

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 dates for celery, okra, and parsley.

Planting Region	Dates		
	Celery	Okra	Parsley
North Florida	Aug–Feb	Mar–Jun	Sept–Mar
Central Florida	Sept–Mar	Feb–Aug	Sept–Mar
South Florida	Sept–Mar	Jan–Mar/Aug–Oct	All year

Table 2. Planting information for celery, okra, and parsley.

Planting Parameters	Measurements		
	Celery	Okra	Parsley
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+

Cultivars

Table 3. Common cultivars of celery, okra, and parsley.

Crop	Cultivars
Celery	Tall Utah 52-70R Improved*
Okra	Annie Oakley II (H), Cajun Delight (H), Clemson Spineless, Clemson Spineless 80, Millionaire (H), North and South (H), Spike (H)
Parsley	Dark Green Italian (PL), Forest Green (CL), Improved Market Gardeners (CL), Jade (CL, H)
*Note the vast majority of celery production in Florida uses proprietary varieties H=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 4. Herbicides approved for managing weeds in celery. **Labels change frequently. Be sure to read a current product label before applying any chemical.**
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
PREPLANT/ PREEMERGENCE	Bensulide 5.0–6.0	(Prefar) 4 E 5–6 qt	8	Broadleaf and grass weeds. Incorporate mechanically 1–2 in. deep or with irrigation 2–4 in. 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. No more than 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 postemergence herbicide that does not have residual effects. It can be mixed with residual or preemergence herbicides to extend its control.
	Prometryn 1.0–2.0	(Caparol) 4 L 2–4 pt	5	Most annual broadleaf and grass weeds. No more than 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. Preplant burndown application. Allow 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 soil. 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 sprays to row middles only. Use crop oil concentrate or nonionic surfactant at recommended rates. May be tank-mixed with other herbicides. No more than 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.
	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 in. tall. Do not apply when temperatures exceed 85°F nor as a tank mix with surfactants, nitrogen, or fertilizer solution. PHI 45 days.

	Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
	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. No more than 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 5. Herbicides approved for managing weeds in okra. **Labels change frequently. Be sure to read a current product label before applying any chemical.**
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
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. No more than 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 in. higher than the treated row middle and 24 in. 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 in. 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 1 application before crop emergence. No more than 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 1 preemergence application at 3 pt OR 1 preemergence application at 1.5 pt followed by 1 POST directed application at 1.5 pt. No more than 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. No 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 in. 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. No more than 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	(Sanda) 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. No 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 in. tall. Use of a nonionic surfactant is required. Injury risk is greatest on coarse-textured soils. Apply as 1 preemergence or 1 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 with okra plants. No more than 2 applications after crop emergence. No more than 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	Emerged grass weeds. Efficacy will decrease if grass weeds are under stress. Include a crop oil concentrate or methylated seed oil in the spray. PHI 14 days.

Table 6. Herbicides approved for managing weeds in parsley. **Labels change frequently. Be sure to read a current product label before applying any chemical.**
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
PREEMERGENCE	Bensulide 5.0–6.0	(Prefar) 4 E 5–6 qt	8	Parsley	Annual broadleaf and grass weeds. Incorporate or irrigate 1–2 in. 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. No more than 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. Apply as a preplant burndown treatment. Plant 1 day after application.
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. No more than 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	Emerged grass weeds. Decreased efficacy if weeds are under stress. No more than 3.0 pt/A per season. Include a crop oil concentrate in the spray solution. PHI 15 days.

Table 7. Insecticides approved for management of arthropod pests of celery. **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.** Contact: Julien Beuzelin, UF/IFAS Everglades Research and Education Center.

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
Aphids	1B	Malathion 5EC, 8F (malathion)	5EC: 2.4 pt 8F: 1–1.5 pt	–	24	7	No more than 2 applications per year.
	1B	Orthene 97 (acephate)	0.5–1.0 lb	2.125 lb	24	21	–
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	32 fl oz	12	7	–
	3A	*Fastac CS (alpha-cypermethrin)	3.2–3.8 fl oz	11.4 fl oz	12	1	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	3A	*Pounce 25 WP (permethrin)	6.4–12.8 oz	51.2 oz per year	12	1	–
	4A	Actara (thiamethoxam)	1.5–3.0 oz	11 oz	12	7	–
	4A	Admire Pro (imidacloprid)	Soil: 4.4–10.5 fl oz	10.5 fl oz per year	12	45	–
	4A	Assail 30SG, 70WP (acetamiprid)	30SG: 2.0–4.0 oz 70WP: 0.8–1.7 oz	30SG: 20.0 oz or per year 70WP: 8.5 oz per year	12	7	–
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Platinum 75 SG (thiamethoxam)	Soil: 1.66–3.67 oz	3.67 oz	12	30	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	13 fl oz	12	30	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	14 oz	12	7	–
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	28 fl oz per year	4	1	–
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	10 fl oz	20 fl oz per year	12	7	–
	9B	Fulfill (pymetrozine)	2.75 oz	5.5 oz	12	7	–
	9B	PQZ (pyrifluquinazon)	2.4–3.2 fl oz	4.8 fl oz	12	1	–
	9D	Versys (afidopyropen)	1.5 fl oz	14 fl oz	12	0	–
	21A	Torac (tolfenpyrad)	14–21 fl oz	42 fl oz	12	1	–
	23	Movement (spirotetramat)	4.0–5.0 fl oz	10 fl oz	24	3	–
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	0.4 lb a.i. per year	12	1	–
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	13.5 fl oz at planting or 0.4 lb a.i. per year	4	At planting	–
	29	Beleaf 50 SG (flonicamid)	2.0–2.8 oz	8.4 oz	12	0	–
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	LV: 21 pt SP: 7 lb	48	7	–
	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	6 qt per year	12	14	–
	1B	Orthene 97 (acephate)	1.0 lb	2.125 lb	24	21	–
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	32 fl oz	12	7	–
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	11.4 fl oz	12	1	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	3A	*Pounce 25 WP (permethrin)	3.2–12.8 oz	51.2 oz per year	12	1	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	13 fl oz	12	30	–
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	14 oz	12	7	–
	5	Radiant SC (spinetoram)	5–10 fl oz	34 fl oz per year	4	1	–
	6	*Proclaim (emamectin benzoate)	2.4–4.8 oz	14.4 oz per year	12	7	–
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	20 fl oz per year	12	7	–
	18	Confirm 2F (tebufenozide)	6–8 fl oz	40 fl oz	4	7	–
	18	Intrepid 2F (methoxyfenozide)	4–10 fl oz	64 fl oz per year	4	1	–
	22	Avaunt, Avaunt eVo (indoxacarb)	Avaunt: 3.5 oz eVo: 3.5–6.0 oz	Avaunt: 14 oz eVo: 18 oz	12	3	–
	28	Coragen (chlorantraniliprole)	3.5–7.5 fl oz	15.4 fl oz	4	1	–
	28	Exirel (cyantraniliprole)	7.0–20.5 fl oz	0.4 lb a.i. per year	12	1	–
	28	Verimark (cyantraniliprole)	5.0–13.5 fl oz	13.5 fl oz at planting or 0.4 lb a.i. per year	4	At planting	–
	32	Spear-Lep (GS-omega/kappa-Hxtx-Hv1a)	1–2 pt	10 gal per year	4	0	
Flea beetles	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	6 qt per year	12	14	–
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	32 fl oz	12	7	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	11.4 fl oz	12	1	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	4A	Actara (thiamethoxam)	1.5–3.0 oz	11 oz	12	7	–
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	3.67 oz	12	30	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	13 fl oz	12	30	–
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	14 oz	12	7	–
	21A	Torac (tolfenpyrad)	14–21 fl oz	42 fl oz	12	1	–
Grasshoppers	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	4A	Belay (clothianidin)	Soil: 9–12 fl oz	12 fl oz	12	21	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
Leafhoppers	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	6 qt per year	12	14	–
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	32 fl oz	12	7	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	11.4 fl oz	12	1	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	4A	Actara (thiamethoxam)	1.5–3.0 oz	11 oz	12	7	–
	4A	Admire Pro (imidacloprid)	4.4–10.5 fl oz	Foliar: 6.5 fl oz Soil: 10.5 fl oz per year	12	45	–
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	3.67 oz	12	30	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	13 fl oz	12	30	–
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	14 oz	12	7	–
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	28 fl oz	4	1	–
	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	27.2 fl oz	12	7	–
	21A	Torac (tolfenpyrad)	14–21 fl oz	42 fl oz	12	1	–
Leafminers	1A	*Vydate L (oxamyl)	2–4 pt	24 pt	48	21	–
	1B	Dimethoate 4EC (dimethoate)	1 pt	3 pt per year	48	7	–
	4A	Belay (clothianidin)	Soil: 9–12 fl oz	12 fl oz	12	21	–
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	3.67 oz	12	30	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	5	Radiant SC (spinetoram)	5–10 fl oz	34 fl oz per year	4	1	–
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	10.25 fl per year	12	7	–
	6	*Proclaim (emamectin benzoate)	2.4–4.8 oz	14.4 oz per year	12	7	–
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	20 fl oz per year	12	7	–
	17	Trigard (cyromazine)	2.66 oz	16 oz per year	12	7	–
	28	Coragen (chlorantraniliprole)	5.0–7.5 fl oz	15.4 fl oz	4	1	–
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	0.4 lb a.i. per year	12	1	–
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	13.5 fl oz at planting or 0.4 lb a.i. per year	4	At planting	–
Plant bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	6 qt per year	12	14	–
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	32 fl oz	12	7	–
	29	Beleaf 50 SG (flonicamid)	2.0–2.8 oz	8.4 oz	12	0	–
Planthoppers	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	27.2 fl oz	12	7	–
Stink bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	6 qt per year	12	14	–
	3A	*Fastac CS (alpha-cypermethrin)	3.2–3.8 fl oz	11.4 fl oz	12	1	–
	3A	*Mustang Maxx (zeta-cypermethrin)	3.2–4.0 fl oz	24 fl oz	12	1	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
Twospotted spider mite	1B	Malathion 5EC, 8F (malathion)	5EC: 2.4 pt 8F: 1–1.5 pt	–	24	7	No more than 2 applications per year.
	3A	*Brigade 2EC (bifenthrin)	2.1–6.4 fl oz	32 fl oz	12	7	–
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	10.25 fl per year	12	7	–
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	20 fl oz per year	12	7	–

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.

² Always double-check labels regarding maximum application limits. Many labels are changing from a maximum rate per season (or crop cycle) to a maximum rate per year.

³ 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.

*Restricted use insecticide.

Table 8. Insecticides approved for managing arthropod 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)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season 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	–
	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	–
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 planting	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	3A + 28	Besiege (lambda-cyhalothrin + chlorantraniliprole)	5–10 fl oz	31 fl oz	24	Edible podded succulent shelled: 7 Dry shelled: 21	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season 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)	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.
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 planting	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	3A + 28	Besiege (lambda-cyhalothrin + chlorantraniliprole)	5–10 fl oz	31 fl oz	24	Edible podded succulent shelled: 7 Dry shelled: 21	–
	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	7	–
	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.
	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	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	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	–
Fire ants	7A	Extinguish (S-methoprene)	1–1.5 lb broadcast	As needed	4	0	IGR (insect growth regulator). 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	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	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.
Mites	6 + 28	Minecto Pro (cyantraniliprole + abamectin)	5.5–10.0 oz	0.4 lb a.i.; see label	12	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	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	20D	Acramite-50WS (bifentate)	0.50–1.0 lb	1.0 lb	12	3	–
	21A	Portal (fenpyroximate)	2.0 pt	4.0 pt	12	1	–
	23	Movento (spirotetramat)	4–5 fl oz	10.0 fl oz	24	1	–
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	–
	15	Rimon 0.83 EC (novaluron)	12 fl oz	36.0 fl oz	12	1	
Thrips	4A	Admire Pro (imidacloprid)	Soil: 7–14 fl oz	Soil: 10.5 fl oz	12	Soil: 21	Soil application only for thrips.
	6 + 28	Minecto Pro (cyantraniliprole + abamectin)	5.5–10.0 oz	0.4 lb a.i.	12	7	–
	15	Rimon 0.83 EC (novaluron)	12 fl oz	24.0 fl oz	12	1	
Whiteflies	3A	*Brigade 2 EC (bifenthrin)	2.1–6.4 fl oz	12.8 fl oz	12	7	–
	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.
	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	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	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	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	Movement (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 cyazapir products	4	1	–
	U	Requiem EC (extract of <i>Chenopodium ambrosioides</i>)	2–4 qt	as needed	4	0	–
Wireworm	3A	*Capture LFR (bifenthrin)	3.4–6.8 fl oz	0.2 lb a.i.	12	At planting	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. U = unknown, or a mode of action that has not been classified yet.

² Always double-check labels regarding maximum application limits. Many labels are changing from a maximum rate per season (or crop cycle) to a maximum rate per year.

³ 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.

*Restricted use insecticide

Table 9. 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)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
Aphids	1B	Malathion 5EC, 8F (malathion)	5EC: 1.5–2.4 pt 8F: 1.5 pt	–	24	7	No more than 2 applications per year.
	3A	*Fastac CS (alpha-cypermethrin)	3.2–3.8 fl oz	11.4 fl oz	12	1	–
	3A	*Mustang Maxx (zeta-cypermethrin)	3.2–4.0 fl oz	24 fl oz	12	1	–
	3A	*Pounce 25 WP (permethrin)	6.4–12.8 oz	51.2 oz per year	12	1	–
	4A	Actara (thiamethoxam)	1.5–3.0 oz	11 oz	12	7	–
	4A	Admire Pro (imidacloprid)	Foliar: 1.3 fl oz Soil: 4.4–10.5 fl oz	Foliar: 6.5 fl oz Soil: 10.5 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Assail 30SG Assail 70WP (acetamiprid)	30SG: 2.0–4.0 oz 70WP: 0.8–1.7 oz	30SG: 20.0 oz or per year 70WP: 8.5 oz per year	12	7	–
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	3.67 oz	12	30	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10.0–13.0 fl oz	13 fl oz	12	30	–
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	14 oz	12	7	–
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	28 fl oz per year	4	1	–
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10 fl oz	20 fl oz per year	12	7	–
	9B	Fulfill (pymetrozine)	2.75 oz	5.5 oz	12	7	–
	9B	PQZ (pyrifluquinazon)	2.4–3.2 fl oz	4.8 fl oz	12	1	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	9D	Versys (afidopyropen)	1.5 fl oz	14 fl oz	12	0	–
	23	Movento (spirotetramat)	4.0–5.0 fl oz	10 fl oz	24	3	–
	28	Exirel (cyantraniliprole)	13.5–20.5 fl oz	0.4 lb a.i. per year	12	1	–
	28	Verimark (cyantraniliprole)	6.75–13.5 fl oz	13.5 fl oz at planting or 0.4 lb a.i. per year	4	At planting	–
	29	Beleaf 50 SG (flonicamid)	2.0–2.8 oz	8.4 oz	12	0	–
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	LV: 12 pt SP: 4 lb	48	10	–
	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	6 qt per year	12	14	–
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	3A	*Fastac CS (alpha-cypermethrin)	2.2–3.8 fl oz	11.4 fl oz	12	1	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	3A	*Pounce 25 WP (permethrin)	3.2–12.8 oz	51.2 oz per year	12	1	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10–13 fl oz	13 fl oz	12	30	–
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	14 oz	12	7	–
	5	Radiant SC (spinetoram)	5–10 fl oz	34 fl oz per year	4	1	–
	6	*Proclaim (emamectin benzoate)	2.4–4.8 oz	14.4 oz per year	12	7	–
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz Cabbage looper: 7.5–10.0 fl oz	20 fl oz per year	12	7	–
	18	Confirm 2F (tebufenozide)	6–8 fl oz	40 fl oz	4	7	–
	18	Intrepid 2F (methoxyfenozide)	4–10 fl oz	64 fl oz per year	4	1	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	22	Avaunt Avaunt eVo (indoxacarb)	Avaunt: 2.5–3.5 oz eVo: 2.5–6.0 oz	Avaunt: 24 oz Avaunt eVo: 18 oz	12	3	–
	28	Coragen (chlorantraniliprole)	3.5–7.5 fl oz	15.4 fl oz	4	1	–
	28	Exirel (cyantraniliprole)	7.0–20.5 fl oz	0.4 lb a.i. per year	12	1	–
	28	Verimark (cyantraniliprole)	5.0–13.5 fl oz	13.5 fl oz at planting or 0.4 lb a.i. per year	4	At planting	–
	30	Incipio (isocycloseram)	2.1–4.1 fl oz	8.2 fl oz per year	12	1	No more than 2 applications per year.
	32	Spear-Lep (GS-omega/kappa-Hxtx-Hv1a)	1–2 pt	10 gal per year	4	0	–
Flea beetles	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	6 qt per year	12	14	–
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	4A	Actara (thiamethoxam)	1.5–3.0 oz	11 oz	12	7	–
	4A	Admire Pro (imidacloprid)	1.3 fl oz	6.5 fl oz per year	12	7	–
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Platinum 75 SG (thiamethoxam)	1.66–3.67 oz	3.67 oz	12	30	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10–13 fl oz	13 fl oz	12	30	–
	4A + 28	Voliam Flexi (thiamethoxam + chlorantraniliprole)	4.0–7.0 oz	14 oz	12	7	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	30	Incipio (isocycloseram)	2.1-4.1 fl oz	8.2 fl oz per year	12	1	No more than 2 applications.
Grasshoppers	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	4A	Belay (clothianidin)	Soil: 9–12 fl oz	12 fl oz	12	21	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
Leafhoppers	1A	Sevin 4F, XLR Plus (carbaryl)	0.5–1.0 qt	6 qt per year	12	14	–
	3A	*Baythroid XL (beta-cyfluthrin)	0.8–3.2 fl oz	12.8 fl oz	12	0	–
	3A	*Mustang Maxx (zeta-cypermethrin)	2.24–4.0 fl oz	24 fl oz	12	1	–
	3A	*Pounce 25 WP (permethrin)	3.2–12.8 oz	51.2 oz per year	12	1	–
	4A	Actara (thiamethoxam)	1.5–3.0 oz	11 fl oz	12	7	–
	4A	Admire Pro (imidacloprid)	Foliar: 1.3 fl oz Soil: 4.4–10.5 fl oz	Foliar: 6.5 fl oz Soil: 10.5 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Belay (clothianidin)	Foliar: 3–4 fl oz Soil: 9–12 fl oz	12 fl oz per year	12	Foliar: 7 Soil: 21	–
	4A	Platinum 75SG (thiamethoxam)	1.66–3.67 oz	3.67 oz	12	30	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	4A + 28	Durivo (thiamethoxam + chlorantraniliprole)	10–13 fl oz	13 fl oz	12	30	–
	4D	Sivanto Prime (flupyradifurone)	7–14 fl oz	28 fl oz	4	1	–
	16	Courier 40SC (buprofezin)	9.0–13.6 fl oz	27.2 fl oz	12	7	–

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
	30	Incipio (isocycloseram)	2.1-4.1 fl oz	8.2 fl oz per year	12	1	No more than 2 applications.
Leafminers	3A	*Pounce 25 WP (permethrin)	3.2-12.8 oz	51.2 oz per year	12	1	-
	4A	Belay (clothianidin)	Soil: 9-12 fl oz	12 fl oz	12	21	-
	4A	Platinum 75SG (thiamethoxam)	1.66-3.67 oz	3.67 oz	12	30	-
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2-5.25 fl oz Soil: 9-10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	-
	4A	Venom (dinotefuran)	Foliar: 1.0-3.0 oz Soil: 5.0-6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	-
	5	Radiant SC (spinetoram)	5-10 fl oz	34 fl oz per year	4	1	-
	6	*Agri-Mek SC (abamectin)	1.75-3.5 fl oz	10.25 fl per year	12	7	-
	6	*Proclaim (emamectin benzoate)	2.4-4.8 oz	14.4 oz per year	12	7	-
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5-10.0 fl oz	20 fl oz per year	12	7	-
	17	Trigard (cyromazine)	2.66 oz	13.3 oz	12	7	-
	28	Coragen (chlorantraniliprole)	5.0-7.5 fl oz	15.4 fl oz	4	1	-
	28	Exirel (cyantraniliprole)	13.5-20.5 fl oz	0.4 lb a.i. per year	12	1	-
	28	Verimark (cyantraniliprole)	6.75-13.5 fl oz	13.5 fl oz at planting or 0.4 lb a.i. per year	4	At planting	-
	30	Incipio (isocycloseram)	2.1-4.1 fl oz	8.2 fl oz per year	12	1	No more than 2 applications.
Plant bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1-2 qt	6 qt per year	12	14	-
	29	Beleaf 50 SG (flonicamid)	2.0-2.8 oz	8.4 oz	12	0	-
Planthoppers	16	Courier 40SC (buprofezin)	9.0-13.6 fl oz	27.2 fl oz	12	7	-

Insect or Mite Pest	MOA Code ¹	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks ³
			Appl.	Season ²			
Stink bugs	1A	Sevin 4F, XLR Plus (carbaryl)	1–2 qt	6 qt per year	12	14	–
	3A	*Mustang Maxx (zeta-cypermethrin)	3.2–4.0 fl oz	24 fl oz	12	1	–
	4A	Scorpion 35 SL (dinotefuran)	Foliar: 2–5.25 fl oz Soil: 9–10.5 fl oz	Foliar: 10.5 fl oz Soil: 21 fl oz	12	Foliar: 7 Soil: 21	–
	4A	Venom (dinotefuran)	Foliar: 1.0–3.0 oz Soil: 5.0–6.0 oz	Foliar: 6 oz Soil: 12 oz	12	Foliar: 7 Soil: 21	–
	6	*Agri-Mek SC (abamectin)	1.75–3.5 fl oz	10.25 fl per year	12	7	–
	6 + 28	*Minecto Pro (abamectin + cyantraniliprole)	5.5–10.0 fl oz	20 fl oz per year	12	7	–
	30	Incipio (isocycloseram)	2.1–4.1 fl oz	8.2 fl oz per year	12	1	No more than 2 applications.

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.

² Always double-check labels regarding maximum application limits. Many labels are changing from a maximum rate per season (or crop cycle) to a maximum rate per year.

³ 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.

*Restricted use insecticide.

Table 10. Celery fungicides ordered by disease and then FRAC group according to their mode of action. **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.** Contact: Katia Viana Xavier, UF/IFAS Everglades Research and Education Center.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
Alternaria 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: Azoxystrobin, 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 brands 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 label	See individual label	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 (<i>Cercospora apii</i>)	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 label	See individual label	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 ³
			Appl.	Season ²	Harvest	Reentry	
	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 label	18 lb a.i.; see individual label	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	No more than 4 applications.
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	No more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	No more than 2 sequential applications before 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	No more than 2 sequential applications before 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	No more than 1 application before 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 ³
			Appl.	Season ²	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	No more than 2 sequential applications and 6 total applications of Quadris Opti or rotate with non-QoI 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.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
Leaf Curl (Colletotrichum)	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	No more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	No more than 2 sequential applications before 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	No more than 1 application before rotating to a fungicide of dissimilar mode of action.
	11	Cabrio EG (pyraclostrobin)	16 oz	64 oz	0	0.5	No more than 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 label	See individual label	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 label	See individual label	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	No more than 2 sequential applications before rotating to a fungicide of dissimilar mode of action.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	No more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	No more than 2 sequential applications before 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.
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	5.8 fl oz	23 fl oz	7	0.5	No more than 2 sequential applications before 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	No more than 1 application before 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: Azoxystrobin, 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.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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.
	11 + M5	Quadris Opti (azoxystrobin + chlorothalonil)	3.7 pt	22.2 pt	7	0.5	No more than 2 sequential applications 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.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
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	No more than 2 sequential applications before rotating to a fungicide of dissimilar mode of action.
	40 + 45	Zampro (dimethomorph + ametoctradin)	14 fl oz	52 fl oz	0	0.5	No more than 2 sequential applications before 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.
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 label	See individual label	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	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
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 in. 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	–	–	2	No more than 1 application. Soil incorporated.
Sclerotinia	7	Endura (boscalid)	9 oz	18 oz	0	0.5	Alternate with non-FRAC code 7 fungicide.
	7	Fontelis (penthiopyrad)	24 fl oz	72 fl oz	3	0.5	Alternate with non-FRAC code 7 fungicide.
	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 label	See individual label	7	0.5	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	3	(propiconazole) Many brands 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	No more than 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	No more than 2 sequential applications 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.
	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	No more than 1 sequential application of Qol fungicides. See label for soil application.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredient)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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 row ft	–	–	0	No more than 1 application per season. Soil incorporated.
	12	Maxim 4FS (fludioxonil)	0.16 fl oz/100 lb seed	–	–	0.5	Seed treatment only.
¹ FRAC code (fungicide group): Numbers and letters 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. Source: FRAC Code List; https://www.frac.info/ (FRAC = Fungicide Resistance Action Committee). ² Always double-check labels regarding maximum application limits. Many labels are changing from a maximum rate per season (or crop cycle) to a maximum rate per year. ³ 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 11. Okra fungicides ordered by disease and then FRAC group according to their mode of action. **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.** 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 ³
			Appl.	Season ²	Harvest	Reentry	
Anthracnose	BM 01 + 3	Regev (tea tree oil + difenoconazole)	8.5 fl oz	34 fl oz	2	0.5	No more than 2 consecutive applications.
	M1	AmeriCop 40 DF (copper hydroxide)	1.5 lb	13.1 lb	0	Field: 2 GH: 1	OMRI listed. ³
	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	Kalmor (copper hydroxide)	1.75 lb	17.5 lb	0	2	OMRI listed. ³
	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	Nu-Cop 30 HB (copper hydroxide)	1.75 lb	17.5 lb	–	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 listed. ³
	M5	Bravo Ultrex (chlorothalonil)	1.4 lb	10.9 lb	3	0.5	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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	Reapplications at least 7 days apart.
	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	Praiz (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5	Praiz NG (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5	Rialto 720F (chlorothalonil)	1.5 pt	16 pt	14	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	–
	M5 + 27	Ariston (chlorothalonil + cymoxanil)	2.44 pt	17.5 pt	3	0.5	–
	M5 + 49	Orondis Opti (chlorothalonil + oxathiapiprolin)	2.7 pt	10.8 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	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	3	Topguard Fungicide (flutriafol)	14 fl oz	56 fl oz	0	0.5	–
	3+11	Affiance (tetraconazole + azoxystrobin)	12 fl oz	24 fl oz	0	0.5	–
	3 + 11	Acadia ESQ Fungicide (difenoconazole + azoxystrobin)	14 fl oz	55.3 fl oz	0	0.5	–
	3 + 11	Veltyma Fungicide (mefentrifluconazole + pyraclostrobin)	10 fl oz	30 fl oz	0	0.5	Reapplications at least 14–21 days apart.
	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	No 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; no more than 2 sequential applications.
	7 + 3	Aprovia Top (benzovindiflupyr + difenoconazole)	13.5 fl oz	53.6 fl oz	0	0.5	No more than 2 sequential applications.
	7 + 3	Luna Flex (fluopyram + difenoconazole)	13.6 fl oz	27.2 fl oz	0	0.5	–
	7 + 11	Luna Sensation (fluopyram + trifloxystrobin)	7.6 fl oz	27.1 fl oz	3	0.5	No 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	Acadia LFC (azoxystrobin)	19.5 fl oz	77.5 fl oz	0	4 hr	–
	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	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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 3.3 (azoxystrobin)	9.7 fl oz	38.8 fl oz	0	4 hr	–
	11	Flint Extra (trifloxystrobin)	3.8 fl oz	16 fl oz	3	0.5	–
	11	GCS Azoxy 2SC (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	–
	11	Quadris Flowable (azoxystrobin)	15.5 fl oz	60 fl oz	0	4 hr	–
	11	Satori Fungicide (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	No more than 1 application.
	11	Tetraban Fungicide (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	No more than 2 consecutive applications.
	11 + 3	Trevo DCZ (azoxystrobin; difenoconazole)	14 fl oz	55.3 fl oz	0	0.5	–
Bacterial leaf spot	BM01 + 3	Regev (tea tree oil + difenoconazole)	8.5 fl oz	34 fl oz	2	0.5	No more than 2 consecutive applications.
	M1	AmeriCop 40 DF (copper hydroxide)	1.5 lb	13.1 lb	0	Field: 2 GH: 1	OMRI listed. ³
	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	Kalmor (copper hydroxide)	1.75 lb	17.5 lb	0	2	OMRI listed. ³

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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 listed. ³
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	Reapplications at least 7 days apart.
	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	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 ³
			Appl.	Season ²	Harvest	Reentry	
	M5	Praiz NG (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5	Rialto 720 F (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	–
	M5 + 27	Ariston (chlorothalonil + cymoxanil)	2.44 pt	17.5 pt	3	0.5	–
	M5 + 49	Orondis Opti (chlorothalonil + oxathiapiprolin)	2.7 pt	10.8 pt	3	0.5	–
	3	Monsoon (tebuconazole)	6 fl oz	24 fl oz	3	2	–
	3	Onset 3.6L (tebuconazole)	6 fl oz	24 fl oz	7	0.5	–
	3	Rhyme Fungicide (flutriafol)	7 fl oz	28 fl oz	0	0.5	–
	3	TebuCon 3.6F Fungicide (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	–
	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	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	0	0.5	–
	7 + 3	Aprovia Top Fungicide (benzovindiflupyr + difenoconazole)	13.5 fl oz	53.6 fl oz	0	0.5	No more than 2 sequential applications.
	7 + 3	Luna Experience (fluopyram + tebuconazole)	12.8 fl oz	34 fl oz	3	0.5	No 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	Pageant Intrinsic (boscalid + pyraclostrobin)	18 oz	54 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	No more than 2 sequential applications.
	11 + 3	Trevo DCZ (azoxystrobin + difenoconazole)	14 fl oz	55.3 fl oz	0	0.5	–
Phytophthora	4	Acquire Fungicide Seed Treatment (metalaxyl)	0.75 fl oz/100 lb seed	–	–	1	Seed treatment for control of early season <i>Phytophthora</i> spp.
	4	Allegiance-FL Seed Treatment (metalaxyl)	1.5 fl oz/100 lb seed	–	–	1	Seed dressing for control of <i>Phytophthora</i> spp.
	4	Metalaxyl 4.0 ST (metalaxyl)	0.50 fl oz/100 lb seed	–	–	1	Seed treatment for control of early season <i>Phytophthora</i> spp.
	4	Ridomil Gold SL (mefenoxam)	1.0 pt	–	7	2	Preplant or at planting.
	4 + 12	Spirato M 185 FS (metalaxyl + fludioxonil)	3.0 fl oz/100 lb seed	–	–	2	Protection against early season soil and seedborne fungi.
	4 + 49	Orondis Gold (Premix) (mefenoxam + oxathiapiprolin)	55 fl oz	55 fl oz	5	2	At-planting soil application.
	7 + 11	Pageant Intrinsic (boscalid + pyraclostrobin)	18 oz/100 gal	–	–	0.5	See label.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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	No more than 6 applications per season. Rotate with dissimilar modes of action.
	22	Elumin (ethaboxam)	8 fl oz	16 fl oz	2	0.5	Reapplications at least 14 days apart.
	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	–
	29	Vantana (fluazinam)	24 fl oz	144 fl oz	30	0.5	–
	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.
	49	Orondis Gold 200 (oxathiapiprolin)	9.6 fl oz	19.2 fl oz	0	4 hr	Soil application at planting. No more than 2 applications per year.
	49 + 40	Orondis Ultra (Premix) (oxathiapiprolin + mandipropamid)	8 fl oz	32 fl oz	1	0.5	No more than 2 sequential applications before alternating to a different MOA. No more than 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	Reapplications at least 5 days apart.
	M1	Champion++ (copper hydroxide)	1.75 lb	17.5 lb	0	2	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	M1	Cueva Fungicide Concentrate (copper octanoate)	33 gal; 98 fl oz/1000 ft ²	–	–	–	–
	M1	Kalmor (copper hydroxide)	1.75 lb	17.5 lb	0	2	OMRI listed. ³
	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	OMRI listed. ³
	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 listed. ³
Powdery mildew	BM 01 + 3	Regev (tea tree oil + difenoconazole)	8.5 fl oz	34 fl oz	2	0.5	No more than 2 consecutive applications.
	M1	AmeriCop 40 DF (copper hydroxide)	1.5 lb	13.1 lb	0	Field: 2 GH: 1	OMRI listed. ³
	M1	ChampION++ (copper hydroxide)	1.75 lb	17.5 lb	0	2	–
	M1	Cueva Fungicide Concentrate (copper octanoate)	6.7 gal in 30–100 gal of water	33.7 gal or 98 fl oz/1000 ft ²	0	4 hr	Consult the label for any seasonal restrictions.
	M1	Kalmor (copper hydroxide)	1.75 lb	17.5 lb	0	2	OMRI listed. ³
	M1	Kocide 2000 (copper hydroxide)	3 lb	15 lb	0	2	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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 listed. ³
	M2	Microthiol-Disperss (sulfur)	10 lb	–	–	1	–
	M2	Suffa (sulfur)	0.5 gal	–	–	1	–
	M2	Sulfur 80 WDG (sulfur)	10 lb	–	–	1	OMPI listed. ³
	M2	Sulfur 90W (sulfur)	20 lb	–	–	1	–
	M2	THAT Flowable Sulfur (sulfur)	8 pt	–	–	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	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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	Reapplications at least 7 days apart.
	M5	Initiate 720 Flowable Fungicide (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5	Oranil 6L (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5	Praiz (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5	Praiz NG (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5	Rialto 720 F (chlorothalonil)	1.5 pt	12 pt	3	0.5	–
	M5 + 27	Ariston (chlorothalonil + cymoxanil)	2.44 pt	17.5 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 125 ME (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	No more than 4 applications per season.
	3	Rellix 40 WSP (myclobutanil)	5 oz	1.25 lb	0	1	Reapply on a 10- to 14-day protectant schedule.
	3	Rhyme Fungicide (flutriafol)	7 fl oz	28 fl oz	0	0.5	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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	No 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	Affiance (tetraconazole + azoxystrobin)	12 fl oz	24 fl oz	0	0.5	–
	3 + 11	TopGuard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	0	0.5	–
	3 + 11	Veltyma Fungicide (mefentrifluconazole + pyraclostrobin)	10 fl oz	30 fl oz	0	0.5	Reapplications at least 14–21 days apart.
	7	Fontelis (penthioopyrad)	24 fl oz	72 fl oz	0	0.5	–
	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	No 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 (boscalid + pyraclostrobin)	18 oz/100 gal	–	–	0.5	–
	7 + 11	Pompa (boscalid + pyraclostrobin)	18 oz	54 oz	–	0.5	–
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	11.4 fl oz	22.8 fl oz	0	0.5	No more than 2 sequential applications.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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	Palladium (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	–
	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.
	9 + 12	Xuvia (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	No more than 2 sequential applications.
	11	Acadia LFC (azoxystrobin)	19.5 fl oz	77.5 fl oz	0	4 hr	–
	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	No more than 1 application of AzoxyStar or other Group 11 fungicides before alternation with a non-Group 11 fungicide.
	11	Azoxystrobin SC (azoxystrobin)	15.3 fl oz	61.5 fl oz	0	–	–
	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	–
	11	Quadris Flowable (azoxystrobin)	15.5 fl oz	60 fl oz	0	4 hr	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	11	Satori Fungicide (azoxystrobin)	15.5 fl oz	61.5 fl oz	0	4 hr	No 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.
	11 + 3	Trevo DCZ (azoxystrobin + difenoconazole)	14 fl oz	55.3 fl oz	0	0.5	–
	12	Spirato GHN (fludioxonil)	7 fl oz	28 fl oz	0	0.5	–
	13	Quintec Fungicide (quinoxifen)	6 fl oz	24 fl oz	3	0.5	Reapplications at least 10 days apart.
	50	Prolivo 300SC (pyriofenone)	5 fl oz	16 fl oz	0	4 hr	–
Pythium damping-off	4	Acquire Fungicide Seed Treatment (metalaxyl)	0.75 fl oz/100 lb seed	–	–	1	–
	4	Allegiance-FL Seed Treatment (metalaxyl)	1.5 fl oz/100 lb seed	–	–	1	–
	4	Metalaxyl 4.0 ST (metalaxyl)	0.50 fl oz/100 lb seed	–	–	1	–
	4	Ridomil Gold SL (mefenoxam)	1.0 pt	–	7	2	Preplant or at planting.
	4	STartUp™ MEFEN (mefenoxam)	0.47 fl oz/100 lb seed	1.5 lb a.i.	–	0.5	No pre-plant or at-plant application of mefenoxam or metalaxyl products to seed treated with STartUp™ MEFEN.
	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.
	4 + 12	Spirato M 185 FS (metalaxyl + fludioxonil)	3.0 fl oz/100 lb seed	–	–	2	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	4 + 49	Orondis Gold (Premix) (mefenoxam + oxathiapiprolin)	55 fl oz	55 fl oz	5	2	At-planting soil application.
	7 + 11	Pompa (boscalid + pyraclostrobin)	18 oz	54 oz	0	0.5	Use preventively.
Rhizoctonia damping-off, seedling rot	11	Acadia LFC (azoxystrobin)	1.0 fl oz/1000 row ft	77.5 fl oz	0	4 hr	–
	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.
	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 2SC (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	Tetran (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	11	Trevo (azoxystrobin)	0.8 fl oz/1000 row ft	61.5 fl oz	0	4 hr	–
	7 + 3	Aprovia Top Fungicide (benzovindiflupyr + difenoconazole)	13.5 fl oz	53.6 fl oz	0	0.5	Apply by ground or by chemigation.
	3 + 11	Veltyma Fungicide (mefentrifluconazole + pyraclostrobin)	10 fl oz	30 fl oz	0.5	–	–
	7 + 11	Pompa (boscalid + pyraclostrobin)	18 oz	118 oz	0	0.5	Use preventively. No more than 2 sequential applications.
¹ FRAC code (fungicide group): Numbers and letters 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. Source: FRAC Code List; https://www.frac.info/ (FRAC = Fungicide Resistance Action Committee). ² Always double-check labels regarding maximum application limits. Many labels are changing from a maximum rate per season (or crop cycle) to a maximum rate per year. ³ 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 12. Parsley fungicides ordered by disease and then FRAC group according to their mode of action. **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.** Contact: Katia Viana Xavier, UF/IFAS Everglades Research and Education Center.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
Alternaria leaf blight	3	Procure 480SC (triflumizole)	8 fl oz	18 fl oz	0	0.5	Reapplications at least 14 days apart.
	3	(propiconazole) Many brands available: Bumper 41.8EC, Propi-star, Tilt, Topaz	4 fl oz	16 fl oz	14	0.5	No more than 2 sequential applications and 4 total applications.
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	No more than 4 applications per year.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	No more than 2 sequential applications before rotating to a fungicide of dissimilar mode of action.
	7	Endura (boscalid)	9 oz	18 oz	14	0.5	No more than 2 applications before rotating to a fungicide of dissimilar mode of action.
	7	Fontelis (penthioopyrad)	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 before moving to dissimilar mode of action.
	9 + 12	Switch 62.5 WDG (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	See individual label	1	Varies by product from 4 hr to 2 days	–

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
Basal rot and 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	No more than 2 sequential applications before alternating to different 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.
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. No more than 1 application before 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 label	See individual label	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	No more than 2 sequential applications. See label for soil applications.
	40 + 45	Zampro (dimethomorph + ametoctradin)	14 fl oz	42 fl oz	1	4 hr	No more than 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. No more than 2 sequential applications. See label for soil applications.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	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. No more than 2 sequential applications. Do not exceed more than 33% of all fungicide applications with Orondis.
Powdery mildew	M2	(sulfur) Many brands available: Sulfur 90W, Super Six, Top Cop w/Sulfur	See individual label	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	No more than 2 sequential applications before alternating to different mode of action.
	3	Procure 480SC (triflumizole)	8 fl oz	18 fl oz	0	0.5	Reapplications at least 14 days apart.
	3	Rhyme (flutriafol)	7 fl oz	28 fl oz	7	0.5	No more than 4 applications per year.
	3	Tilt (propiconazole)	4 fl oz	16 fl oz	14	0.5	No more than 2 sequential applications and 4 total applications.
	3	Trionic (triflumizole)	8 fl oz	16 fl oz	0	0.5	No more than 2 applications. Reapplications at least 14 days apart.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	No more than 2 sequential applications before rotating to a fungicide of dissimilar mode of action.
	7	Endura (boscalid)	9 oz	18 oz	14	0.5	No more than 2 sequential applications before 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	No more than 2 sequential applications before 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.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	No more than 2 sequential applications before 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 in. band on soil over seed furrow.
	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	No more than 4 applications per year.
	3	Tilt (propiconazole)	4 fl oz	16 fl oz	14	0.5	No more than 2 sequential applications and 4 total applications.
	3 + 11	Topguard EQ (flutriafol + azoxystrobin)	8 fl oz	32 fl oz	7	0.5	No more than 2 sequential applications before rotating to a fungicide of dissimilar mode of action.
	7	Fontelis (penthiopyrad)	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	No more than 2 sequential applications before rotating to a fungicide of dissimilar mode of action.
	7 + 11	Merivon (pyraclostrobin + fluxapyroxad)	5.5 fl oz	16.5 fl oz	7	–	No more than 3 applications per season. No more than 2 sequential applications before alternating to a different mode of action.

Pertinent Diseases or Pathogens	Fungicide Group ¹	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks ³
			Appl.	Season ²	Harvest	Reentry	
	7 + 12	Miravis Prime (pydiflumetofen + fludioxonil)	13.4 fl oz	36.5 fl oz	0	0.5	No more than 2 sequential applications before moving to dissimilar mode of action.
	11	(azoxystrobin) Many 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	No more than 1 sequential application and 4 total applications of QoI fungicides. See label for soil applications.
	11	Cabrio EG (pyraclostrobin)	16 oz	64 oz	0	0.5	No more than 1 sequential application and 4 total applications of QoI 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	–	–	0	No more than 1 application per season. Soil incorporated.
	12	Maxim 4FS (fludioxonil)	0.16 fl oz/100 lb of seed	–	–	0.5	Seed treatment only.

¹ FRAC code (fungicide group): Numbers and letters 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. Source: FRAC Code List; <https://www.frac.info/> (FRAC = Fungicide Resistance Action Committee).

² Always double-check labels regarding maximum application limits. Many labels are changing from a maximum rate per season (or crop cycle) to a maximum rate per year.

³ 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 13. Nonfumigant nematicides for celery crops in Florida. Contact: Johan Desaege, 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. No 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 crops.
Vydate L (a.i. oxamyl)	Apply ½–2 gal/A at planting, preferably via drip application or soil spray. Make additional applications on a 10-to-14-day interval. No 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 14. Nonfumigant nematicides for okra in Florida. Contact: Johan Desaege, 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. Soil reapplications at least 7 days apart. No 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 –1 gal/A at planting, preferably via drip application. Make additional applications on a 10-to-14-day interval. No more than 2 gal/A per season. Reapplications at least 7 days apart 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.
Salibro (a.i. fluazaindolizine)	Apply 30.7–61.4 fl oz/A (1–2 lb a.i./A) as preplant incorporated, via preplant drip, or via at-plant drip. Apply 15.4–30.7 fl oz/A (0.5–1 lb a.i./A) for in-season drip. No more than 61.4 fl oz/A per calendar year. No more than 4 applications per calendar year. Reentry interval is 12 hr. Reapplications at least 14 days apart. Pre-harvest interval is 1 day.
Biological nematicides	See chapter 19.

Table 15. 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 ft 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.

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The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication do not signify our approval to the exclusion of other products of suitable composition.

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

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