4	0	May be used in greenhouses.
	-	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	2–3 lb	none	4	0	OMRI-listed. ²
	-	Requiem EC (extract of <i>Chenopodium ambrosioides</i>)	2.0–4.0 qt	10 applications	4	0	

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	Max Rate Product per Season	REI (Hours)	Days to Harvest	Remarks ²
	-	Sun Spray 98.8%, JMS Stylet Oil, Saf-T-Side, others (oil, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	no limit	4	0	OMRI-listed. ²
	+ 3	BotaniGard Maxx (<i>Beauveria bassiana</i> strain GHA + pyrethrins)	0.25–2.0 qt	as needed	12	0	
Whiteflies	3A	*Brigade 2 EC (bifenthrin)	2.1–6.4 fl oz	12.8 fl oz	12	7	
	3A	PyGanic 5.0 (pyrethrins)	4.5–15.6 fl oz	10 applications	12	0	OMRI-listed. ²
	4A	Admire Pro (imidacloprid)	Soil: 7–14 fl oz Foliar: 1.3–2.2 fl oz	Soil: 14 fl oz Foliar: 6.7 fl oz	12	Soil: 21 Foliar: 0	Do not apply to both soil and foliage. Do not use other 4A insecticides if imidacloprid is used.
	4A	Assail 30SG (acetamiprid)	2.5–4.0 fl oz	16 oz	12	7	
	4D	Sivanto Prime (flupyradifurone)	Foliar: 10.5–14 fl oz Soil: 21–28 fl oz	28 fl oz per year	4	Foliar: 1 Soil: 45	
	6 + 28	Minecto Pro (cyantraniliprole + abamectin)	5.5–10.0 oz	0.4 lb a.i.; see label	12	Greenhouse tomato: 1 All other crops: 7	
	7C	Knack IGR (pyriproxyfen)	8–10 fl oz	20 fl oz	12	1	IGR
	9D	Sefina Inscalis (afidopyropen)	14 fl oz	28 fl oz	12	0	
	15	Rimon 0.83 EC (novaluron)	12.0 fl oz	24.0 oz	12	1	
	16	Courier 40 SC (buprofezin)	9.0–13.6 fl oz	27.2 fl oz	12	1	
	23	Movento (spirotetramat)	4–5 fl oz	10.0 fl oz	24	1	
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	0.4 lb a.i.; see label	12	1	
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	13.5 fl oz of cyantraniliprole or cyazapyr products	4	1	
	-	Aza-Direct (azadirachtin)	1–2 pt	3.5 pt	4	0	OMRI-listed. ² Antifeedant, repellent, IGR.
	-	Azatin O (azadirachtin)	5–16 fl oz	as needed	4	0	OMRI-listed. ² Antifeedant, repellent, IGR. Rate depends on pest.
	-	BotaniGard 22WP (<i>Beauveria bassiana</i> strain GHA)	0.50–2.0 qt	no limit			
	-	BotaniGard ES (<i>Beauveria bassiana</i> strain GHA)	0.25–1.0 qt	no limit	4	0	May be used in greenhouses.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	Max Rate Product per Season	REI (Hours)	Days to Harvest	Remarks ²
	-	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	2–3 lb	no limit	4	0	OMRI-listed. ² Can be used in organic production.
	-	Neemix 4.5 (azadirachtin)	4–16 fl oz	20 g a.i.	4	0	OMRI-listed. ² Antifeedant, repellent, IGR.
	-	Requiem EC (extract of <i>Chenopodium ambrosioides</i>)	2–4 qt	as needed	4	0	
	-	Sun Spray 98.8%, JMS Stylet Oil, Saf-T-Side, others (oil, insecticidal)	JMS: 3–6 qt/100 gal Others: 1–2 gal/100 gal	no limit	4	0	OMRI-listed. ²
	- + 3	BotaniGard Maxx (<i>Beauveria bassiana</i> strain GHA and pyrethrins)	0.25–2.0 qt	no limit	12	0	Compatible in tank mix with some fungicides.
Wireworm	3A	*Capture LFR (bifenthrin)	3.4–6.8 fl oz	0.2 lb a.i.	12	at plant	Extremely toxic to bees, fish, and aquatic invertebrates.

¹ Mode of Action (MOA) codes for plant pest insecticides from the Insecticide Resistance Action Committee (IRAC) Mode of Action Classification v. 11.1 January 2024. Number codes are used to distinguish the main insecticide mode of action groups, with additional letters for certain subgroups within each main group. All insecticides within the same group (with the same number) indicate the same active ingredient or similar mode of action. This information must be considered for the insecticide resistance management decisions. Un=unknown, or a mode of action that has not been classified yet.

² Information provided in the table applies only to Florida. Be sure to read a current product label before applying any product. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by UF/IFAS Extension nor discrimination against similar products or services not mentioned. OMRI-listed: listed by Organic Materials Review Institute for use in organic production.

* **Restricted use insecticide**

Table 8. Insecticides labeled for management of arthropod pests of parsley. Contact: Julien Beuzelin, UF/IFAS Everglades Research and Education Center.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	REI (Hours)	Days to Harvest	Remarks ²
Aphids	1B	Malathion 5EC, 8F (malathion)	5EC: 1.5–2.4 pt 8F: 1.5 pt	24	7	Maximum of 2 applications per year.
	3A	*Fastac CS (alpha-cypermethrin)	3.2–3.8 fl oz	12	1	Maximum of 11.4 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	3.2–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	3A	*Pounce 25 WP (permethrin)	6.4–12.8 oz	12	1	Maximum of 0.8 lb a.i./A per season.
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Actara (thiamethoxam)	1.5–3.0 oz	12	7	Maximum of 11 oz/A per season.
	4A	Admire Pro (imidacloprid)	Foliar: 1.3 fl oz Soil: 4.4–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 6.5 fl oz/A (foliar) or 10.5 fl oz/A (soil) per year.
	4A	Assail 30SG Assail 70WP (acetamiprid)	30SG: 2.0–4.0 oz 70WP: 0.8–1.7 oz	12	7	30SG: Maximum of 20.0 oz/A or 0.375 lb a.i. per year. 70WP: Maximum of 8.5 oz/A or 0.375 lb a.i. per year.
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12	Foliar: 7 Soil: 21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	12	30	Maximum of 13 fl oz/A per season.
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	12	7	Do not apply more than 14 oz/A per growing season. Do not use an adjuvant.
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	4	1	Maximum of 28 fl oz/A per crop season. Maximum of 3 crop seasons per year.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.
	9B	Fulfill (pymetrozine)	2.75 oz	12	7	Apply when aphids first appear, before populations build to damaging levels. 2 applications (maximum allowed) may be needed to control persistent aphid populations.
	9B	PQZ (pyrifluquinazon)	2.4–3.2 fl oz	12	1	Maximum of 4.8 fl oz/A per crop cycle.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	REI (Hours)	Days to Harvest	Remarks ²
	9D	Versys (afidopyropen)	1.5 fl oz	12	0	Maximum of 14 fl oz/A per season.
	23	Movento (spirotetramat)	4.0–5.0 fl oz	24	3	Do not apply more than 10 fl oz/A per crop.
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	12	1	Maximum of 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Verimark), including all application types. For best performance, use an adjuvant.
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	4	N/A— applied at planting	Maximum of 13.5 fl oz at planting or 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Exirel), including all application types.
	29	Beleaf 50 SG (flonicamid)	2.0–2.8 oz	12	0	Do not apply more than 8.4 oz/A per season. Begin applications before pests reach damaging levels.
	-	Aza-Direct (azadirachtin)	1–2 pt, to 3.5 pt if needed	4	0	OMRI-listed. ²
	-	BotaniGard ES Mycotrol ESO (<i>Beauveria bassiana</i> strain GHA)	0.25–1 qt	4	0	Apply in sufficient water to cover foliage, typically 5–100 gal/A. Compatible in tank mix with some fungicides. Mycotrol ESO OMRI-listed. ²
	-	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	1–3 lb	4	0	OMRI-listed. ²
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	M-Pede 49% EC (soap, insecticidal)	1%–2% v/v	12	0	OMRI-listed. ²
	-	Neemix 4.5 (azadirachtin)	4–16 fl oz	12	0	OMRI-listed. ²
	-	Trilogy (extract of neem oil)	1.0%–2.0% v/v	4	0	Apply morning or evening to reduce potential for leaf burn. OMRI-listed. ²
Caterpillars (includes beet armyworm, cabbage looper, celery leaf-tier, corn earworm, cutworms, fall armyworm)	1A	*Lannate LV, *SP (methomyl)	LV: 1.5–3 pt SP: 0.5–1.0 lb	48	10	Do not apply more than 12 pt/A of LV or 4 lb/A SP per season.
	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	12	14	Maximum of 6 qt/A per year.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	12	1	Maximum of 11.4 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	3A	*Pounce 25 WP (permethrin)	3.2–12.8 oz	12	1	Maximum of 0.8 lb a.i./A per season.
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	REI (Hours)	Days to Harvest	Remarks ²
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10–13 oz	12	30	May be applied by one of several soil application methods. 1 application per season.
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	12	7	Do not apply more than 14 oz/A per growing season. Do not use an adjuvant.
	5	Entrust SC (spinosad)	1.5–10.0 fl oz	4	1	Maximum of 29 oz/A per crop. OMRI-listed. ²
	5	Radiant SC (spinetoram)	5–10 fl oz	4	1	Maximum of 6 applications, and no more than 2 consecutive applications before rotating to another MOA.
	6	*Proclaim (emamectin benzoate)	2.4–4.8 oz	12	7	Do not apply more than 28.8 oz/A per season.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz Cabbage looper: 7.5–10.0 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.
	11A	Agree WG (<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>)	0.5–2.0 lb	4	0	Apply when larvae are small for best control. OMRI-listed. ²
	11A	Biobit HP (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	4	0	Treat when larvae are young. Good coverage is essential. Can be used in the greenhouse. OMRI-listed. ²
	11A	Crymax WDG (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	4	0	Use high rate for armyworms. Treat when larvae are young.
	11A	Deliver (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.25–1.5 lb	4	0	Use higher rates for armyworms. OMRI-listed. ²
	11A	DiPel DF (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.5–2.0 lb	4	0	Treat when larvae are young. Good coverage is essential. See label for rates for specific pests. Can be used for organic production.
	11A	Javelin WG (<i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>)	0.12–1.5 lb	4	0	Treat when larvae are young. Thorough coverage is essential. OMRI-listed. ²
	11A	Xentari DF (<i>Bacillus thuringiensis</i> subspecies <i>aizawai</i>)	0.5–2.0 lb	4	0	Treat when larvae are young. Thorough coverage is essential. May be used in the greenhouse. Can be used in organic production.
	18	Confirm 2F (tebufenozide)	6–8 fl oz	4	7	Maximum of 40 fl oz/A per season.
	18	Intrepid 2F (methoxyfenozide)	4–10 fl oz	4	1	Maximum of 64 fl oz/A per year.
	22	Avaunt Avaunt eVo (indoxacarb)	2.5–3.5 oz eVo: 2.5–6.0 oz	12	3	Maximum of 24 oz/A per crop and 96 oz/A per year (Avaunt) or 18 oz/A per crop and 72 oz/A per year (Avaunt eVo).
	28	Coragen (chlorantraniliprole)	3.5–7.5 fl oz	4	1	May be applied via drip chemigation in addition to foliar and various soil application methods.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	REI (Hours)	Days to Harvest	Remarks ²
	28	Exirel (cyantraniliprole)	7.0–20.5 fl oz	12	1	Maximum of 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Verimark), including all application types.
	28	Verimark (cyantraniliprole)	5.0–13.5 fl oz	4	N/A— applied at planting	Maximum of 13.5 fl oz at planting or 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Exirel), including all application types.
	32	Spear-Lep (GS-omega/kappa-Hxtx-Hv1a)	1–2 pt	4	0	Must be tank-mixed with a <i>Bacillus thuringiensis</i> (Bt) product. Maximum of 10 gal/A per year.
	-	Aza-Direct (azadirachtin)	1–2 pt, up to 3.5 pt if needed	4	0	Antifeedant, repellent, IGR. OMRI-listed. ²
	-	Grandevo (<i>Chromobacterium subtsugae</i> strain PRAA4-1)	1–2 lb	4	0	OMRI-listed. ²
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	Neemix 4.5 (azadirachtin)	4–16 fl oz	12	0	OMRI-listed. ²
Fire ants	7A	Extinguish (S-methoprene)	1.0–1.5 lb	4	0	Slow-acting IGR. Best applied early spring and fall where crop will be grown. Colonies will be reduced after 3 weeks and eliminated after 8–10 weeks. May be applied by ground equipment or aerially.
Flea beetles	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	12	14	Maximum of 6 qt/A per year.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Actara (thiamethoxam)	1.5–3.0 oz	12	7	Maximum of 11 oz/A per season.
	4A	Admire Pro (imidacloprid)	1.3 fl oz	12	7	Maximum of 6.5 fl oz/A per year.
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12	Foliar: 7 Soil: 21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year. Flea beetles only.
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10–13 oz	12	30	May be applied by one of several soil application methods. 1 application per season.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	REI (Hours)	Days to Harvest	Remarks ²
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	12	7	Do not apply more than 14 oz/A per growing season. Do not use an adjuvant. Do not allow drift to weeds or nearby crops in bloom.
Grasshoppers	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.
	4A	Belay (clothianidin)	Soil: 9–12 fl oz	12	21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
Leafhoppers	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	12	14	Maximum of 6 qt/A per year.
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12	0	Maximum of 12.8 fl oz/A per season.
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	3A	*Pounce 25 WP (permethrin)	3.2–12.8 oz	12	1	Maximum of 0.8 lb a.i./A per season.
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Actara (thiamethoxam)	1.5–3.0 oz	12	7	Maximum of 11 oz/A per season.
	4A	Admire Pro (imidacloprid)	Foliar: 1.3 fl oz Soil: 4.4–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 6.5 fl oz/A (foliar) or 10.5 fl oz/A (soil) per year.
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12	Foliar: 7 Soil: 21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Platinum 75SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10–13 oz	12	30	May be applied by one of several soil application methods. 1 application per season.
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	4	1	Maximum of 28 fl oz/A per crop seasons. Maximum of 3 crop seasons per year.
	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	12	7	Do not make more than 2 applications per crop cycle. IGR targets immatures.
	-	Aza-Direct (azadirachtin)	1–2 pt, to 3.5 pt if needed	4	0	OMRI-listed. ²
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	Neemix 4.5 (azadirachtin)	4–16 fl oz	12	0	OMRI-listed. ²

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	REI (Hours)	Days to Harvest	Remarks ²
Leafminers	3A	*Pounce 25 WP (permethrin)	3.2–12.8 oz	12	1	Maximum of 0.8 lb a.i./A per season.
	3A	PyGanic Crop Protection EC 5.0 (pyrethrins)	4.5–15.6 fl oz	12	0	Breaks down rapidly in sunlight. OMRI-listed. ²
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	4A	Belay (clothianidin)	Soil: 9–12 fl oz	12	21	Maximum of 12 fl oz/A or 0.2 lb a.i./A per year.
	4A	Platinum 75SG (thiamethoxam)	1.66–3.67 oz	12	30	Maximum of 3.67 oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	5	Entrust SC (spinosad)	1.5–10.0 fl oz	4	1	Maximum of 29 oz/A per crop. OMRI-listed. ²
	5	Radiant SC (spinetoram)	5–10 fl oz	4	1	Maximum of 6 applications, and no more than 2 consecutive applications before rotating to another MOA.
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	12	7	No more than 2 sequential applications. Must be used with an adjuvant (but not binder-sticker types). Not for use on leafy vegetables grown for transplant.
	6	*Proclaim (emamectin benzoate)	2.4–4.8 oz	12	7	Do not apply more than 28.8 oz/A per season.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.
	17	Trigard (cyromazine)	2.66 oz	12	7	No more than 5 applications per crop.
	28	Coragen (chlorantraniliprole)	5.0–7.5 fl oz	4	1	May be applied by drip chemigation, in addition to foliar and various soil application methods.
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	12	1	Maximum of 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Verimark), including all application types. For best performance, use an adjuvant.
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	4	N/A— applied at planting	Maximum of 13.5 fl oz at planting or 0.4 lb a.i./A per year of cyantraniliprole-containing products (such as Exirel), including all application types.
	-	Aza-Direct (azadirachtin)	1–2 pt, to 3.5 pt if needed	4	0	OMRI-listed. ²
	-	Molt-X (azadirachtin)	10 fl oz	4	0	OMRI-listed. ²
	-	Neemix 4.5 (azadirachtin)	4–16 fl oz	12	0	OMRI-listed. ²

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient) *Restricted	Rate Product/Acre	REI (Hours)	Days to Harvest	Remarks ²
	-	Requiem EC (extract of <i>Chenopodium ambrosioides</i>)	2.0–4.0 qt	4	0	Apply before pests reach damaging levels.
Plant bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	12	14	Maximum of 6 qt/A per year.
	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	29	Beleaf 50 SG (flonicamid)	2.0–2.8 oz	12	0	Do not apply more than 8.4 oz/A per season. Begin applications before pests reach damaging levels.
Planthoppers	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	12	7	Do not make more than 2 applications per crop cycle. IGR targets immatures.
Stink bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	12	14	Maximum of 6 qt/A per year.
	3A	*Mustang Maxx (zeta-cypermethrin)	3.2–4.0 fl oz	12	1	Maximum of 24 fl oz/A per season.
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	12	Foliar: 7 Soil: 21	Maximum of 10.5 fl oz/A (foliar) or 21 fl oz/A (soil) per season.
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	12	Foliar: 7 Soil: 21	Maximum of 6 oz/A (foliar) or 12 oz/A (soil) per season.
	-	Aza-Direct (azadirachtin)	1–2 pt, to 3.5 pt if needed	4	0	OMRI-listed. ²
Two-spotted spider mite	3A + -	BotaniGard Maxx (pyrethrins + <i>Beauveria bassiana</i> strain GHA)	Ground: 0.25–2.00 qt Aerial: 0.25–1.00 qt	12	0	Apply in sufficient water to cover foliage. Compatible in tank mix with some fungicides. May not be compatible with adjuvants.
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	12	7	No more than 2 sequential applications. Must be used with an adjuvant (but not binder-sticker types). Not for use on leafy vegetables grown for transplant.
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	12	7	Maximum of 20 fl oz/A per year, or 0.4 lb a.i./A per year of cyantraniliprole-containing products and 0.056 lb a.i./A per year of abamectin-containing products, including all application types.

¹ Mode of Action (MOA) codes for plant pest insecticides from the Insecticide Resistance Action Committee (IRAC) Mode of Action Classification v. 11.1 January 2024. Number codes are used to distinguish the main insecticide mode of action groups, with additional letters for certain subgroups within each main group. All insecticides within the same group (with same number) indicate same active ingredient or similar mode of action. This information must be considered for the insecticide resistance management decisions. - = unknown, or a mode of action that has not been classified yet.

² Information provided in this table applies only to Florida. Be sure to read a current product label before applying any product. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by UF/IFAS Extension nor discrimination against similar products or services not mentioned. OMRI-listed: Listed by the Organic Materials Review Institute for use in organic production.

* **Restricted use insecticide.**

Table 9. Celery fungicides ordered by disease and then FRAC group according to their mode of action. Contact: Katia Viana Xavier, Everglades Research and Education Center.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
Labels change frequently. Be sure to read a current product label before applying any chemical. Please refer to chapter 19 for information on biopesticides, including materials labeled for certified organic production.							
<i>Alternaria</i> spp.	7	Endura (boscalid)	9 oz	18 oz	0	0.5	Alternate with non-FRAC code 7 fungicide.
	9 + 12	Switch (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	Rotate with fungicides of dissimilar mode of action.
	11	(azoxystrobin) Many brands available: Azoxyzone, Azteroid SC, Equation SC, Quadris SC, Satori, Willowood Azoxy	15.4 fl oz	96 fl oz	0	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
Bacterial blight	M1	(copper compounds) Many labels available: Badge SC, Badge X2, Basic Copper 53, Champ DP, Champ Formula 2, Champ WG, Champ WP, Champion++, COC DF, C-O-C-S WDG, COC WP, Copper Count N, Cueva, Cuprofix Ultra, Kentan DF, Kocide DF, Kocide 2000, Kocide 3000, Kocide 4.5 LF, Kop-hydroxide, Mastercop, Nordox 75 WG, Nu-Cop 3L, Nu-Cop 50WP, Nu-Cop DF, Nu-Cop HB, Previs-to, Stretch, Tenn-Cop 5E, Top Cop w/Sulfur	SEE INDIVIDUAL LABELS		1	Varies by product from 4 hr to 2 days.	
	25	Agri-mycin 17 AG Streptomycin Bac-Master Firewall 17 WP (streptomycin)	200 ppm			0.5	See label for details. For transplant production.
Early blight (Cercospora)	M2	(sulfur) Many labels available: Cosavet, Dusting Sulfur – IAP, Kumulus DF, Micro Sulf, Microfine Sulfur, Microthiol Disperss, Sulfur 90W, Super-Six, Top Cop w/Sulfur	SEE INDIVIDUAL LABELS		1	1	Do not apply during periods of warm weather. Do not apply within 2 weeks of an oil spray.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	M5	(chlorothalonil) Many labels available: Bravo Ultrex, Bravo Weather Stik, Bravo ZN, Chloronil 720, Chlorothalonil 720 SC, Echo 720, Echo 90DF, Echo ZN, Equus 500 ZN, Equus 720SST, Equus DF, Initiate 720, Initiate ZN, Praiz	SEE INDIVIDUAL LABELS		7	0.5	
	M5 + 33	Catamaran (chlorothalonil + potassium phosphite)	4 pt	60 pt	7	0.5	
	3	(propiconazole) Many labels available: Amtide Propiconazole, Bumper 41.8EC, Fitness, Propicure, Propimax EC, Propi-Star EC, Shar-Shield PPZ, Tilt, Topaz	4 fl oz	16 fl oz	14	0.5	Do not exceed 4 total applications.
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	Do not apply more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	5.8 fl oz	23 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7 + 11	Merivon SC (pyraclostrobin + fluxapyroxad)	11.0 fl oz	33 fl oz	1	0.5	Alternate with fungicides of dissimilar modes of action.
	7 + 11	Pristine (boscalid + pyraclostrobin)	25 oz	50 oz	0	0.5	Do not make more than 1 application without rotating to a fungicide of dissimilar mode of action.
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	See label for restrictions.
	9 + 12	Switch 62.5WG (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	Rotate with fungicides of dissimilar mode of action.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	11	Aftershock (fluoxastrobin)	5.7 fl oz	22.8 fl oz	3	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	(azoxystrobin) Many brands available: Azoxystrobin, Azteroid SC, Equation SC, Quadris SC, Satori, Willowood Azoxy	15.4 fl oz or 0.8 fl oz/1000 row ft	96 fl oz	0	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Evito 480SC (fluoxastrobin)	5.7 fl oz	22.8 fl oz	3	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Flint Extra (trifloxystrobin)	2.9 oz	11.6 oz	7	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Gem 500SC (trifloxystrobin)	2.9 fl oz	11.6 fl oz	7	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11 + M5	Quadris Opti (azoxystrobin + chlorothalonil)	3.7 pt	22.2 pt	7	0.5	Do not exceed 2 sequential and 6 total applications of Quadris Opti or rotate with non-Qol fungicides.
	11 + 3	Quilt Quilt XCEL (azoxystrobin + propiconazole)	14 fl oz	56 fl oz	14	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	27 + 11	Tanos (cymoxanil + famoxadone)	8 oz	72 oz	3	0.5	Do not alternate or tank-mix with another FRAC group 11 fungicide.
Leaf Curl (Colletotrichum)	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	Do not apply more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7 + 11	Merivon SC (pyraclostrobin + fluxapyroxad)	11.0 fl oz	33 fl oz	1	0.5	Alternate with fungicides of dissimilar modes of action.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	7 + 11	Pristine (boscalid + pyraclostrobin)	25 oz	50 oz	0	0.5	Do not make more than 1 application without rotating to a fungicide of dissimilar mode of action.
	11	Cabrio EG (pyraclostrobin)	16 oz	64 oz	0	0.5	Do not exceed 1 sequential application of QoI fungicides. See label for soil application.
Late blight (Septoria)	M2	(sulfur) Many brands available: Cosavet, Dusting Sulfur – IAP, Kumulus DF, Micro Sulf, Microfine Sulfur, Microthiol Disperss, Sulfur 90W, Super-Six, Top Cop w/Sulfur	SEE INDIVIDUAL LABELS		1	1	Do not apply during periods of warm weather. Do not apply within 2 weeks of an oil spray.
	M5	(chlorothalonil) Many brands available: Bravo Ultrex, Bravo Weather Stik, Bravo ZN, Chloronil 720, Chlorothalonil 720 SC, Echo 720, Echo 90DF, Echo ZN, Equus 500 ZN, Equus 720SST, Equus DF, Initiate 720, Initiate ZN, Praiz	SEE INDIVIDUAL LABELS		7	0.5	
	M5 + 33	Catamaran (chlorothalonil + potassium phosphite)	4 pt	60 pt	7	0.5	
	3	(propiconazole) Many brands available: Amtide Propiconazole, Bumper 41.8EC, Fitness, Propicure, Propimax EC, Propi-Star EC, Shar-Shield PPZ, Tilt, Topaz	4 fl oz	16 fl oz	14	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	Do not apply more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7	Fontelis (penthiopyrad)	24 fl oz	72 fl oz	3	0.5	Alternate with non-FRAC code 7 fungicide. See label for directions.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	5.8 fl oz	23 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7 + 11	Merivon SC (pyraclostrobin + fluxapyroxad)	11.0 fl oz	33 fl oz	1	0.5	Alternate with fungicides of dissimilar modes of action.
	7 + 11	Pristine (boscalid + pyraclostrobin)	15 oz	50 oz	0	0.5	Do not make more than 1 application without rotating to a fungicide of dissimilar mode of action.
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	See label for restrictions.
	9 + 12	Switch (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	Rotate with fungicides of dissimilar mode of action.
	11	Aftershock (fluoxastrobin)	5.7 fl oz	22.8 fl oz	3	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	(azoxystrobin) Many brands available: Azoxyzone, Azteroid SC, Equation SC, Quadris SC, Satori, Willowood Azoxy	15.4 fl oz	96 fl oz	0	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Evito 480SC (fluoxastrobin)	5.7 fl oz	22.8 fl oz	3	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Flint Extra (trifloxystrobin)	2.9 oz	11.6 oz	7	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Gem 500SC (trifloxystrobin)	2.9 fl oz	11.6 fl oz	7	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Reason (fenamidone)	8.2 fl oz	24.6 fl oz	2	0.5	Alternate every other application with a fungicide of dissimilar mode of action.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	11 + M5	Quadris Opti (azoxystrobin + chlorothalonil)	3.7 pt	22.2 pt	7	0.5	Do not exceed 2 sequential and 6 total applications of Quadris Opti or rotate with non-Qol fungicides.
	11 + 3	Quilt Quilt XCEL (azoxystrobin + propiconazole)	14 fl oz	56 fl oz	14	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	27 + 11	Tanos (cymoxanil + famoxadone)	8 oz	72 oz	3	0.5	Do not alternate or tank-mix with another FRAC group 11 fungicide.
Botrytis	7	Endura (boscalid)	9 oz	18 oz	0	0.5	Alternate with non-FRAC code 7 fungicide.
	9 + 12	Switch (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	Rotate with fungicides of dissimilar mode of action.
Downy mildew	40	Forum (dimethomorph)	6 fl oz	18 fl oz	0	0.5	Rotate with fungicides of dissimilar mode of action.
	40	Revus (mandipropamid)	8 fl oz	32 fl oz	1	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	40 + 45	Zampro (dimethomorph + ametoctradin)	14 fl oz	52 fl oz	0	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	43	Presidio (fluopicolide)	4 fl oz	12 fl oz	2	0.5	Must be tank-mixed with another fungicide active against the pathogen but of dissimilar mode of action.
Pink rot (Sclerotinia)	14	Botran 75W (dichloran)	2 lb	5.33 lb	7	0.5	Direct spray to base of plant.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
Powdery mildew	M2	(sulfur) Many brands available: Cosavet, Dusting Sulfur – IAP, Kumulus DF, Micro Sulf, Microfine Sulfur, Microthiol Disperss, Sulfur 90W, Super-Six, Top Cop w/Sulfur	SEE INDIVIDUAL LABELS		1	1	Do not apply during periods of warm weather. Do not apply within 2 weeks of an oil spray.
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	See label for restrictions.
	9 + 12	Switch (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	Rotate with fungicides of dissimilar mode of action.
Pythium	33	Aliette WDG Legion 80WDG Linebacker WDG (fosetyl-Al)	5 lb	20 lb		0.5	
Pythium seedling blight	4	Apron XL (mefenoxam)	0.64 fl oz/100 lb seed			2	Seed treatment only.
	4	Metastar 2E (metalaxyl)	8 pt			2	Apply as a broadcast soil application and incorporate into top 2 inches. See label for directions.
Pythium seedling diseases	4	Ridomil Gold GR (mefenoxam)	40 lb			2	See label for specifics regarding preplant incorporated applications and surface applications at the time of planting.
	4	Ridomil Gold SL (mefenoxam)	2 pt			2	Apply at seeding in a 7- to 12-inch band on soil over seed furrow.
	4	Ultra Flourish (mefenoxam)	4 pt			2	See label for specifics regarding preplant incorporated applications and surface applications at the time of planting.
	4 + 11	Uniform (mefenoxam + azoxystrobin)	0.34 fl oz/1000 ft row	1 application		2	Soil incorporated.
Sclerotinia	7	Endura (boscalid)	9 oz	18 oz	0	0.5	Alternate with non-FRAC code 7 fungicide.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	7	Fontelis (penthiopyrad)	24 fl oz	72 fl oz	3	0.5	Alternate with non-FRAC code 7 fungicide.
Stalk rot (Rhizoctonia)	M5	(chlorothalonil) Many labels available: Bravo Ultrex, Bravo Weather Stik, Bravo ZN, Chloronil 720, Chlorothalonil 720 SC, Echo 720, Echo 90DF, Echo ZN, Equus 500 ZN, Equus 720SST, Equus DF, Initiate 720, Initiate ZN, Praiz	SEE INDIVIDUAL LABELS		7	0.5	
	3	(propiconazole) Many labels available: Amtide Propiconazole, Bumper 41.8EC, Propimax EC, Propi-Star EC, Shar-Shield PPZ, Tilt 3.6E	4 fl oz	16 fl oz	14	0.5	Do not exceed 4 total applications.
	7 + 11	Merivon SC (pyraclostrobin + fluxapyroxad)	11.0 fl oz	33 fl oz	1	0.5	Alternate with fungicides of dissimilar modes of action.
	11	Aftershock (fluoxastrobin)	5.7 fl oz	22.8 fl oz	3	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Evito 480SC (fluoxastrobin)	5.7 fl oz	22.8 fl oz	3	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Flint Extra (trifloxystrobin)	2.9 oz	11.6 oz	7	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11	Gem 500SC (trifloxystrobin)	2.9 fl oz	11.6 fl oz	7	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
	11 + M5	Quadris Opti (azoxystrobin + chlorothalonil)	3.7 pt	22.2 pt	7	0.5	Do not exceed 2 sequential and 6 total applications of Quadris Opti or rotate with non-Qol fungicides.
Various	7 + 11	Merivon SC (pyraclostrobin + fluxapyroxad)	11.0 fl oz	33 fl oz	1	0.5	Alternate with fungicides of dissimilar modes of action.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	11	(azoxystrobin) Many brands available: Azoxyzone, Azteroid SC, Equation SC, Quadris SC, Satori, Willowood Azoxy	15.4 fl oz or 0.8 fl oz/1000 row ft	96 fl oz	0	0.5	Do not exceed 1 sequential application of QoI fungicides. See label for soil application.
	19	OSO 5%SC (polyoxin D zinc salt)	13 fl oz	84 fl oz	0	4 hr	See label for details.
	33	(mono- and dipotassium salts of phosphorous acid) Many brands available: Alude, Confine Extra, Fosiphite, Fungi- phite, K-Phite, Oxiphos, Phiticide, Phostrol, Prophyt, Rampart, Reveille	3 qt		0	4 hr	See label for details.
Various seedling diseases	4 + 11	Uniform (mefenoxam + azoxystrobin)	0.34 fl oz/1000 ft of row	1 application		0	Soil incorporated.
	12	Maxim 4FS (fludioxonil)	0.16 fl oz/100 lb seed			0.5	Seed treatment only.

¹ FRAC code (fungicide group): Number (1–54) and letters (U and P) are used to distinguish the fungicide mode of action groups. All fungicides within the same group (with the same number or letter) indicate the same active ingredient or a similar mode of action. This information must be considered for the fungicide resistance management decisions. U = unknown, or a mode of action that has not been classified yet and is typically associated with another number; P = host plant defense inducers. Source: FRAC Code List 2024; <http://www.frac.info/> (FRAC = Fungicide Resistance Action Committee).

² Information provided in this table applies only to Florida. Be sure to read a current product label before applying any chemical. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by UF/IFAS Extension nor discrimination against similar products or services not mentioned.

Table 10. Okra fungicides ordered by disease and then FRAC group according to their mode of action. Contact: Shouan Zhang, UF/IFAS Tropical Research and Education Center.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
Labels change frequently. Be sure to read a current product label before applying any chemical. Please refer to chapter 19 for information on biopesticides including materials labeled for certified organic production.							
Anthracnose	BM 01 + 3	Regev (tea tree oil + difenoconazole)	8.5 fl oz	34 fl oz	2	0.5	Make no more than 2 consecutive applications.
	M1	AmeriCop 40 DF (copper hydroxide)	1.5 lb	13.1 lb	0	Field: 2 GH: 1	OMRI product. ²
	M1	Champion++ (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	Cueva (copper octanoate)	2 gal	6.7 gal	0	4 hr	
	M1	Cuproxat FL (basic copper sulfate)	3.0 pt	26.25 pt	0	2	
	M1	Kocide 2000 (copper hydroxide)	3 lb	15 lb	0	2	
	M1	Kocide 3000 (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	Kop-5 (copper sulfate pentahydrate)	32 fl oz	10.6 gal		Field: 2 GH: 1	
	M1	MasterCop (copper sulfate pentahydrate)	1.5 pt	9 pt	0	2	
	M1	Nu-Cop 50 DF (copper hydroxide)	2.1 lb	10.5 lb	1	2	
	M1	Previsto (copper hydroxide)	3 qt	69 qt		2	
	M1 + M1	Badge SC Badge X2 (copper hydroxide + copper oxychloride)	1.8 pt	18.8 pt	0	Field: 2 GH: 1	OMRI product. ²
	M5	Bravo Ultrex (chlorothalonil)	1.4 lb	10.9 lb	3	0.5	
	M5	Bravo Weather Stik (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Chlorothalonil 720 (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Echo 720 (chlorothalonil)	1.5 pt	9.0 lb a.i.	3	0.5	
	M5	Equus 720 SST (chlorothalonil)	1.5 pt	12 pt	3	0.5	Do not apply at <7-day intervals.
	M5	Initiate 720 (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Oranil 6L (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Periapt (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Praiz (chlorothalonil)	1.5 pt	12 pt	3	0.5	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	M5	Rialto (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5 + 22	Zing! (chlorothalonil + zoxamide)	34 fl oz	272 fl oz	3	0.5	
	M5 + 27	Cymbol Advance (chlorothalonil + cymoxanil)	2.44 pt	17.5 pt	3	0.5	
	3	Cevya (mefentrifluconazole)	5 fl oz	15 fl oz	0	0.5	
	3	Mettle 125ME (tetraconazole)	8 fl oz	16 fl oz	0	0.5	
	3	Provysol (mefentrifluconazole)	5 fl oz	15 fl oz	0	0.5	
	3	Rhyme Fungicide (flutriafol)	7 fl oz	28 fl oz	7	0.5	
	3	Topguard (flutriafol)	14 fl oz	56 fl oz	0	0.5	
	3 + 11	Acadia (difenoconazole + azoxystrobin)	14 fl oz	55.3 fl oz	0	0.5	
	3 + 11	Veltyma (mefentrifluconazole + pyraclostrobin)	10 fl oz	30 fl oz	0	0.5	Apply at 14-day to 21-day intervals.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	0	0.5	
	3 + 9	Inspire Super (difenoconazole + cyprodinil)	20 fl oz	80 fl oz	7	0.5	Do not apply more than 2 sequential applications.
	3 + 9	Vango ESQ (difenoconazole + cyprodinil)	20 fl oz	80 fl oz	0	0.5	
	7	Fontelis (penthiopyrad)	24 fl oz	72 fl oz	0	0.5	Only suppression; make no more than 2 sequential applications.
	7 + 3	Aprovia Top (benzovindiflupyr + difenoconazole)	13.5 fl oz	53.6 fl oz	0	0.5	Do not make more than 2 sequential applications.
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	7.6 fl oz	27.1 fl oz	3	0.5	Do not make more than 2 sequential applications of Luna Sensation or any Group 7 or Group 11 containing fungicide before rotating with a fungicide of a different Group.
	11	Aframe (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	11	Arius 250 (azoxystrobin)	15.5 fl oz	62 fl oz	0	4 hr	
	11	A-Zox 25SC (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Azoxystar (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Azoxystrobin SC (azoxystrobin)	15.3 fl oz	61.5 fl oz	0	4 hr	
	11	AZteroid FC (azoxystrobin)	19.5 fl oz	77.5 fl oz	0	4 hr	
	11	GCS Azoxy 2SC (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Quadris (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Satori Fungicide (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	Do not apply more than 1 application.
	11	Tetraban (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Trevo (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11 + 3	Quadris Top (azoxystrobin; difenoconazole)	14 fl oz	55.3 fl oz	0	0.5	Make no more than 2 consecutive applications.
Bacterial leaf spot	BM01 + 3	Regev (tea tree oil + difenoconazole)	8.5 fl oz	34 fl oz	2	0.5	Make no more than 2 consecutive applications.
	M1	AmeriCop 40 DF (copper hydroxide)	1.5 lb	13.1 lb	0	Field: 2 GH: 1	OMRI product. ²
	M1	Champion++ (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	Cueva (copper octanoate)	2 gal	6.7 gal	0	4 hr	
	M1	Cuproxat FL (basic copper sulfate)	3.0 pt	26.25 pt	0	2	
	M1	Kocide 2000 (copper hydroxide)	3 lb	15 lb	0	2	
	M1	Kocide 3000 (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	KOP-5 (copper sulfate pentahydrate)	32 fl oz	10.6 gal		Field: 2 GH: 1	
	M1	MasterCop (copper sulfate pentahydrate)	1.5 pt	9 pt	0	2	
	M1	Nu-Cop 30 HB (copper hydroxide)	1.75 lb	17.5 lb	1	2	
	M1	Nu-Cop 50 DF (copper hydroxide)	2.1 lb	10.5 lb	1	2	
	M1	Previsto (copper hydroxide)	3 qt	69 qt		2	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	M1 + M1	Badge SC Badge X2 (copper hydroxide + copper oxychloride)	1.8 pt	18.8 pt	0	Field: 2 GH: 1	OMRI product. ²
Cercospora leaf spot	M5	Bravo Ultrex (chlorothalonil)	1.4 lb	10.9 lb	3	0.5	
	M5	Bravo Weather Stik (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Chlorothalonil 720 (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Echo 720 (chlorothalonil)	1.5 pt	9.0 lb a.i.	3	0.5	
	M5	Equus 720 SST (chlorothalonil)	1.5 pt	12 pt	3	0.5	Do not apply at <7-day intervals.
	M5	Initiate 720 (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Oranil 6L (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Periapt (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Praiz (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Rialto (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5 + 22	Zing! (chlorothalonil + zoxamide)	34 fl oz	272 fl oz	3	0.5	
	M5 + 27	Cymbol Advance (chlorothalonil + cymoxanil)	2.44 pt	17.5 pt	3	0.5	
	3	Monsoon (tebuconazole)	6 fl oz	24 fl oz	3	2	Group 3 = DMI fungicide
	3	Onset 3.6L (tebuconazole)	6 fl oz	24 fl oz	7	0.5	
	3	Orius 3.6F (tebuconazole)	6 fl oz	24 fl oz	3	0.5	
	3	Rhyme Fungicide (flutriafol)	7 fl oz	28 fl oz	0	0.5	
	3	TebuCon 3.6F (tebuconazole)	6 fl oz	24 fl oz	3	0.5	
	3	Tebu-Crop 3.6F (tebuconazole)	6 fl oz	24 fl oz	3	0.5	
	3	TebuStar 3.6L (tebuconazole)	6 fl oz	24 fl oz	3	0.5	
	3	TebuZol 3.6F (tebuconazole)	6 fl oz	24 fl oz	3	0.5	
	3	Toledo (tebuconazole)	6 fl oz	24 fl oz	3	0.5	
	3	Topguard (flutriafol)	14 fl oz	56 fl oz	0	0.5	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	3	Willowood Teb 3.6SC (tebuconazole)	6 fl oz	24 fl oz	3	0.5	
	3 + 11	Acadia ESQ (difenoconazole + azoxystrobin)	14 fl oz	55.3 fl oz	0	0.5	
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	0	0.5	
	7 + 3	Aprovia Top (benzovindiflupyr + difenoconazole)	13.5 fl oz	53.6 fl oz	0	0.5	Do not make more than 2 sequential applications.
	7 + 3	Luna Experience (fluopyram + tebuconazole)	12.8 fl oz	34 fl oz	3	0.5	Do not apply more than 2 sequential applications of Luna or any fungicide containing Group 7 or Group 3 before rotation with a fungicide of a different Group.
	7 + 3	Luna Flex (fluopyram + difenoconazole)	13.6 fl oz	27.2 fl oz	0	0.5	
	7 + 11	Pompa (boscalid + pyraclostrobin)	12 oz	54 oz	0	0.5	Use preventively.
	11 + 3	Quadris Top (azoxystrobin + difenoconazole)	14 fl oz	55.3 fl oz	0	0.5	Do not make 2 sequential applications.
Phytophthora	7 + 11	Pageant Intrinsic (pyraclostrobin + boscalid)	18 oz/100 gal			0.5	See label.
	7 + 11	Pompa (boscalid + pyraclostrobin)	18 oz	54 oz	0	0.5	Use preventively in 100 gal of water.
	11	Reason 500 SC (fenamidone)	8.2 fl oz	24.6 fl oz	14	0.5	Ground application only.
	21	Ranman 400 SC (cyazofamid)	2.75 fl oz	16.75 fl oz	7	0.5	Do not exceed 6 applications per season. Rotate with dissimilar modes of action.
	22	Elumin (ethaboxam)	8 fl oz	16 fl oz	2	0.5	Do not apply at intervals of less than 14 days.
	29	Omavo (fluazinam)	24 fl oz	144 fl oz	30	0.5	
	29	Omega 500F (fluazinam)	24 fl oz	144 fl oz	30	0.5	
	29	Orbus 4F (fluazinam)	24 fl oz	144 fl oz	30	0.5	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	40	Micora (mandipropamid)	8 fl oz	16 fl oz	1	4 hr	For suppression
	40	Revus (mandipropamid)	8 fl oz	32 fl oz	1	4 hr	For suppression
	43	Presidio (fluopicolide)	4 fl oz		2	0.5	Must be tank mixed with a labeled fungicide of different FRAC.
	46	Timorex Act (tea tree oil)	35 fl oz		2	4 hr	
	49	Orondis Gold 200 (oxathiapiprolin)	9.6 fl oz	19.2 fl oz	0	4 hr	Soil application at planting. Do not make no more than 2 applications per year.
	49 + 40	Orondis Ultra (oxathiapiprolin + mandipropamid)	8 fl oz	32 fl oz	1	0.5	Do not exceed 2 sequential applications without alternating to a different MOA. Do not exceed 4 total applications. Do not exceed 33% of all applications with oxathiapiprolin.
Pod spot	M1	AmeriCop 40 DF (copper hydroxide)	1.5 lb	13.1 lb	0	Field: 2 GH: 1	Minimum retreatment interval is 5 days.
	M1	Champion++ (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	Cueva (copper octanoate)	2 gal	6.7 gal	0	4 hr	
	M1	Cuproxat FL (basic copper sulfate)	3.0 pt	26.25 pt	0	2	
	M1	Kocide 2000 (copper hydroxide)	3 lb	15 lb	0	2	
	M1	Kocide 3000 (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	KOP-5 (copper sulfate pentahydrate)	32 fl oz	10.6 gal		Field: 2 GH: 1	
	M1	MasterCop (copper sulfate pentahydrate)	1.5 pt	9 pt	0	2	
	M1	Nu-Cop 30 HB (copper hydroxide)	1.75 lb	1.75 lb	1	2	
	M1	Nu-Cop 50 DF (copper hydroxide)	2.1 lb	10.5 lb	1	2	OMRI product. ²
	M1	Previsto (copper hydroxide)	3 qt	69 qt		2	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	M1 + M1	Badge SC Badge X2 (copper hydroxide + copper oxychloride)	1.8 pt	18.8 pt	0	Field: 2 GH: 1	OMRI product. ²
Powdery mildew	BM 01 + 3	Regev (tea tree oil + difenoconazole)	8.5 fl oz	34 fl oz	2	0.5	Make no more than 2 consecutive applications.
	M1	AmeriCop 40 DF (copper hydroxide)	1.5 lb	13.1 lb	0	Field: 2 GH: 1	OMRI product. ²
	M1	Champion++ (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	Cueva (copper octanoate)	2 gal	6.7 gal	0	4 hr	
	M1	Cuproxat FL (basic copper sulfate)	3.0 pt	26.25 pt	0	2	
	M1	Kocide 2000 (copper hydroxide)	3 lb	15 lb	0	2	
	M1	Kocide 3000 (copper hydroxide)	1.75 lb	17.5 lb	0	2	
	M1	KOP-5 (copper sulfate pentahydrate)	32 fl oz	10.6 gal		Field: 2 GH: 1	
	M1	MasterCop (copper sulfate pentahydrate)	1.5 pt	9 pt	0	2	
	M1	Nu-Cop 30 HB (copper hydroxide)	1.75 lb	17.5 lb	1	2	
	M1	Nu-Cop 50 DF (copper hydroxide)	2.1 lb	10.5 lb	1	2	
	M1	Previsto (copper hydroxide)	3 qt	69 qt		2	
	M1 + M1	Badge SC Badge X2 (copper hydroxide + copper oxychloride)	1.8 pt	18.8 pt	0	Field: 2 GH: 1	OMRI product. ²
	M2	Microthiol-Disperss (sulfur)	10 lb	-	-	1	
	M2	Suffa (sulfur)	0.5 gal	-	-	1	
	M2	Sulfur 90W (sulfur)	20 lb	-	-	1	
	M2	Thiolux (sulfur)	10 lb	-	-	1	
	M5	Bravo Ultrex (chlorothalonil)	1.4 lb	10.9 lb	3	0.5	
	M5	Bravo Weather Stik (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Chlorothalonil 720 (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Echo 720 (chlorothalonil)	1.5 pt	9.0 lb a.i.	3	0.5	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	M5	Equus 720 SST (chlorothalonil)	1.5 pt	12 pt	3	0.5	Do not apply at <7-day intervals.
	M5	Initiate 720 (chlorothalonil)	1.5 lb	12 pt	3	0.5	
	M5	Oranil 6L (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Periapt (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Praiz (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5	Rialto (chlorothalonil)	1.5 pt	12 pt	3	0.5	
	M5 + 27	Cymbol Advance (chlorothalonil + cymoxanil)	2.44 pt	17.5 pt	3	0.5	
	U6	Torino (cyflufenamid)	3.4 oz	10.2 oz	0	4 hr	
	U8	Vivando (metrafenone)	15.4 fl oz	46.2 fl oz	0	0.5	
	3	Cevya (mefentrifluconazole)	5 fl oz	15 fl oz	0	0.5	
	3	Mettle 125ME (tetraconazole)	8 fl oz	16 fl oz	0	0.5	
	3	Provysol (mefentrifluconazole)	5 fl oz	15 fl oz	0	0.5	
	3	Rally 40WSP (myclobutanil)	5 oz	1.25 lb	0	1	Do not exceed 4 applications per season.
	3	Rhyme Fungicide (flutriafol)	7 fl oz	28 fl oz	0	0.5	
	3	Sonoma 40WSP (myclobutanil)	5 oz	20 oz	0	1	
	3	Topguard (flutriafol)	14 fl oz	56 fl oz	0	0.5	
	3 + 9	Inspire Super (difenoconazole + cyprodinil)	20 fl oz	80 fl oz	7	0.5	Do not apply more than 2 sequential applications.
	3 + 9	Vango ESQ (difenoconazole + cyprodinil)	20 fl oz	80 fl oz	0	0.5	
	3 + 11	Acadia ESQ (difenoconazole + azoxystrobin)	14 fl oz	55.3 fl oz	0	0.5	
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	0	0.5	
	3 + 11	Veltyma (mefentrifluconazole + pyraclostrobin)	10 fl oz	30 fl oz	0	0.5	Apply at 14-day to 21-day intervals.
	7	Fontelis (penthiopyrad)	24 fl oz	72 fl oz	0	0.5	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	7	Velum (fluopyram)	6.84 fl oz	13.7 fl oz	0	0.5	
	7	Velum Prime (fluopyram)	6.84 fl oz	13.7 fl oz	0	0.5	
	7 + 3	Aprovia Top (benzovindiflupyr + difenoconazole)	13.5 fl oz	53.6 fl oz	0	0.5	Do not apply more than 2 sequential applications.
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	7.6 fl oz	27.1 fl oz	3	0.5	
	7 + 3	Luna Flex (fluopyram + difenoconazole)	13.6 fl oz	27.2 fl oz	0	0.5	
	7 + 11	Pageant Intrinsic (pyraclostrobin + boscalid)	18 oz/100 gal			0.5	
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	11.4 fl oz	22.8 fl oz	0	0.5	Do not apply more than 2 sequential applications.
	9	Vango WG (cyprodinil)	7 oz	28 oz	0	0.5	
	9 + 12	Alterity 62.5 WG (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	After 2 applications, alternate with another fungicide with a different mode of action for 2 applications.
	9 + 12	Switch 62.5WG (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	After 2 applications, alternate with another fungicide with a different mode of action for 2 applications.
	11	Aframe (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Arius 250 (azoxystrobin)	15.5 fl oz	62 fl oz	0	4 hr	
	11	Atticus Acadia 2 SC (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	A-Zox 25SC (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Azoxystar (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	Do not apply more than 1 application of Azoxystar or other Group 11 fungicides before alternation with a non-Group 11 fungicide.
	11	AZteroid FC 3.3 (azoxystrobin)	19.5 fl oz	77.5 fl oz	0	4 hr	
	11	GCS Azoxy 2SC (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	11	Quadris (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Satori Fungicide (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	Do not apply more than 1 application.
	11	Tetraban (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11	Trevo (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	
	11 + 3	Quadris Top (azoxystrobin + difenoconazole)	14 fl oz	55.3 fl oz	0	0.5	Do not make 2 consecutive applications.
	12	Spirato GHN (fludioxonil)	7 fl oz	28 fl oz	0	0.5	
	46	Timorex Act (tea tree oil)	35 fl oz		2	4 hr	
	50	Prolivo 300SC (pyriofenone)	5 fl oz	16 fl oz	0	4 hr	
Pythium damping-off	28	Previcur Flex (propamocarb hydrochloride)	1.2 pt	6 pt	5	0.5	Can be applied to the lower portions of the plants and surrounding soil, or via drip irrigation, transplant/setting water, or by sprinklers.
	46	Timorex ACT (tea tree oil)	1.2 fl oz/1000 sq ft 35 fl oz	120 fl oz	2	4 hr	
	7 + 11	Pompa (boscalid + pyraclostrobin)	18 oz	54 oz	0	0.5	Use preventively.
Rhizoctonia damping-off, seedling rot	11	AFrame (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	
	11	Arius 250 (azoxystrobin)	0.8 fl oz/1000 row ft	62 fl oz	0	4 hr	In-furrow and banded applications.
	11	Atticus Acadia 2 SC (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	In-furrow and banded applications over the row, either shortly after plant emergence or during herbicide applications or cultivation.
	11	A-Zox 25SC (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	In-furrow and banded applications.
	11	Azoxystar (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	
	11	Azoxystrobin SC (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	0	
	11 + P5	AZterknot (azoxystrobin + extract of <i>Reynoutria sachalinensis</i>)	0.9 fl oz/1000 row ft	73.6 fl oz	0	4 hr	Apply in-furrow as a spray or a banded spray targeting plant base and surrounding soil.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	11	AZteroid FC 3.3 (azoxystrobin)	0.48 fl oz/1000 row ft	38.8 fl oz	0	4 hr	May be applied by ground, air or chemigation.
	11	GCS Azoxy 25C (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	In-furrow and banded applications.
	11	Quadris Flowable (azoxystrobin)	0.8 fl oz/1000 row ft	60 fl oz	0	4 hr	
	11	Satori (azoxystrobin)	0.8 fl oz/1000 row ft	60 fl oz	0	4 hr	
	11	Tetraban (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	
	11	Trevo (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	
	7 + 11	Pompa (boscalid + pyraclostrobin)	18 oz	54 oz	0	0.5	Use preventively.
	46	Timorex ACT (tea tree oil)	1.2 fl oz/1000 sq ft 35 fl oz	120 fl oz	2	4 hr	

¹ FRAC code (fungicide group): Number (1–54) and letters (U and P) are used to distinguish the fungicide mode of action groups. All fungicides within the same group (with the same number or letter) indicate the same active ingredient or a similar mode of action. This information must be considered for the fungicide resistance management decisions. U = unknown, or a mode of action that has not been classified yet and is typically associated with another number; P = host plant defense inducers. Source: FRAC Code List 2024; <http://www.frac.info/> (FRAC = Fungicide Resistance Action Committee).

² Information provided in this table applies only to Florida. Be sure to read a current product label before applying any chemical. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by UF/IFAS Extension nor discrimination against similar products or services not mentioned. OMRI-listed: listed by Organic Materials Review Institute for use in organic production.

Table 11. Parsley fungicides ordered by disease and then FRAC group according to their mode of action. Contact: Katia Viana Xavier, Everglades Research and Education Center.

Pertinent Diseases or Fungicides	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
Labels change frequently. Be sure to read a current product label before applying any chemical. Please refer to chapter 19 for information on biopesticides, including materials labeled for certified organic production.							
Alternaria leaf blight	3	Procure 480SC (triflumizole)	8 fl oz	18 fl oz	0	0.5	Repeat applications at 14-day intervals.
	3	(propiconazole) Many brands available: Bumper 41.8EC, Propistar, Tilt, Topaz	4 fl oz	16 fl oz	14	0.5	Do not apply more than 2 sequential and 4 total applications.
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	Do not apply more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7	Endura (boscalid)	9 oz	18 oz	14	0.5	Do not make more than 2 applications without rotating to a fungicide of dissimilar mode of action.
	7	Fontelis (penthiopyrad)	24 fl oz	72 fl oz	3	0.5	
	7 + 11	Merivon (pyraclostrobin + fluxapyroxad)	11 fl oz	33 fl oz	1	0.5	Alternate with fungicides with dissimilar modes of action.
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	No more than 2 sequential applications without moving to dissimilar mode of action.
	9 + 12	Switch 62.5WDG (cyprodinil + fludioxonil)	14 oz	56 oz	7	0.5	
Bacterial blight	M1	(copper compounds) Many brands available: Badge SC, Badge X2, Basic Copper 53, Champ DP, Champ Formula 2, Champ WG, Champ WP, COC DF, C-O-C-S WDG, COC WP, Copper Count N, Cueva, Cuprofix Ultra, Cuproxat, Kentan DF, Kocide DF, Kocide 2000, Kocide 3000, Kocide 4.5 LF, Kop-hydroxide, Nordox 75 WG, NuCop 3L, NuCop 50WP, NuCop DF, NuCop HB, Stretch	SEE INDIVIDUAL LABEL		1	Varies by product from 4 hr to 2 days	
Basal rot & Botrytis	12	Cannonball WP (fludioxonil)	7 oz	28 oz	0	0.5	
Cercospora spp.	3	Bumper 41.8EC (propiconazole)	4 fl oz	16 fl oz	14	0.5	Do not apply more than 2 sequential applications without alternating to different mode of action.

Pertinent Diseases or Fungicides	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	7 + 11	Merivon (pyraclostrobin + fluxapyroxad)	11 fl oz	33 fl oz	1	0.5	Alternate with fungicides with dissimilar modes of action.
Damping-off	33	Aliette WDG Legion 80WDG Linebacker WDG (fosetyl-Al)	5 lb	35 lb		0.5	
Downy mildew	11 + 27	Tanos (cymoxanil + famoxadone)	10 oz	48 oz	1	0.5	Must be tank-mixed with appropriate contact fungicide with different modes of action. Do not make more than 1 application without rotating to a fungicide of dissimilar mode of action.
	21	Ranman (cyazofamid)	2.75 fl oz	16.5 fl oz	0	0.5	Alternate with fungicides with dissimilar modes of action.
	33	(mono- and dipotassium salts of phosphorous acid) Many brands available: Alude, Fosphite, Fungi-phite, K-phite, Phiticide, Phostrol, Rampart, Reveille	SEE INDIVIDUAL LABELS		0	0.5	See label for details.
	40	Forum (dimethomorph)	6 fl oz	18 fl oz	0	0.5	See label for details.
	40	Revus (mandipropamid)	8 fl oz	32 fl oz	1	4 hr	Do not exceed 2 sequential applications. See label for soil applications.
	40 + 45	Zampro (dimethomorph + ametoctradin)	14 fl oz	42 fl oz	1	4 hr	Do not exceed 2 sequential applications.
	43	Presidio (fluopicolide)	3–4 fl oz	12 fl oz	2	0.5	Must be tank-mixed with a fungicide of different mode of action. Do not exceed 2 sequential applications. See label for soil applications.
	49 + 4	Orondis Gold (oxathiapiprolin + mefenoxam)	9.6 fl oz	19.2 fl oz	0	4 hr	Soil application only.
	49 + 40	Orondis Ultra (oxathiapiprolin + mandipropamid)	4.8 fl oz	19.2 fl oz	0	4 hr	Do not make foliar applications with Orondis Ultra if Orondis Gold was applied using soil applications. Do not make more than 2 sequential applications, and do not exceed more than 33% of all fungicide applications with Orondis.

Pertinent Diseases or Fungicides	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
Powdery mildew	M2	(sulfur) Many brands available: Sulfur 90W, Super Six, Top Cop w/Sulfur	SEE INDIVIDUAL LABEL		1	1	Do not apply during periods of warm weather. Do not apply within 2 weeks of an oil spray.
	3	Bumper 41.8EC (propiconazole)	4 fl oz	16 fl oz	14	0.5	Do not apply more than 2 sequential applications without alternating to different mode of action.
	3	Procure 480SC (triflumizole)	8 fl oz	18 fl oz	0	0.5	Repeat applications at 14-day intervals.
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	Do not apply more than 4 applications per year.
	3	Tilt (propiconazole)	4 fl oz	16 fl oz	14	0.5	Do not exceed 2 sequential and 4 total applications.
	3	Trionic (triflumizole)	8 fl oz	16 fl oz	0	0.5	No more than 2 applications, spaced by at least 14 days.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7	Endura (boscalid)	9 oz	18 oz	14	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	7.6 fl oz	15.3 fl oz	0	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7 + 11	Merivon (pyraclostrobin + fluxapyroxad)	11 fl oz	33 fl oz	1	0.5	Alternate with fungicides with dissimilar modes of action.
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	No more than 2 sequential applications without moving to dissimilar mode of action.
	9 + 12	Switch 62.5WDG (cyprodinil + fludioxonil)	14 oz	56 oz	7	0.5	
Pythium damping-off; Pythium seedling blight; Pythium seedling diseases	4	Apron XL (mefenoxam)	0.64 fl oz/100 lb seed			2	Seed treatment only.
	4	(metalaxyl) Various brands available: Acquire, Allegiance, Sebring 2.65ST	0.75 fl oz/100 lb seed			2	Seed treatment only.
	4	Ridomil Gold EC (mefenoxam)	2 pt			2	Apply at seeding in a 7- to 12-inch band on soil over seed furrow.

Pertinent Diseases or Fungicides	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	
	4	Ridomil Gold GR (mefenoxam)	40 lb			2	See label for specifics regarding preplant incorporated applications and surface applications at the time of planting.
	4	Ultra-Flourish (mefenoxam)	4 pt			2	See label for specifics regarding preplant incorporated applications and surface applications at the time of planting.
Septoria	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	Do not apply more than 4 applications per year.
	3	Tilt (propiconazole)	4 fl oz	16 fl oz	14	0.5	Do not exceed 2 sequential and 4 total applications.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7	Fontelis (penthioopyrad)	24 fl oz	72 fl oz	3	0.5	
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	7.6 fl oz	15.3 fl oz	0	0.5	Do not make more than 2 sequential applications without rotating to a fungicide of dissimilar mode of action.
	7 + 11	Merivon (pyraclostrobin + fluxapyroxad)	5.5 fl oz	16.5 fl oz	7		Limit is 3 applications per season, and no more than 2 sequential applications without alternating to a different mode of action.
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	No more than 2 sequential applications without moving to dissimilar mode of action.
	11	(azoxystrobin) Various brands available: Azoxystrobin, Equation, Quadris, Satori, Willowood	15.4 fl oz or 0.8 fl oz/1000 row ft	92.3 fl oz	0	4 hr	Do not exceed 1 sequential and 4 total applications of Qol fungicides. See label for soil applications.
	11	Cabrio EG (pyraclostrobin)	16 oz	64 oz	0	0.5	Do not exceed 1 sequential and 4 total applications of Qol fungicides.
	11	Reason (fenamidone)	8.2 fl oz	24.6 fl oz	2	0.5	Alternate every other application with a fungicide of dissimilar mode of action.
Various seedling diseases	4 + 11	Uniform (mefenoxam + azoxystrobin)	0.34 fl oz/1000 row ft	1 application		0	Soil incorporated.
	12	Maxim 4FS (fludioxonil)	0.16 fl oz/100 lb of seed			0.5	Seed treatment only.

Pertinent Diseases or Fungicides	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ²
			Appl.	Season	Harvest	Reentry	

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Table 12. Nonfumigant nematicides for celery crops in Florida. Contact: Johan Desaeger, UF/IFAS Gulf Coast Research and Education Center.

Product	Application Directions
Nimitz (a.i. fluensulfone)	All applications must be incorporated either physically or via drip or overhead irrigation. Make preplant applications at a rate of 3.5–7 pt/A (56.0–80.0 fl oz/A) a minimum of 7 days before planting. Do not plant any unlisted crops into treated land for 365 days after application of the product. Do not apply more than 1 application per crop, and no more than 112 fl oz/A per year (365 days). Provides control only for nematodes. Growers applying Nimitz must consult the product label to observe the plant-back (re-cropping) intervals for a variety of leafy vegetables and brassica crops, onions, bananas, sugarcane, and other crops.
Vydate L (a.i. oxamyl)	Apply ½ to 2 gal/A at planting, preferably via drip application or soil spray. Make additional applications on a 10-to-14-day interval. Do not apply more than 3 gal/A per season. Minimum retreatment interval is 5 days unless a longer interval is stated. Last application at least 21 days to harvest. Consult label for more details on application.

Table 13. Nonfumigant nematicides for okra in Florida. Contact: Johan Desaeger, UF/IFAS Gulf Coast Research and Education Center.

Product	Application Directions
Velum (a.i. fluopyram)	Apply 6.5–6.8 fl oz/A by chemigation into root-zone through low-pressure drip, trickle, microsprinkler, or equivalent equipment. Minimum 7-day interval between soil applications. Do not apply more than 13.7 fl oz/A of Velum (0.446 lb/A fluopyram) per year, regardless of formulation or method of application (soil or foliar).
Vydate L (a.i. oxamyl)	Apply ½ to 1 gal/A at planting, preferably via drip application. Make additional applications on a 10-to-14-day interval. Do not apply more than 2 gal/A per season. Minimum retreatment interval is 7 days unless a longer interval is stated. If an at plant application of more than ½ gal/A is made, do not make more than 2 additional applications.
Biological nematicides	See chapter 19.

Table 14. Fumigant nematicides for celery crops in Florida. Contact: Johan Desaegeer, UF/IFAS Gulf Coast Research and Education Center.

Nematicide	Broadcast Application ¹		In-the-Row Applications
	Gallons per Acre	fl oz/1000 ft/chisel-spaced 12" apart	
Telone II ^{2,3}	9–12	26–35	For any row spacing, application rates given may be concentrated in the row but shall never exceed the labeled maximum for broadcast applications. Consult the product label for additional detail.
Telone C-17 ^{2,3}	10.8–17.1	31.8–50.2	For any row spacing, application rates given may be concentrated in the row but shall never exceed the labeled maximum for broadcast applications. Consult the product label for additional detail.
Telone C-35 ^{2,3}	13–20.5	38–60	For any row spacing, application rates given may be concentrated in the row but shall never exceed labeled maximum for broadcast applications. Consult the product label for additional detail.
Pic-Clor 60	19–31.5	57–90	For any row spacing, application rates should never exceed the labeled maximum for broadcast applications. Consult the product label for additional detail.
Vapam HL	75	-	For drip or in-row chisel fumigation, consult product label for proportionately reduced overall rates, drip concentration, and flow-modifying directions and procedures.
KPam HL	60	-	For drip or in-row chisel fumigation, consult product label for proportionately reduced overall rates, drip concentration, and flow-modifying directions.
Allyl Isothiocyanate (AITC) Dominus	40	-	For drip or in-row fumigation and crop termination, consult product label for overall rates, drip concentration, and other flow-modifying directions.

¹ Gallons/acre and fl oz/1000 feet provided only for mineral soils. Higher rates may be possible for heavier-textured (loam, silt, clay) or highly organic soils.

² All of the fumigants mentioned are for retail sale and use only by state-certified applicators or persons under their direct supervision. New supplemental labeling for the Telone products must be in the hands of the user at the time of application. See new label details for additional use restrictions based on soil characteristics, buffer zones, requirements for Fumigant Management Plans (FMP) and personal protective equipment (PPE), mandatory good agricultural practices (GAPs), product and applicator training certification, and other rate-modifying recommendations with use of highly retentive mulch films.

³ Higher application rates are possible in the presence of cyst-forming nematodes.

Rates are believed to be correct for products named, and similar products of other brand names, when applied to mineral soils. Higher rates are required for muck (organic) soils. However, the **grower** has the final responsibility to see that each product is used legally; **read the label** of the product to be sure that you are using it properly.