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Chapter 14. Potato Production[1]

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Botany and Planting

Potato—*Solanum tuberosum*, Solanaceae

Table 1. Planting dates for potato.

Planting Region	Dates
North Florida	Jan–Feb
Central Florida	Nov–Feb
South Florida	Oct–Jan

Table 2. Planting information for potato.

Planting Parameters	Measurements
Distance between rows (inch)	36–42
Distance between plants (inch)	7–10
Planting depth (inch)	3–4
Average seed piece size (oz)	2.5–3.0
Average seed per planted acre (lb)	2,000–3,000

Cultivars

The University of Florida Potato Variety Evaluation Program screens new germplasm from public and private breeding programs and identifies the most promising cultivars for commercial potential, considering broad adaptability to Florida climate and conditions and market purpose: processing, fresh-market, and specialty-type varieties. The Florida Potato Variety Trial Report is available at https://hos.ifas.ufl.edu/extension/variety-trials/. A summary of the most popular potato clones for Florida is presented in the following sections.

Total yield key: High = >300 cwt/A, medium-high = 250–299 cwt/A, medium = 200–249 cwt/A, low-medium = 150–199 cwt/A. **Tuber specific gravity (SG) key:** High = >1.075, medium-high = 1.070–1.074, medium = 1.065–1.069, low = <1.064.

1. Chipping Types

Atlantic. Mid-season; high yield; high SG. Mostly round; shallow eye depth; tan skin color; cream flesh; good appearance; susceptible to internal heat necrosis and hollow heart. https://ask.ifas.ufl.edu/publication/HS1278

Elkton. Mid-season; high yield; medium-high SG. Mostly oblong; shallow eye depth; white skin color; white flesh; good appearance.
https://ask.ifas.ufl.edu/publication/HS1237

Harley Blackwell. Mid-late season; high yield; high SG. Mostly round; shallow eye depth; tan skin color; white flesh; good appearance.
https://ask.ifas.ufl.edu/publication/HS1298

Lamoka. Mid-late season; medium-high yield; medium SG. Round to oblong; intermediate eye depth; tan skin color; cream flesh; fair to good appearance.

Pike. Late season; medium-high yield; medium-high SG. Round to oblong; shallow eye depth; buff skin color; white flesh; good appearance.

Snowden. Mid-season; high yield; high SG. Round; intermediate eye depth; tan skin color; white flesh; fair to good appearance.
https://ask.ifas.ufl.edu/publication/HS1286

Superior. Mid-season; medium yield; medium SG. Round to oblong; intermediate eye depth; buff skin color; white flesh; fair to good appearance.

2. All-Purpose Types

LaChipper. Mid-season; high yield; medium SG. Round to oblong; intermediate eye depth; white skin and white flesh; good appearance.
https://ask.ifas.ufl.edu/publication/HS1297

Marcy. Mid-late season; high yield; low SG. Round to oblong; shallow eye depth; buff skin color; white flesh; good appearance.
https://ask.ifas.ufl.edu/publication/HS1277

Sebago. Early-mid season; high yield; medium SG. Mostly oblong; intermediate eye depth; buff skin color; white flesh; good appearance.

3. Fresh-Market/Table Types—Whites/Yellows

Almera. Early-mid season; high yield; low SG. Oblong to long; intermediate eye depth; buff skin color; light-yellow flesh; good appearance.

Colomba. Mid-season; high yield; low SG. Mostly oblong; very shallow eye depth; cream skin color and light-yellow flesh; excellent appearance.

Coronada. Mid-season; medium-high yield; low SG. Mostly oblong; very shallow eye depth; white skin color and light-yellow flesh; excellent appearance.

Electra. Mid-season; high yield; low SG. Round to oblong; shallow eye depth; white skin and white flesh; good appearance.

Fabula. Mid-late season; medium-high yield; low SG. Mostly oblong; shallow eye depth; white-cream skin color; light-yellow flesh; good appearance.
https://ask.ifas.ufl.edu/publication/HS1294

Francisca. Mid-late season; medium-high yield; low SG. Round to oblong; shallow eye depth; buff skin color; light-yellow flesh; good appearance.

Jelly. Early-mid season; high yield; low SG. Round to oblong; shallow eye depth; cream skin color and dark-yellow flesh; good to excellent appearance.

Malou. Mid-late season; high yield; low SG. Round to oblong; intermediate eye depth; white skin color; medium-yellow flesh; good to excellent appearance.

Natasha. Mid-season; medium-high yield; low SG. Mostly oblong; shallow eye depth; cream skin color; light-yellow flesh; excellent appearance.

Satina. Mid-season; medium-high yield; low SG. Round to oblong; shallow eye depth; cream skin color; medium-yellow flesh; good to excellent appearance.

4. Fresh-Market/Table Types—Reds

Cerata. Early-mid season; high yield; low SG. Round to oblong; shallow eye depth; pink skin color and white flesh; good to excellent appearance.

Chieftain. Mid-late season; high yield; low SG. Round to oblong; intermediate eye depth; red skin color and white flesh; fair to good appearance

LaRouge. Early-mid season; high yield; medium SG. Round to oblong; intermediate eye depth; pink-red skin color; white flesh; fair to good appearance.

Red Lasoda. Mid-late season; medium yield; low SG. Mostly oblong; intermediate to deep eye depth; red skin color; white flesh; good appearance.

Strawberry Paw. Mid-late season; high yield; low SG. Round to oblong; shallow eye depth; red skin color; cream flesh; good appearance.

5. Fresh-Market/Table Types—Purples

Adirondack Blue. Mid-late season; medium yield; medium SG. Oblong to long; intermediate eye depth; purple skin color; purple flesh; fair to good appearance.
https://ask.ifas.ufl.edu/publication/HS1293

All Blue. Mid-late season; medium yield; medium SG. Oblong to long; intermediate eye depth; purple skin color; purple flesh; fair to good appearance.

Michigan Purple. Mid-late season; high yield; medium SG. Mostly oblong; intermediate eye depth; purple skin color; white flesh; good appearance.

Peter Wilcox. Mid-late season; medium-high yield; medium SG. Round to oblong; intermediate eye depth; purple skin color; medium-yellow flesh; good appearance.
https://ask.ifas.ufl.edu/publication/HS1295

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

Table 3. Herbicides approved for managing weeds in potato. **Labels change frequently. Be sure to read a current product label before applying any chemical.**
Contact: Peter J. Dittmar, UF/IFAS Department of Horticultural Sciences, Gainesville.

	Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
PREPLANT/ PREEMERGENCE	**Carfentrazone** up to 0.031	(Aim) 2.0 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.
	Dimethenamid-p 0.56–0.84	(Outlook) 6 L 12–18 fl oz	15	Apply after planting or drag-off. Consult label for exact rates based on soil texture. In cold, wet conditions, delayed crop emergence or stunting may occur. PHI 40 days.
	EPTC 1.0	(Eptam) 20 G 15 lb	8	Broadleaf and grass weeds and nutsedge. Apply preplant or after drag-off. Incorporate mechanically or with irrigation 2–4 in. deep. Do not apply the emulsifiable formulation preemergence in winter and early spring potatoes.
	Flumioxazin 0.05	(Chateau) EZ 1.5 fl oz	14	Annual broadleaf weeds. Apply after hilling with a minimum of 2 in. of soil covering the vegetative portion of the potato plant. Should be tank-mixed with other herbicides, especially for grass control.
	Fomesafen 0.25	(Reflex, Ringside) 2 EC 1.0 pt	14	Annual broadleaf and grass weeds. Effectiveness reduced if later cultural practices expose untreated soil. Can be applied after drag-off and before crop emergence. Variety tolerance may vary; test on a small sample before application to the entire field. PHI 7 days.
	Glyphosate	(various formulations) consult labels	9	Emerged broadleaf and grass weeds. Apply as a preplant burndown. Consult label for individual product directions.
	Imazosulfuron 0.19–0.3	(League) 75 WG 4–6.4 oz	2	Broadleaf and grass weeds. No more than 2 applications per year and no more than 6.4 oz/A per year.
	Linuron 0.75–1.25	(Lorox DF) 50 DF 1.5–2.5 lb (Linex) 4 L 1–1.6 pt	7	Apply after final drag-off. If weeds are present include a NIS. Best results are obtained in moist fields at application followed by rain or irrigation within 2 weeks.
	Metribuzin 0.25–1.0	(Tricor DF) 75 DF 0.3–1.3 lb	5	Annual broadleaf weeds. Apply after drag-off but before crop emergence. Do not incorporate. Use lower rates on sandy soil.
	Metribuzin + S-metolachlor	(Boundry) 6.5 EC 1.5–2.0 pt	5 + 15	Broadleaf and grass weeds. Apply before potato emergence. This includes drag-off. Do not incorporate.
	Paraquat 0.25–0.5	(Gramoxone) 2 SL 1.0–2.0 pt (Firestorm) 3 SL 0.7–1.3 pt	22	Emerged broadleaf and grass weeds. Apply as a preplant burndown treatment. Apply up to ground cracking before potatoes have emerged. Use a nonionic surfactant.
	Pelargonic acid	(Scythe) 4.2 EC 3%–10% v/v	27	Emerged broadleaf and grass weeds. Apply as a preplant burndown treatment. Product is a contact, nonselective, foliar-applied herbicide with no residual control. May be tank-mixed with soil residual compounds.

	Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
	Pendimethalin 0.75	(Prowl H20) 3.8 1.5 pt	3	Annual broadleaf and grass weeds. Apply after planting but before potatoes and weeds emerge or after drag-off. Incorporate with rainfall or mechanically into the top 1–2 in. of soil within 7 days. Do not use on peat or muck soils.
	Pyraflufen 0.001–0.003	(ET Herbicide) 0.208 EC 0.5–2.0 fl oz	14	Emerged broadleaf weeds. Apply as a preplant burndown treatment.
	Pyroxasulfone ethyl 0.08–0.11	(Zidua Herbicide) 1.5–2.0 oz	15	Broadleaf and grass weeds. Apply after drag-off and before potato and weed emergence. No PHI between a preemergence application and harvest. Efficacy is decreased if the untreated soil is exposed.
	Rimsulfuron 0.016–0.023	(Matrix) 25 DF 1.0–1.5 oz	2	Apply immediately after drag-off. Rainfall or sprinkler irrigation 0.3–1.0 in. required with 5 days after application. No more than 2.0 oz/A per year.
	S-metolachlor 0.95–1.9	(Dual Magnum) 7.62 EC 1.0–2.0 pt	15	Annual broadleaf and grass weeds. Apply after drag-off before crop and weed emergence. If cool, wet soil conditions occur after application, a delay in maturity and/or reduced yield may occur. PHI 60 days.
	Sulfentrazone 0.09–0.14	(Willowood sulfentrazone) 4SC 3.0–4.5 fl oz	14	Broadleaf and grass weed control. Nutsedge suppression. Do not apply on sands with less than 1% organic matter. No more than 8 fl oz/A within a 12-month period. Should be trialed in a small area to find suitable rate for the soil type in your area.
	Trifluralin 0.5	(Trust, Treflan TR-10) 10 G 5 lb (Trifluralin, Treflan) 4 L 1 pt	3	Broadleaf and grass weeds. Apply after drag-off or prior to crop emergence. Incorporate the herbicide into the soil profile. If applied after plant emergence, do not allow soil contact with the emerged plants.

	Active Ingredient lb a.i./Acre	Trade Name Product/Acre	MOA Code	Weeds Controlled/Remarks
POSTEMERGENCE	**Carfentrazone** up to 0.031	(Aim) 1.9 EW up to 2 fl oz (Aim) 2.0 EC up to 2 fl oz	14	Emerged broadleaf weeds. Apply as hooded application to row middles only. Use a COC or NIS at recommended rates. May be tank-mixed with other herbicides. No more than 6.1 fl oz per cropping season. PHI 7 days.
	Clethodim 0.09–0.25 0.07–0.25	(Arrow) 2 EC 6–16 fl oz (Select Max) 1 EC 9–32 fl oz	1	Perennial and annual grass weeds. In fields with heavy grass pressure or larger grass weeds, use higher rates or repeat application 14 days apart. Use a crop oil concentrate at 1% v/v in the finished spray volume. Nonionic surfactant with Select Max. PHI 30 days.
	EPTC 3 3.1–7.9	(Eptam) 20 G 15 lb (Eptam) 7 E 3.5 to 9 pt	8	Annual broadleaf, grass weeds, and nutsedge. Apply at layby to a clean cultivated soil. Incorporate mechanically or with irrigation. Apply Eptam 7 E after true leaves have formed and apply as a layby treatment. No more than 12.25 lb a.i. per season. PHI 45 days.
	Imazosulfuron 0.19–0.3	(League) 75 WG 4–6.4 oz	2	Broadleaf and grass weeds. No more than 2 applications per year and no more than 6.4 oz/A per year. PHI 45 days.
	Metribuzin 0.23–0.5	(Tricor) 75 DF 0.3–0.6 lb	5	Broadleaf and grass weeds. Do not apply to early smooth-skinned, red-skinned, and other specified varieties on the label. No more than 1.3 lb/A. PHI 60 days.
	Pelargonic acid	(Scythe) 4.2 EC 3%–10% v/v	27	Emerged broadleaf and grass weeds. Direct spray to row middles. Product is a contact, nonselective, foliar-applied herbicide with no residual control. May be tank-mixed with several soil residual compounds.
	Rimsulfuron 0.016–0.023	(Matrix) 25 DF 1.0–1.5 oz	2	Apply immediately after drag-off. Rainfall or sprinkler irrigation 0.3–1.0 in. required within 5 days of application. Apply as a sequential treatment 14–28 days after the first application. No more than 2.0 oz/A per year.
	Sethoxydim 0.28–0.47	(Poast) 1.5 EC 1.5–2.5 pt	1	Control growing grass weeds. No more than 5.0 pt/A per year. Include crop oil concentrate. Unsatisfactory results may occur if applied to grass under stress. PHI 30 days.

Table 4. Insecticides approved for management of arthropod pests of potato. **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: De-Fen Mou, UF/IFAS Everglades Research and Education Center.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
Aphids	1A	***Lannate LV; *SP** (methomyl)	**LV**: 1.5–3.0 pt **SP**: 0.5–1.0 lb	**LV:** 15 pt per crop **SP**: 5 lb per crop	48	6	No more than 10 applications per crop. No more than.
	1B	**Dimethoate 4EC** (dimethoate)	0.5–1.0 pt	2 pt per year	48	Mechanically harvested: 0 Otherwise: 14	Highly toxic to bees. Applications at least 7 days apart.
	1B	**Malathion 5EC, 8F** (malathion)	**5EC**: 1.5–2.5 pt **8F**: 1–1.5 pt	1.56 pt	12	0	No more than 2 applications per year.
	3A	***Ambush 25W** (permethrin)	3.2–12.8 oz	1.6 lb a.i.	12	14	Apply by air or ground equipment.
	3A	***Asana XL (0.66 EC)** (esfenvalerate)	2.9–9.6 fl oz	0.35 lb a.i.	12	7	No more than 7 applications at highest rate.
	3A	***Mustang Maxx** (zeta-cypermethrin)	3.4–4.3 fl oz	25.8 fl oz	12	1	Reapplications at least 4 days apart.
	3A	***Pounce 25 WP** (permethrin)	6.4–12.8 oz	0.8 lb a.i.	12	14	–
	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]
	3A	***Warrior II** (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7	Only exposed insects can be controlled.
	3A + 4A	***Endigo ZC** (lambda-cyhalothrin + thiamethoxam)	3.5–4.5 fl oz	10 fl oz	24	14	Do not use with other Group 4A insecticides.
	4A	**Actara** (thiamethoxam)	3.0 oz	6 oz	12	14	Highly toxic to bees. Do not use following soil application of other Group 4A insecticides.
	4A	**Admire Pro** (imidacloprid)	Soil: 5.7–8.7 fl oz Seed-piece: 3.5–7 fl oz Foliar: 1.3 fl oz	Soil and seed-piece: 8.7 fl oz per year Foliar: 5.6 fl oz per year	12	Foliar: 7	Do not use treated seed-pieces for food, feed, or fodder.
	4A	**Assail 30SG** (acetamiprid)	2.5–4.0 oz	16 oz per year	12	7	Reapplications at least 7 days apart. No more than 4 applications per year.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	4A	**Belay Insecticide** (clothianidin)	In-furrow or side dress application: 9–12 fl oz Foliar: 2–3 fl oz	0.2 lb a.i. per year	12	Soil: at planting, side dress, or hilling Foliar: 14	Do not apply during bloom or allow to drift to flowering plants. Toxic to bees for 5 days after application.
	4A	**Platinum 75SG** (thiamethoxam)	1.66–2.67 oz	2.67 oz	12	Applied at planting or at plant emergence.	To manage resistance, avoid using other Group 4A insecticides in conjunction with Platinum. Only 1 soil application per year.
	4A	**Scorpion 35SL** (dinotefuran)	Foliar: 2–2.75 fl oz Soil: 11.5–13.25 fl oz	Foliar: 8 fl oz Soil: 13.25 fl oz	12	Foliar: 7 Soil: Apply prior to planting	Apply as foliar or soil application, but not both. Do not apply where bees are foraging. Toxic to bees for 38 hr after application.
	4A	**Venom Insecticide** (dinotefuran)	Foliar: 1–1.5 oz Soil: 6.5–7.5 oz	Foliar: 4.5 oz Soil: 7.5 oz	12	Foliar: 7 Soil: Apply prior to planting	No more than 1 soil application, either preplant, preemergence, or at ground crack. Do not use with other Group 4A insecticides. Do not apply where bees are foraging. Toxic to bees for 38 hr after application.
	4A + 3A	**Leverage 360** (imidacloprid + cyfluthrin)	2.8 fl oz	12.8 fl oz	12	7	Apply when aphids first appear. Reapplications at least 7 days apart.
	4C	**Transform WG** (sulfoxaflor)	0.75–1.0 oz	8.5 oz	24	7	Bloom and tank-mix restrictions apply.
	4D	**Sivanto Prime** (flupyradifurone)	7–14 fl oz	28 fl oz per year	4	7	Reapplications at least 7 days apart.
	9B	**Fulfill** (pymetrozine)	2.75–5.5 oz	11.0 fl oz	12	14	Apply when aphids first appear.
	9B	**PQZ** (pyrifluquinazon)	2.4–3.2 fl oz	9.6 fl oz	12	7	Reapplications at least 7 days apart.
	21A	**Torac** (tolfenpyrad)	17–21 fl oz	42 fl oz	12	1	Do not apply until 14 days after emergence.
	23	**Movento** (spirotetramat)	4.0–5.0 fl oz	10 fl oz	24	7	Reapplications at least 7 days apart.
	28	**Exirel** (cyazypyr)	13.5–20.5 fl oz	0.4 lb a.i.	12	1	Reapplications at least 5 days apart.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	28	**Verimark** (cyazypyr)	Soil: 6.75–13.5 fl oz at planting Drip chemigation: 6.75–10 fl	0.4 lb a.i. per year	4	1	No more than 2 drip chemigation applications.
	29	**Beleaf 50 SG** (flonicamid)	2.0–2.8 oz	8.4 oz	12	7	Begin applications before pest populations reach damaging levels.
Beetles (including blister beetles, flea beetles, Colorado potato beetles, cucumber beetles, white-fringed beetles)	1A	***Lannate LV; *SP** (methomyl)	**LV**: 1.5–3.0 pt **SP**: 0.5–1.0 lb	**LV**: 15 pt **SP**: 5 lb	48	6	No more than 10 applications per crop.
	1A	**Sevin XLR, 4F; 80S** (carbaryl)	**XLR, 4F**: 0.5–2.0 qt **80S**: 0.63–2.5 lb	**XLR, 4F**: 6 qt **80S**: 7.5 lb	12	7	–
	1B	**Imidan 70 W** (phosment)	1.3 lb	6.6 lb	5 days	7	Reapplications at least 10 days apart. Use only on potatoes to be harvested by machine. Do not apply where bees are foraging.
	1B	***Thimet 20 G** (phorate)	Light or sandy soils: 8.5–11.3 oz/1000 row ft Heavy or clay soils: 13–17.3 oz/1000 row ft	Light or sandy soils: 11.5 lb Heavy or clay soils: 17.7 lb	48	90	Apply at planting. No more than 1 application per season.
	3A	***Ambush 25W** (permethrin)	3.2–12.8 oz	1.6 lb a.i.	12	14	Apply by air or ground equipment.
	3A	***Asana XL (0.66 EC)** (esfenvalerate)	2.9–9.6 fl oz	0.35 lb a.i.	12	7	No more than 7 applications at highest rate.
	3A	***Baythroid XL** (beta-cyfluthrin)	0.8–2.8 fl oz	16.8 fl oz	12	0	Reapplications at least 5 days apart.
	3A	***Brigade 2 EC** (bifenthrin)	Soil at-plant: 19.2 oz Soil layby: 3.2–9.6 oz Foliar: 2.1–6.4 fl oz	32 fl oz	12	21	No more than 2 foliar applications. Reapplications at least 21 days apart.
	3A	***Mustang Maxx** (zeta-cypermethrin)	1.9–4.3 fl oz	25.8 fl oz	12	1	See label for use rate on specific species. Reapplications at least 4 days apart.
	3A	***Pounce 25 WP** (permethrin)	6.4–12.8 oz	0.8 lb a.i.	12	14	–
	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	3A	***Warrior II** (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7	Only exposed insects can be controlled.
	3A + 4A	***Endigo ZC** (lambda-cyhalothrin + thiamethoxam)	3.5–4.5 fl oz	10 fl oz	24	14	Do not use with other Group 4A insecticides.
	3A + 28	***Besiege** (lambda-cyhalothrin + chlorantraniliprole)	6–9 fl oz	27 fl oz per year	24	14	Reapplications at least 7 days apart.
	4A	**Actara** (thiamethoxam)	1.5–3.0 oz	6 oz	12	14	Highly toxic to bees. Do not use following soil application of other Group 4A insecticides.
	4A	**Admire Pro** (imidacloprid)	Soil: 5.7–8.7 fl oz Seed-piece: 3.5–7 fl oz Foliar: 1.3 fl oz	Soil and seed-piece: 8.7 fl oz per year Foliar: 5.6 fl oz per year	12	Foliar: 7	Do not use treated seed-pieces for food, feed, or fodder.
	4A	**Assail 30SG** (acetamiprid)	1.5–4.0 oz Flea beetle: 1.5–2.5 oz	16 oz per year	12	7	Reapplications at least 7 days apart. No more than 4 applications per year.
	4A	**Belay Insecticide** (clothianidin)	In-furrow or side dress: 9–12 fl oz Foliar: 2–3 fl oz	0.2 lb a.i. per year	12	Foliar: 14 At planting or side dress or spray: at ground crack over row at hilling	Do not apply during bloom or allow to drift to flowering plants. Toxic to bees for 5 days after application.
	4A	**Platinum 75SG** (thiamethoxam)	1.66–2.67 oz	2.67 oz	12	Applied at planting or at plant emergence	Only 1 soil application per year.
	4A	**Scorpion 35SL** (dinotefuran)	Foliar: 2–2.75 fl oz Soil: 11.5–13.25 fl oz	Foliar: 8 fl oz Soil: 13.25 fl oz	12	Foliar: 7 Soil: Apply prior to planting	Apply as foliar or soil application, but not both. Do not apply where bees are foraging. Toxic to bees for 38 hr after application.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	4A	**Venom Insecticide** (dinotefuran)	Foliar: 1–1.5 oz Soil: 6.5–7.5 oz	Foliar: 4.5 oz Soil: 7.5 oz	12	Foliar: 7 Soil: Apply prior to planting	No more than 1 soil application, either preplant, preemergence, or at ground crack. Do not use with other Group 4A insecticides. Do not apply where bees are foraging. Toxic to bees for 38 hr after application.
	4A + 28	**Voliam Flexi** (thiamethoxam + chlorantraniliprole)	4 oz	8 oz	12	14	Reapplications at least 7 days apart. No more than 2 applications.
	4D	**Sivanto Prime** (flupyradifurone)	7–14 fl oz	28 fl oz	4	7	Reapplications at least 7 days apart.
	5	**Entrust SC** (spinosad)	3–10 fl oz	21 fl oz	4	7	Do not apply to consecutive generations of Colorado potato beetle. No more than 4 applications per crop. OMRI-listed.[3]
	5	**Radiant SC** (spinetoram)	4.5–8 fl oz	32 fl oz per year	4	7	Reapplications at least 7 days apart. No more than 4 applications per year. See label for species-specific rates.
	15	**Rimon 0.83EC** (novaluron)	6–12 fl oz	24 oz	12	14	Does not affect adult insects.
	17	**Trigard** (cyromazine)	2.66–5.32 oz	1.0 lb	12	7	Most effective for control of 1st and 2nd instar larvae. Does not control adult CPB. Use lower rate for leafminers.
	21A	**Torac** (tolfenpyrad)	17–21 fl oz	42 fl oz	12	1	Do not apply until 14 days after emergence.
	22A	**Avaunt eVo** (indoxacarb)	3.5–6.0 oz	24 oz; 72 oz per year	12	7	Reapplications at least 5 days apart.
	28	**Coragen** (rynaxypyr)	3.5–5.0 fl oz	15.4 fl oz	4	14	Foliar or overhead sprinkler irrigation systems only.
	28	**Verimark** (cyazypyr)	6.75–13.5 fl oz	13.5 fl oz at planting	4	N/A—applied at planting	The pH of application solution must be between 4 and 6.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
Caterpillars (inlcuding armyworms, webworms, cutworms, loopers, corn earworms)	1A	***Lannate LV; *SP** (methomyl)	**LV**: 1.5–3.0 pt **SP**: 0.5–1.0 lb	**LV**: 15 pt **SP**: 5 lb	48	6	No more than 10 applications per crop.
	1A	**Sevin XLR, 4F; 80 S** (carbaryl)	**XLR, 4F**: 0.5–2.0 qt **80S**: 0.63–2.5 lb	**XLR, 4F**: 6 qt **80S**: 7.5 lb	12	7	–
	3A	***Asana XL (0.66 EC)** (esfenvalerate)	2.9–9.6 fl oz	0.35 lb a.i.	12	7	No more than 7 applications at highest rate.
	3A	***Baythroid XL** (beta-cyfluthrin)	0.8–2.8 fl oz	16.8 fl oz	12	0	Reapplications at least 5 days apart.
	3A	***Mustang Maxx** (zeta-cypermethrin)	1.9–4.0 oz	25.8 fl oz	12	1	See label for use rate on specific species. Reapplications at least 4 days apart.
	3A	***Pounce 25 WP** (permethrin)	6.4–12.8 oz	0.8 lb a.i.	12	14	–
	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]
	3A	***Warrior II** (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7	Only exposed insects can be controlled.
	5	**Entrust SC** (spinosad)	3–10 fl oz	21 fl oz	4	7	No more than 4 applications per crop. OMRI-listed.[3]
	5	**Radiant SC** (spinetoram)	6–8 fl oz	32 fl oz per year	4	7	Reapplications at least 7 days apart. No more than 4 applications per year.
	15	**Rimon 0.83EC** (novaluron)	6–12 fl oz	24 oz	12	14	Does not affect adult insects.
	22A	**Avaunt eVo** (indoxacarb)	3.5–6.0 oz	24 oz; 72 oz per year	12	7	Reapplications at least 5 days apart.
	28	**Coragen** (rynaxypyr)	3.5–7.5 fl oz	15.4 fl oz	4	14	Foliar or overhead sprinkler irrigation systems only.
	28	**Exirel** (cyazypyr)	10–17 fl oz	0.4 lb a.i.	12	1	Reapplications at least 5 days apart.
	28 + 6	**Minecto Pro** (cyantraniliprole + abamectin)	7.5–10 fl oz	20 fl oz per year	12	7	Must add an adjuvant. No more than 2 sequential applications. See label for adjuvant requirement.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
European corn borer	3A + 28	***Besiege** (lambda-cyhalothrin + chlorantraniliprole)	6–9 fl oz	27 fl oz per year	24	14	Reapplication at least 7 days apart.
	5	**Radiant SC** (spinetoram)	6–8 fl oz	32 fl oz per year	4	7	Reapplications at least 7 days apart. No more than 4 applications per year.
	22A	**Avaunt eVo** (indoxacarb)	3.5–6.0 oz	24 oz; 72 oz per year	12	7	Reapplications at least 5 days apart.
	28	**Coragen** (rynaxypyr)	3.5–7.5 fl oz	15.4 fl oz	4	14	Foliar or overhead sprinkler irrigation systems only.
	28	**Exirel** (cyazypyr)	5–20.5 fl oz CPG: 5–13.5 fl oz Flea beetles: 13.5–20.5 fl oz	0.4 lb a.i. per year	12	1	Reapplications at least 5 days apart.
Fire ants	6	**Clinch** (abamectin)	1 lb	4 lb per year	12	0	Reapplications at least 30 days apart. Apply when ants are actively foraging. No more than 4 applications per year.
	7A	**Extinguish** (S-methoprene)	1.0–1.5 lb	–	4	0	Slow-acting IGR (insect growth regulator). Best applied early spring and fall where crop will be grown. Colonies will be reduced after 3 weeks and eliminated after 8–10 weeks. May be applied by ground equipment or aerially.
Leaf-footed bugs, plant bugs, stink bugs, mealybugs, false chinch bugs	1A	**Sevin XLR, 4F; 80S** (carbaryl)	**XLR, 4F**: 0.5–2.0 qt **80S**: 0.63–2.5 lb	**XLR, 4F**: 6 qt **80S**: 7.5 lb	12	7	–
	1B	**Malathion 5EC, 8F** (malathion)	**5EC**: 1.5–2.5 pt **8F**: 1–1.5 pt	1.56 pt	12	0	No more than 2 applications per year.
	3A	***Asana XL (0.66 EC)** (esfenvalerate)	2.9–9.6 fl oz	0.35 lb a.i.	12	7	No more than 7 applications at highest rate.
	3A	***Baythroid XL** (beta-cyfluthrin)	0.8–2.8 fl oz	16.8 fl oz	12	0	Reapplications at least 5 days apart.
	3A	***Pounce 25 WP** (permethrin)	6.4–12.8 oz	0.8 lb a.i.	12	14	–

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]
	3A	***Warrior II** (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7	Only exposed insects can be controlled.
	3A + 4A	***Endigo ZC** (lambda-cyhalothrin + thiamethoxam)	3.5–4.5 fl oz	10 fl oz	24	14	Do not use with other Group 4A insecticides.
	3A + 28	***Besiege** (lambda-cyhalothrin + chlorantraniliprole)	6–9 fl oz	27 fl oz per year	24	14	Reapplications at least 7 days apart.
	29	**Beleaf 50 SG** (flonicamid)	2.0–2.8 oz	8.4 oz	12	7	Begin applications before pest populations reach damaging levels.
Leafhoppers	1A	***Lannate LV; *SP** (methomyl)	**LV**: 1.5–3.0 pt **SP**: 0.5–1.0 lb	**LV:** 15 pt **SP**: 5 lb	48	6	No more than 10 applications per crop
	1A	**Sevin XLR, 4F; 80 S** (carbaryl)	**XLR, 4F**: 0.5–2.0 qt **80S**: 0.63–2.5 lb	**XLR, 4F**: 6 qt **80S**: 7.5 lb	12	7	–
	1B	**Dimethoate 4EC** (dimethoate)	0.5–1.0 pt	2 pt per year	48	Mechanically harvested: 0 Otherwise: 14	Highly toxic to bees. Reapplications at least 7 days apart.
	1B	**Imidan 70 W** (phosment)	1.3 lb	6.6 lb	5days	7	Reapplications at least 10 days apart. Use only on potatoes to be harvested by machine. Do not apply where bees are foraging.
	1B	**Malathion 5EC, 8F** (malathion)	**5EC**: 1.5–2.5 pt **8F**: 1–1.5 pt	1.56 pt	12	0	No more than 2 applications per year.
	1B	***Thimet 20 G** (phorate)	Light or sandy soils: 8.5–11.3 oz/1000 row ft Heavy or clay soils: 13–17.3 oz/1000 row ft	Light or sandy soils: 11.5 lb Heavy or clay soils: 17.7 lb	48	90	Apply at planting. No more than 1 application per season.
	3A	***Asana XL (0.66 EC)** (esfenvalerate)	2.9–9.6 fl oz	0.35 lb a.i.	12	7	No more than 7 applications at highest rate.
	3A	***Baythroid XL** (beta-cyfluthrin)	0.8–2.8 fl oz	16.8 fl oz	12	0	Reapplications at least 5 days apart.
	3A	***Mustang Maxx** (zeta-cypermethrin)	1.9–4.3 fl oz	25.8 fl oz	12	1	–

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	3A	***Pounce 25 WP** (permethrin)	6.4–12.8 oz	0.8 lb a.i.	12	14	–
	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]
	3A	***Warrior II** (lambda-cyhalothrin)	0.96–1.92 fl oz	7.68 fl oz	24	7	Only exposed insects can be controlled.
	3A + 4A	***Endigo ZC** (lambda-cyhalothrin + thiamethoxam)	3.5–4.5 fl oz	10 fl oz	24	14	Do not use with other Group 4A insecticides.
	3A + 28	***Besiege** (lambda-cyhalothrin + chlorantraniliprole)	5–8 fl oz	27 fl oz per year	24	14	Reapplication at least 7 days apart.
	4A	**Admire Pro** (imidacloprid)	Soil: 5.7–8.7 fl oz Seed-piece: 3.5–7 fl oz Foliar: 1.3 fl oz	Soil and seed-piece: 8.7 fl oz per year Foliar: 5.6 fl oz per year	12	Foliar: 7	Do not use treated seed-pieces for food, feed, or fodder.
	4A	**Assail 30SG** (acetamiprid)	1.5–4.0 oz	16 oz per year	12	7	Reapplications at least 7 days apart. No more than 4 applications per year.
	4A	**Platinum 75SG** (thiamethoxam)	1.66–2.67 oz	2.67 oz	12	Applied at planting or at plant emergence	No more than 1 soil application per year.
	4A	**Scorpion 35SL** (dinotefuran)	Foliar: 2–2.75 fl oz Soil: 11.5–13.25 fl oz	Foliar: 8 fl oz Soil: 13.25 fl oz	12	Foliar: 7 Soil: Apply prior to planting	Apply as foliar or soil application, but not both. Do not apply where bees are foraging. Toxic to bees for 38 hr after application.
	4A	**Venom Insecticide** (dinotefuran)	Foliar: 2–4 oz Soil: 6.5–7.5 oz	Foliar: 6 fl oz Soil: 7.5 oz	12	At planting	Do not use with other Group 4A insecticides. Do not apply where bees are foraging. Toxic to bees for 38 hr after application.
	4A + 28	**Voliam Flexi** (thiamethoxam + chlorantraniliprole)	4 oz	8 oz	12	14	Reapplications at least 7 days apart. No more than 2 applications.
	4C	**Transform WG** (sulfoxaflor)	0.75–1.0 oz	8.5 oz	24	7	Bloom and tank-mix restrictions apply.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	4D	**Sivanto Prime** (flupyradifurone)	7–14 fl oz	28 fl oz	4	7	Reapplications at least 7 days apart.
	21A	**Torac** (tolfenpyrad)	17–21 fl oz	42 fl oz	12	1	Do not apply until 14 days after emergence.
	28 + 6	**Minecto Pro** (cyantraniliprole + abamectin)	5.5–10 fl oz	20 fl oz per year	12	7	Must add an adjuvant. No more than 2 sequential applications. See label for adjuvant requirement.
Leafminers	1B	**Dimethoate 4EC** (dimethoate)	0.5–1.0 pt	2 pt per year	48	Mechanically harvested: 0 Otherwise: 14	Highly toxic to bees. Reapplications at least 7 days apart.
	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]
	5	**Entrust SC** (spinosad)	3–10 fl oz	21 fl oz	4	7	Do not apply to consecutive generations of Colorado potato beetle. No more than 4 applications per crop. OMRI-listed.[3]
	6	***Agri-Mek SC** (abamectin)	1.75–3.5 fl oz	0.056 lb a.i. per year	12	14	No more than 2 sequential applications. Must be applied with nonionic activator-type wetting, spreading, or penetrating adjuvant.
	17	**Trigard** (cyromazine)	2.66–5.32 oz	1.0 lb	12	7	Most effective for control of 1st and 2nd instar larvae. Does not control adult CPB. Use lower rate for leafminers.
	21A	**Torac** (tolfenpyrad)	17–21 fl oz	42 fl oz	12	1	Do not apply until 14 days after emergence.
	28	**Coragen** (rynaxypyr)	3.5–5.0 fl oz	15.4 fl oz	4	14	Foliar or overhead sprinkler irrigation systems only.
	28 + 6	**Minecto Pro** (cyantraniliprole + abamectin)	7.5–10 fl oz	20 fl oz per year	12	7	Must add an adjuvant. No more than 2 sequential applications. See label for adjuvant requirement.
Mites	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	6	***Agri-Mek SC** (abamectin)	1.75–3.5 fl oz	0.056 lb a.i. per year	12	14	No more than 2 sequential applications. Must be applied with nonionic activator-type wetting, spreading, or penetrating adjuvant.
	23	**Oberon 2SC** (spiromesifen)	8–16 fl oz	32.0 fl oz	12	7	No more than 2 applications.
Potato tuberworm	1A	***Lannate LV; *SP** (methomyl)	**LV**: 1.5–3.0 pt **SP**: 0.5–1.0 lb	**LV**: 15 pt **SP**: 5 lb	48	6	No more than 10 applications per crop.
	3A	***Ambush 25W** (permethrin)	3.2–12.8 oz	1.6 lb a.i.	12	14	Apply by air or ground equipment.
	3A	***Asana XL (0.66 EC)** (esfenvalerate)	2.9–9.6 fl oz	0.35 lb a.i.	12	7	No more than 7 applications at highest rate.
	3A	***Baythroid XL** (beta-cyfluthrin)	0.8–2.8 fl oz	16.8 fl oz	12	0	Reapplications at least 5 days apart.
	3A	***Pounce 25 WP** (permethrin)	6.4–12.8 oz	0.8 lb a.i.	12	14	–
	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Toxic to bees. OMRI-listed.[3]
	3A + 28	***Besiege** (lambda-cyhalothrin + chlorantraniliprole)	6–9 fl oz	27 fl oz per year	24	14	Reapplications at least 7 days apart.
	15	**Rimon 0.83EC** (novaluron)	6–12 fl oz	24 oz	12	14	Does not affect adult insects.
	28	**Coragen** (rynaxypyr)	3.5–5.0 fl oz	15.4 fl oz per crop	4	14	Foliar or overhead sprinkler irrigation systems only.
Thrips	3A	**Pyganic Crop Protection EC 5.0** (pyrethrins)	4.5–15.61 fl oz	15.61 fl oz	12	0	Highly toxic to bees. OMRI-listed.[3]
	5	**Entrust SC** (spinosad)	3–10 fl oz	21 fl oz	4	7	No more than 4 times per crop. OMRI-listed.[3]
	5	**Radiant SC** (spinetoram)	6–8 fl oz	32 fl oz per year	4	7	Reapplications at least 7 days apart. No more than 4 applications per year.
	21A	**Torac** (tolfenpyrad)	17–21 fl oz	42 fl oz	12	1	Do not apply until 14 days after emergence.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
Whiteflies	4A	**Belay Insecticide** (clothianidin)	In-furrow or side dress: 9–12 fl oz Foliar: 2–3 fl oz	0.2 lb a.i. per year	12	Foliar: 14, or at planting or side dress or spray at ground crack over row at hilling	Do not apply during bloom or allow to drift to flowering plants. Toxic to bees for 5 days after application.
	4A	**Venom Insecticide** (dinotefuran)	Foliar: 3–4 oz Soil: 5–6 oz	6 oz	12	Foliar: 1 Soil: apply at planting or immediately after transplanting	Do not use with other Group 4A insecticides. Do not apply where bees are foraging. Toxic to bees for 38 hr after application.
	4C	**Transform WG** (sulfoxaflor)	2.0–2.25 oz	8.5 oz	24	7	Bloom and tank-mix restrictions apply.
	4D	**Sivanto Prime** (flupyradifurone)	7–14 fl oz	28 fl oz	4	7	Reapplications at least 7 days apart.
	9B	**Fulfill** (pymetrozine)	2.75–5.5 oz	11 oz	12	14	Apply when whiteflies first appear.
	9B	**PQZ** (pyrifluquinazon)	2.4–3.2 fl oz	4.8 fl oz	12	14	No more than 2 applications per year.
	15	**Rimon 0.83EC** (novaluron)	6–12 fl oz	24 oz	12	14	Does not affect adult insects.
	23	**Movento** (spirotetramat)	4.0–5.0 fl oz	10 fl oz	24	7	Reapplications at least 7 days apart.
	23	**Oberon 2SC** (spiromesifen)	8–16 fl oz	32.0 fl oz	12	7	No more than 2 applications.
	28 + 6	**Minecto Pro** (cyantraniliprole + abamectin)	10 fl oz	20 fl oz per year	12	7	Must add an adjuvant. No more than 2 sequential applications. See label for adjuvant requirement.
Wireworms	1B	***Mocap 15 G, *EC** (ethoprop)	1.4 lb/1000 row feet	6 lb a.i.	48	Preplant or at planting	Use broadcast application for moderate to heavy infestations of wireworms.
	1B	***Thimet 20 G** (phorate)	Light or sandy soils: 8.5–11.3 oz/1000 row ft Heavy or clay soils: 13–17.3 oz/1000 row ft	Light or sandy soils: 11.5 lb Heavy or clay soils: 17.7 lb	48	90	Apply at planting. No more than 1 application per season.

Insects	MOA Code[1]	Trade Name (Active Ingredient)	Max Rate/Acre		REI (Hours)	Days to Harvest	Remarks[3]
			Appl.	Season[2]			
	2B	***Regent 4SC** (fipronil)	3.2 fl oz	3.2 fl oz	0	90	Many plant-back restrictions. Only 1 in. furrow application at time of planting. Must be incorporated and covered with soil. See label for rate per row spacing.
	3A	***Brigade 2 EC** (bifenthrin)	Soil at plant: 19.2 oz Soil at layby: 3.2–9.6 oz	32 fl oz	12	21	No more than 2 foliar applications. Reapplications at least 21 days apart.
	3A	**Capture LFR** (bifenthrin)	12.75–25.5 fl oz	25.5 fl oz	–	–	In-furrow at planting.
	4A	**Admire Pro** (imidacloprid)	Soil: 5.7–8.7 fl oz Seed-piece treatment: 3.5–7 fl oz	8.7 fl oz	12	–	Do not use treated seed-pieces for food, feed, or fodder.
	4A	**Belay Insecticide** (clothianidin)	In-furrow or side dress application: 12 fl oz Seed-piece: 0.4–0.3 fl oz/100 lb seed	0.2 lb a.i. per year	12	–	Do not use treated seed-pieces for food, feed, or fodder.
	4A	**Platinum 75SG** (thiamethoxam)	1.66–2.67 oz	2.67 oz	12	Applied at planting or at plant emergence	For wireworms: seed-piece only**.** No more than 1 soil application per year.

[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 a 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.
OMRI-listed: Listed by the Organic Materials Review Institute for use in organic production.
*Restricted use insecticide**.**

Table 5. Potato 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: Pamela D. Roberts, UF/IFAS Southwest Florida 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	
Botrytis gray mold	M3	(mancozeb) **Many brands available:** Dithane DF Rainshield, Dithane F45 Rainshield, Dithane M45, Fortuna 75WDG, Koverall, Mancozeb Flowable, Manzate Pro-Stick, Nubark Mancozeb, Penncozeb 4FL, Penncozeb 75DF, Penncozeb 80WP, Roper DF Rainshield	See individual label	See individual label	3	1	–
	M3 + M5	**Elixir** (mancozeb + chlorothalonil)	2 lb	18 lb	7	1	Suppression.
	M5	(chlorothalonil) **Many brands available**: Bravo Ultrex, Bravo ZN, Bravo Weather Stik 6L, Chloronil 720, Chlorothalonil 720SC, Echo 720, Echo 90DF, Echo ZN, Equus DF, Equus 500 ZN, Equus 720SST, Initiate 720, Initiate ZN, Orondis Opti B	See individual label	See individual label	7	0.5	–
	M5 + 49	**Orondis Opti** (chlorothalonil + oxathiapiprolin)	2.5 pt	10 pt per year	7	0.5	See label.
	3	**Quash** (metconazole)	2.5 oz	7.5 oz	1	0.5	Follow resistance management recommendations on label.
	3 + 11	**Delaro** (prothioconazole + trifloxystrobin)	11.4 oz	22.8 oz	14	0.5	–
	7	**Endura 70WP** (boscalid)	10 oz	20 oz	10	0.5	–
	7	**Vertisan** (penthiopyrad)	24 fl oz	72 fl oz	7	0.5	No more than 2 sequential applications.
	3 + 7	**Luna Pro** (fluopyram + protioconazole)	10 fl oz	20 fl oz per year	14	0.5	No more than 2 sequential applications.
	7 + 9	**Luna Tranquility** (fluopyram + pyrimethanil)	11.2 fl oz	43.6 fl oz	7	0.5	No more than 2 sequential applications. Suppression.
	7 + 11	**Priaxor** (fluxapyroxad)	8 fl oz	24 fl oz	7	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	**Scala SC** (pyrimethanil)	7 fl oz	35 fl oz	7	0.5	Use only in a tank-mix with labeled fungicide for early blight.
	9 + 12	**Alerity 62.5 WG** (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	–
	11 + 4	**Quadris Ridomil Gold** (azoxystrobin + mefenoxam)	0.82 fl oz/1000 row ft	See label		0	Apply at planting. Suppression.
	12 + 7	**Miravis Prime** (fludioxonil + pydiflumetofen)	11.4 fl oz	34.2 fl oz per year	14	0.5	–
Early blight (*Alternaria solani*)	M1	(copper compounds) **Many brands available:** Americop, Badge SC, Badge X2, Basic Copper 53, COC DF, COCS WDG, COC WP, Champ DP Dry Prill, Champ 2 FL, Champion WP, Champ WG, Copper-Count-N, Copper sulfate crystals, Copper-Z 4/4, Cueva, Cuprofix MZ Disperss, Cuprofix Ultra 40 Disperss, Kentan DF, Kocide 2000, Kocide 3000, Kocide DF, Nordox 75WG, Nu-Cop 3L, Nu-Cop 50DF, Nu Cop 50WP, Nu-Cop HB, Quimag Copper Sulfate Crystal	See individual label	See individual label	Varies by product from 0–1 day	Varies by product from 4 hr to 2 days	–
	M1 + M3	**ManKocide 61.1DF** (copper hydroxide + mancozeb)	5 lb	74.66 lb	3	2	–
	M3	(mancozeb) **Many brands available:** Dithane DF Rainshield, Dithane F45 Rainshield, Dithane M45, Fortuna 75WDG, Koverall, Mancozeb Flowable, Manzate Pro-Stick, Nubark Mancozeb, Penncozeb 4FL, Penncozeb 75DF, Penncozeb 80WP, Roper DF Rainshield	See individual label	See individual label	3	1	No more than 11.2 lb a.i. per crop.
	M3	**Polyram 80DF** (metiram)	2 lb	14 lb	3	1	No more than 7 applications per season.
	M3 + M5	**Elixir** (mancozeb + chlorothalonil)	2 lb	18 lb	7	1	–

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
	M5	(chlorothalonil) **Many brands available:** Bravo Ultrex, Bravo Weather Stik 6L, Bravo ZN, Chloronil 720, Chlorothalonil 720SC, Echo 720, Echo 90DF, Echo ZN, Equus 500 ZN, Equus 720SST, Equus DF, Initiate 720, Initiate ZN, Orondis Opti B	See individual label	See individual label	7	0.5	Read label for application directions.
	M5 + 27	**Cymbol Advance** (chlorothalonil + cymoxanil)	2.0 pt	17.5 pt per year	14	0.5	–
	M5 + 49	**Orondis Opti** (chlorothalonil + oxathiapiprolin)	2.5 pt	10 pt per year	7	0.5	See label.
	2	**Nevado 4F** **Rovral 4F** (iprodione)	2 pt	8 pt	14	1	No more than 4 applications per crop. See individual See label for additional information.
	3	**Provysol** (mefentrifluconazole)	5 fl oz	15 fl oz	7	0.5	–
	3	**Quash** (metconazole)	2.5 oz	7.5 oz	1	0.5	Follow resistance management recommendations on label.
	3 + 7	**Luna Pro** (fluopyram + protioconazole)	10 fl oz	20 fl oz per year	14	0.5	No more than 2 sequential applications.
	3 + 11	**Delaro** (prothioconazole + trifloxystrobin)	11.4 oz	22.8 oz	14	0.5	–
	3 + 11	**Veltyma** (mefentrifluconazole + pyraclostrobin)	10 fl oz	30 fl oz	7	0.5	–
	4 + M3	**Ridomil Gold MZ** (mancozeb + mefenoxam)	2.5 lb	See label	3	2	Also labeled for storage rots (Pink Rot and Leak).
	4 + M5	**Ridomil Gold Bravo SC** (chlorothalonil + mefenoxam)	2.5 pt	See label	14	2	No more than 4 applications per crop. Also labeled for storage rots (Pink Rot and Leak).
	7	**Endura 70WP** (boscalid)	10 oz	20 oz	10	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	
	7	**Velum Prime** (fluopyram)	See label for ground or aerial application rates.	See label for ground or aerial application rates.	7	0.5	No more than 2 sequential applications.
	7	**Vertisan** (penthiopyrad)	24 fl oz	72 fl oz	7	0.5	No more than 2 sequential applications.
	7 +7	**Velum Rise** (penflufen + fluopyram)	13 fl oz	13 fl oz per year	–	0.5	See label for application information to apply as soil treatment
	7 + 9	**Luna Tranquility** (fluopyram + pyrimethanil)	11.2 fl oz	43.6 fl oz	7	0.5	No more than 2 sequential applications.
	7 + 11	**Priaxor** (fluxapyroxad)	8 fl oz	24 fl oz	7	0.5	No more than 2 sequential applications.
	9	**Scala SC** (pyrimethanil)	7 fl oz	35 fl oz	7	0.5	Use only in a tank-mix with labeled fungicide for early blight.
	9	**Vango WG** (cyprodinil)	7 oz	28 oz	0	0.5	–
	9 + 12	**Alerity 62.5 WG** (cyprodinil + fludioxonil)	14 oz	56 oz	0	0.5	–
	11	**Many brands available:** Acadia LCF, Aframe, AzoxysSar, Azoxyzone, , Satori, Trevo, Quadris, (azoxystrobin)	See individual label	–	–	–	Alternate with non-group 11 chemistry. See label for soilborne disease applications.
	11	**Aproach** (picoxystrobin)	12 fl oz	36 fl oz	3	0.5	Alternate with non-group 11 chemistry.
	11	**Evito 480SC** **Aftershock** (fluoxastrobin)	3.8 fl oz	22.8 fl oz	7	0.5	No more than 6 applications per crop. Alternate with non-group 11 chemistry.
	11	**Gem 500SC** **Flint Extra** **Trilex** (trifloxystrobin)	3.8 fl oz	23 fl oz	7	0.5	No more than 6 applications per crop. Alternate with non-group 11 chemistry.

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
	11	**Headline 2.09F** (pyraclostrobin)	12 fl oz	72 fl oz	3	0.5	Alternate with non-group 11 chemistry.
	11	**Reason 500SC** (fenamidone)	8.2 fl oz	24.6 fl oz	14	0.5	Alternate with non-group 11 chemistry.
	11 + M5	**Quadris Opti** (azoxystrobin + chlorothalonil)	1.6 pt	See label	14	0.5	Alternate with non-group 11 chemistry.
	11 + 3	**Amistar Top** **Acadia ESQ** **Quadris Top** (azoxystrobin + difenoconazole)	14 fl oz	55.3 fl oz	14	0.5	No more than 2 consecutive applications before switching to another effective fungicide with a different mode of action.
	12 + 7	**Miravis Prime** (fludioxonil + pydiflumetofen)	11.4 fl oz	34.2 fl oz per year	14	0.5	–
	19	**OSO 5%SC** (polyoxin D zinc salt)	13 fl oz	78 fl oz	0	4 hr	–
	19	**Ph-D** (polyoxin D zinc salt)	6.2 oz	31 oz	0	0	No more than 5 applications per season. Alternate with fungicides that have different modes of action.
	22 + M3	**Gavel 75DF** (zoxamide + mancozeb)	2.0 lb	12 lb	3	2	This product contains 66.7% mancozeb, so do not exceed maximum allowed for mancozeb considering this and other mancozeb-containing products.
	22 + M5	**Zing!** (zoxamide + chlorothalonil)	34 fl oz	1.52 lb zoxamide and 8.8 lb chlorothalonil	7	0.5	No more than 2 consecutive applications before switching to another effective fungicide with a different mode of action.
	27 + M5	**Ariston** (cymoxanil + chlorothalonil)	2 pt	17.5 pt cymoxanil and 11.25 lb a.i. chlorothalonil	14	0.5	–
	27 + 11	**Tanos** (cymoxanil + famoxadone)	8 oz	48 oz	14	0.5	Do not make consecutive applications. Rotate to material with 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	
	28	**Previcur Flex** (propamocarb hydrochloride)	1.2 pt	6.0 pt	14	0.5	Use with a tank mix. See label for seed-piece treatment.
	30	**Agri Tin** (triphenyltin hydroxide)	3.75 oz	11.5 oz	7	2	–
	30	**Super-Tin 4L** (triphenyltin hydroxide)	6 fl oz	18 fl oz	7	2	For use with closed tractor cabs only. Super-Tin should be tank-mixed with another fungicide.
	40 + 3	**Revus Top** (mandipropamid + difenoconazole)	7 fl oz	28 fl oz	14	0.5	No more than 2 consecutive applications.
Fusarium tuber rot	M3	(mancozeb) **Many brands available:** Dithane DF Rainshield, Dithane F45 Rainshield, Dithane M45, Fortuna 75WDG, Koverall, Mancozeb Flowable, Manzate Pro-Stick, Nubark Mancozeb, Penncozeb 4FL, Penncozeb 75DF, Penncozeb 80WP, Roper DF Rainshield	See individual label	See individual label	3	1	See label for seed-piece treatment.
	1	**Mertect 340-F** (thiabendazole)	0.42 fl oz/ 2,000 lb of tuber	–	–	0.5	–
	7 + 3	**Emesto Silver** (penflufen + prothioconazole)	0.31 fl oz/100 lb seed pieces	–	–	–	See label for seed-piece treatment.
	12	**Dyna-Shield** **Fludioxonil** **Maxim** (fludioxonil)	See individual label	–	–	–	See label for equipment requirements.
	27 + M3 + 1	**Evolve** (cymoxanil + mancozeb + thiophanate-methyl)	0.75 lb/100 lb cut seed pieces	–	–	1	Potato seed-piece treatment.

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
Late blight (*Phytophthora infestans*)	M1	(copper compounds) **Many brands available:** Americop, Badge SC, Badge X2, Basic Copper 53, COC DF, COCS WDG, COC WP, Champ 2 FL, Champ DP Dry Prill, Champion WP, Champ WG, Copper-Count-N, Copper sulfate crystals, Copper-Z 4/4, Cueva, Cuprofix MZ Disperss, Cuprofix Ultra 40 Disperss, Kentan DF, Kocide 2000, Kocide 3000, Kocide DF, Nordox 75WG, Nu-Cop 3L, Nu-Cop 50DF, Nu Cop 50WP, Nu-Cop HB, Quimag Copper Sulfate Crystal	See individual label	See individual label	Varies by product from 0–1 day	Varies by product from 4 hr to 2 days	–
	M1 + M3	**ManKocide 61.1DF** (copper hydroxide + mancozeb)	5 lb	74.66 lb	3	2	–
	M3	(mancozeb) **Many brands available:** Dithane DF Rainshield, Dithane F45 Rainshield, Dithane M45, Fortuna 75WDG, Koverall, Mancozeb Flowable, Manzate Pro-Stick, Nubark Mancozeb, Penncozeb 4FL, Penncozeb 75DF, Penncozeb 80WP, Roper DF Rainshield	See individual label	See individual label	3	1	No more than 11.2 lb a.i. per crop.
	M3	**Polyram 80DF** (metiram)	2 lb	14 lb	3	1	No more than 7 applications per season.
	M3 + M5	**Elixir** (mancozeb + chlorothalonil)	2 lb	18 lb	7	1	–
	M5	(chlorothalonil) **Many brands available:** Bravo Ultrex, Bravo Weather Stik 6L, Bravo ZN, Chloronil 720, Chlorothalonil 720SC, Echo 720, Echo 90DF, Echo ZN, Equus 500 ZN, Equus 720SST, Equus DF, Initiate 720, Initate ZN, Orondis Opti B	See individual label	See individual label	7	0.5	Read label for application directions.
	M5 + 27	**Cymbol Advance** (chlorothalonil + cymoxanil)	2.0 pt	17.5 pt per year	14	0.5	–
	M5 + 49	**Orondis Opti** (chlorothalonil + oxathiapiprolin)	2.5 pt	10 pt per year	7	0.5	See label.
	3 + 11	**Veltyma** (mefentrifluconazole + pyraclostrobin)	10 fl oz	30 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	
	4 + M1	**Ridomil Gold Copper 64.8W** (mefenoxam + copper hydroxide)	See individual label	See individual label	14	2	No more than 3 applications per crop of this product + other Ridomil products. Add protectant fungicide; see label. Also for storage rots (Pythium leak, Pink Rot)
	4 + M3	**Ridomil Gold MZ** (mancozeb + mefenoxam)	2.5 lb	See label	3	2	Also labeled for storage rots (Pink Rot and Leak)
	4 + M5	**Ridomil Gold Bravo SC** (chlorothalonil + mefenoxam)	2.5 pt	See label	14	2	No more than 4 applications per crop. Also labeled for storage rots (Pink Rot and Leak)
	7 + 11	**Priaxor** (fluxapyroxad + pyraclostrobin)	8 fl oz	24 fl oz	7	0.5	No more than 2 sequential applications.
	11	**Many brands available:** Acadia LFC, Aframe, AzoxyStar, Azoxyzone, Quadris Satoria (azoxystrobin)	See individual label	–	–	–	Alternate with non-group 11 chemistry between applications. See label for soilborne disease applications.
	11	**Evito 480SC** **Aftershock** (fluoxastrobin)	3.8 fl oz	22.8 fl oz	7	0.5	No more than 6 applications per crop. Alternate with non-group 11 chemistry.
	11	**Gem 500SC** **Flint Extra** (trifloxystrobin)	3.8 fl oz	23 fl oz	7	0.5	No more than 6 applications per crop. Alternate with non-group 11 chemistry.
	11	**Headline** (pyraclostrobin)	12 fl oz	72 fl oz	3	0.5	Alternate with non-group 11 chemistry between applications.
	11	**Reason 500SC** (fenamidone)	8.2 fl oz	24.6 fl oz	14	0.5	Alternate with non-group 11 chemistry between applications.
	11 + M5	**Quadris Opti** (azoxystrobin + chlorothalonil)	1.6 pt	See label	14	0.5	Alternate with non-group 11 chemistry between applications.

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
	19	**OSO 5%SC** (polyoxin D zinc salt)	13 fl oz	78 fl oz	0	4 hr	Suppression only.
	21	**Ranman** (cyazofamid)	2.75 fl oz	27.5 fl oz	7	0.5	–
	22 + M3	**Gavel 75DF** (zoxamide + mancozeb)	2.0 lb	12 lb	3	2	This product contains 66.7% mancozeb, so do not exceed maximum allowed for mancozeb considering this and other mancozeb-containing products.
	22 + M5	**Zing!** (zoxamide + chlorothalonil)	34 fl oz	1.52 lb zoxamide and 8.8 lb chlorothalonil	7	0.5	No more than 2 consecutive applications before switching to another effective fungicide with a different mode of action.
	27	**Curzate 60DF** (cymoxanil)	3.2 oz	22.4 oz	14	0.5	No more than 7 applications per year. Use in combination with a protectant fungicide. It is best to alternate Curzate with other fungicides, such as mancozeb or chlorothalonil. Also labeled for seed treatment.
	27 + 11	**Tanos** (cymoxanil + famoxadone)	8 oz	48 oz	14	0.5	Do not make consecutive applications. Rotate to material with different mode of action.
	28	**Previcur Flex** (propamocarb hydrochloride)	1.2 pt	6.0 pt	14	0.5	Use with a tank-mix. See label for seed-piece treatment.
	29	**Omega 500F** (fluazinam)	5.5 fl oz	3.5 pt	14	2	Rate is higher for white mold.
	30	**Agri Tin** **Super-Tin** (triphenyltin hydroxide)	See individual label	–	7	2	–
	30	**Super-Tin 80WP** (triphenyltin hydroxide)	6 fl oz	18 fl oz	7	2	For use with closed tractor cabs only. Super Tin should be tank-mixed with another fungicide.

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
	33	(mono- and dipotassium salts of phosphorous acid) **Many brands available:** Alude, Confine Extra, K-Phite, Fosphite, Fungi-Phite, Phiticide, Phostrol, ProPhyt, Rampart, Reveille	See individual label	–	–	–	–
	40	**Forum** (dimethomorph)	6 oz	30 oz	4	0.5	Tank-mix with another chemistry. No more than 2 sequential applications before alternating to a non-group 40 fungicide.
	40	**Revus** (mandipropamid)	8 fl oz	32 fl oz	14	4 hr	No more than 2 consecutive applications.
	40 + 3	**Revus Top** (mandipropamid + difenoconazole)	7 fl oz	28 fl oz	14	0.5	No more than 2 consecutive applications.
	45 + 40	**Zampro** (ametoctradin + dimethomorph)	14 fl oz	42 fl oz	4	0.5	No more than 2 consecutive applications.
	49 + 40	**Orondis Ultra** (oxathiapiprolin + mandipropamid)	8 fl oz	32 fl oz per year	7	–	See label.
Pythium, Pink rot, and Phytophthora seed decays	4	**MetaStar 2E AG** (metalaxyl)	8 pt	–	–	2	See label for banding applications; for use at planting.
	4	**Ridomil Gold SL** **Orondis Gold B** **Ultra Flourish** (mefenoxam)	See individual label	See individual label	–	2	At planting.
	4 + M1	**Ridomil Gold Copper 64.8W** (mefenoxam + copper hydroxide)	2 lb	6 lb	14	2	No more than 3 applications per crop of this product + other Ridomil products. Add protectant fungicide; see label. Also for storage rots (Pythium leak, Pink Rot).
	4 + M3	**Ridomil Gold MZ** (mefenoxam + mancozeb)	2.5 lb	See label	3	2	Also labeled for storage rots (Pink Rot and Leak).

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
	4 + M5	**Ridomil Gold Bravo SC** (mefenoxam + chlorothalonil)	2.5 pt	See label	14	2	No more than 4 applications per crop. Also labeled for storage rots (Pink Rot and Leak).
	21	**Ranman** (cyazofamid)	2.75 fl oz	27.5 fl oz	7	0.5	Alternate with non-group 11 chemistry between applications.
	22	**Elumin** (ethaboxam)	8 fl oz	16 fl oz	N/A	0.5	At planting or side-dress between hilling and tuber initiation at least 25 days apart
	27	**Curzate 60DF** (cymoxanil)	3.2 oz	22.4 oz	14	0.5	No more than 7 applications per year. Use in combination with a protectant fungicide. It is best to alternate Curzate with other fungicides such as mancozeb or chlorothalonil. Also labeled for seed treatment.
	33	(mono- and dipotassium salts of phosphorous acid) **Many brands available:** Alude, Confine Extra, Fosphite, Fungi-Phite, K-Phite, Phiticide, ProPhyt, Phostrol, Rampart, Reveille	See individual label	–	–	–	–
	40 + 4	**Orondis Gold** (oxathiapiprolin + mefenoxam)	27.8	–	–	–	At planting. See label.
Rhizoctonia, black scurf, and stem canker (*Rhizoctonia solani*)	M3	(mancozeb) **Many brands available:** Dithane DF Rainshield, Dithane F45 Rainshield, Dithane M45, Fortuna 75WDG, Koverall, Mancozeb Flowable, Manzate Pro-Stick, Nubark Mancozeb, Penncozeb 4FL, Penncozeb 75DF, Penncozeb 80WP, Roper DF Rainshield	See individual label	See individual label	3	1	See label for seed-piece treatment.
	7	**Moncut 70DF** (flutolanil)	1.1 lb	–	–	0.5	In-furrow use only.

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
	7	**Vertisan** (penthiopyrad)	24 fl oz	72 fl oz	7	0.5	No more than 2 sequential applications.
	7 + M3	**Moncoat MZ** (flutolanil + mancozeb)	1.0 lb/100 lb seed	–	–	1	Seed treatment.
	7 + 3	**Emesto Silver** (penflufen + prothioconazole)	0.31 fl oz/100 lb seed pieces	0.93 fl oz	–	0.5	See label for seed treatment details.
	7 +7	**Velum Rise** (penflufen + fluopyram)	13 fl oz	13 fl oz per year	–	0.5	See label for application information to apply as soil treatment.
	7 + 11	**Elatus** (azoxystrobin + benzovindiflupyr)	5 oz/1000 linear ft	–	14	–	In-furrow use only.
	11	**Azoxystrobin 100ST** **Azoyzone** **Dynasty** **Quadris** (azoxystrobin)	See label	–	–	4 hr	Seed treatment.
	11	**Headline** (pyraclostrobin)	0.8 fl oz/1000 linear ft	–	–	0.5	In-furrow use only.
	12	**Dyna-Shield** **Maxim** **Spirato** (fludioxonil)	0.8 fl oz/100 lb seed	–	–	0.5	Seed treatment.
	12 + M3	**Maxim MZ** (fludioxonil + mancozeb)	0.5 lb/100 lb seed	–	–	1	Seed treatment.
	14	**Blocker 10G** **Blocker 4F** (PCNB)	See label.	–	–	–	At planting.
	27 + M3 + 1	**Evolve** (cymoxanil + mancozeb + thiophanate-methyl)	0.75 lb/100 lb cut seed pieces	–	–	1	Potato seed-piece treatment.
Soft rot	25	**Agri-Mycin 17** **Harbour** (streptomycin)	100 ppm	–	–	0.5	Seed treatment. Check individual labels for specific rates and instructions.

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
Soilborne pathogens (see specific pathogens)	M2	(mancozeb) **Many brands available:** Dithane DF Rainshield, Dithane F45 Rainshield, Dithane M45, Fortuna 75WDG, Koverall, Mancozeb Flowable, Manzate Pro-Stick, Nubark Mancozeb, Penncozeb 4FL, Penncozeb 75DF, Penncozeb 80WP, Roper DF Rainshield	See individual label	See individual label	3	1	See label for seed-piece treatment.
	11	**Dynasty** (azoxystrobin)	3.75 fl oz/100 lb seed	–	–	4 hr	For suppression of black scurf and stem canker and seed-borne black dot and for protection against silver scurf.
	12	**Maxim 4FS** **Spirato** (fludioxonil)	0.16 oz/100 lb seed	–	–	0.5	Seed treatment. Must be made using specific equipment.
	12	**Maxim Potato Seed Protectant** **Maxim PSP** (fludioxonil)	0.5 lb/100 lb seed	–	–	0.5	Seed treatment.
	12 + M3	**Maxim MZ** (fludioxonil + mancozeb)	0.5 lb/100 lb seed	–	–	1	Seed treatment.
White mold (*Sclerotinia sclerotiorum*)	1	**Incognito 4.5F, Topsin M WSB** (thiophanate-methyl)	See individual label	See individual label	21	2	–
	2	**Meteor, Nevado 4F, Rovral 4F** (iprodione)	See individual label	See individual label	14	1	No more than 4 applications per crop. See individual label for additional information.
	3	**Quash** (metconazole)	4.0 oz	7.5 oz	1	0.5	Follow resistance management recommendations on label.
	3 + 7	**Luna Pro** (fluopyram + protioconazole)	10 fl oz	20 fl oz per year	14	0.5	No more than 2 sequential applications.
	3 + 11	**Delaro** (prothioconazole + trifloxystrobin)	11.4 oz	22.8 oz	14	0.5	–
	7	**Endura 70WP** (boscalid)	10 oz	20 oz	10	0.5	Suppression.

Pertinent Diseases or Pathogens	Fungicide Group[1]	Chemical (Active Ingredients)	Max Rate/Acre		Min. Days to		Remarks[3]
			Appl.	Season[2]	Harvest	Reentry	
	7	**Velum Prime** (fluopyram)	See label for ground or aerial application rates.	See label for ground or aerial application rates.	7	0.5	No more than 2 sequential applications.
	7	**Vertisan** (penthiopyrad)	24 fl oz	72 fl oz	7	0.5	No more than 2 sequential applications.
	7 +7	**Velum Rise** (penflufen + fluopyram)	13 fl oz	13 fl oz per year	–	0.5	See label for application information to apply as soil treatment.
	7 + 9	**Luna Tranquility** (fluopyram + pyrimethanil)	11.2 fl oz	43.6 fl oz	7	0.5	No more than 2 sequential applications. Suppression.
	7 + 11	**Priaxor** (fluxapyroxad + pyraclostrobin)	8 fl oz	24 fl oz	7	0.5	No more than 2 sequential applications. Suppression.
	11	**Aproach** (picoxystrobin)	12 fl oz	36 fl oz	3	0.5	Alternate with non-group 11 chemistry.
	11	**Headline** (pyraclostrobin)	12 fl oz	72 fl oz	3	0.5	Alternate with non-group 11 chemistry between applications.
	12 + 7	**Miravis Prime** (fludioxonil + pydiflumetofen)	11.4 fl oz	34.2 fl oz per year	14	0.5	–
	19	**OSO 5%SC** (polyoxin D zinc salt)	13 fl oz	78 fl oz	0	4 hr	–
	29	**Omega 500F** (fluazinam)	5.5 fl oz	3.5 pt	14	2	–

[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 same number or letter) indicate same active ingredient or 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 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.

Table 6. Nonfumigant nematicides for potatoes in Florida. Contact: Johan Desaeger, UF/IFAS Gulf Coast Research and Education Center.

Product	Broadcast or Overall Rates		Row Rates	
	Per acre	Per 1000 sq ft	Per acre, 36" row spacing	Per 1000 row ft, any row spacing
Mocap 15G (a.i. ethoprop)	40–60 lb	0.9–1.4 lb	20 lb	1.4 lb
Mocap EC* (a.i. ethoprop)	1–1.5 gal	2.9–4.4 fl oz	2 qt	4.4 fl oz
Vydate C-LV** (a.i. oxamyl)	–	–	1–2 gal	9.8–19.5 oz
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 (recropping) intervals for a variety of crops.			
Velum (a.i. fluopyram)	Apply max 6.84 fl oz/A using overhead chemigation equipment. No more than 13.7 fl oz/A of Velum (0.446 lb/A fluopyram) per year regardless of formulation (Velum or Luna) or method of application (soil or foliar). Do not apply within 7 days of harvest. For soil application, to limit the potential for development of disease resistance to this chemical class, the first foliar fungicide application after Velum should be a product from a different FRAC group.			
Salibro (a.i. fluazaindolizine)	Apply 30.7–61.4 fl oz/A (1–2 lb a.i./A) as preplant incorporated or 15.6–61.4 fl oz/A for in-furrow treatment. 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 and no more than 30.7 fl oz/A applied post-emergence. No more than 2 applications per calendar year. Reentry interval is 12 hr. Reapplications at least 14 days apart. Preharvest interval: Do not apply within 40 days of harvest.			
Biological nematicides	See chapter 19.			

*Do not apply Mocap in furrow because it can cause crop injury when in contact with the seed piece. Do not apply Mocap where sorghum will be grown during the same year because its residual activity may cause serious injury to sorghum. Mix into the top 2–4 in. of soil. No more than 9 lb a.i./A Mocap 15G and 12 lb a.i./A for Mocap EC.
**Vydate C-LV has registration for nematode suppression in potatoes as an in-furrow and foliar treatment program only. Each application of Vydate C-LV should be applied in a minimum of 20 gal of water per acre, the spray solution water always buffered to a pH of 5.0 or lower. No more than 2.4 gal/A (9 lb a.i./A) per season or 8 applications of Vydate C-LV per crop; the last application should be made at least 7 days prior to harvest.
Mocap and Vydate are insecticide-nematicides; Velum is a fungicide-nematicide; Nimitz is a true nematicide. Unlike fumigants, these products are not volatile and will move through the soil via water; depending on the water solubility, these products will have different recommendations as for how to best apply them (see specific label recommendations); when nematode pressure is high, they may not be as consistently effective against root nematodes as the fumigants.

Table 7. Fumigant nematicides for potatoes in Florida. Contact: Johan Desaeger, UF/IFAS Gulf Coast Research and Education Center.

Nematicide	Broadcast Application[1]		In-the-Row Applications
	Gallons or lb per Acre	fl oz/1000 ft/chisel-spaced 12" apart	
Telone II[2,3]	9–12 gal	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 gal	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 gal	38.2–60.2	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.
Pic-Clor 60	19–31.5 gal	57–90	For any row spacing, application rates should never exceed the labeled maximum for broadcast applications. Consult the product label for additional detail.
Chloropicrin 99%	150–350 lb	–	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 gal	–	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 gal	–	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 gal	–	For drip or in-row fumigation and crop termination, consult product label for proportionately reduced overall rates, drip concentration, and flow-modifying directions

[1] Gallons/acre and fl oz/1,000 ft provided only for mineral soils. Higher rates may be possible for heavier-textured (loam, silt, clay) or highly organic soils.
[2] All 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 Personal Protective Equipment (PPE), mandatory good agricultural practices (GAPs), applicator training certification, and other new rate modifying recommendations.
[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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