

# Weed Management in Pepper<sup>1</sup>

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Peppers are present in the field in some area of Florida every month of the year. Over this period, variable climatic conditions influence the diversity of weed species present, as well as the severity with which weeds affect peppers. Growers should plan a weed-control program that integrates chemical, mechanical, and cultural methods to fit their weed problems and production practices.

Total-farm weed management is more complex than row middle weed control because several different sites and possibly also several herbicide-label restrictions are involved. Often weed species in row middles differ from weeds on the rest of the farm, and this difference between weed species in different locations might dictate different approaches to weed management. Sites other than row middles where weeds are likely include roadways, fallow fields, equipment parking areas, well and pump areas, fencerows and associated perimeter areas, and ditches.

Disking is probably the least expensive weed control procedure for fallow fields. Where weed growth is mostly grasses, clean cultivation is not as important as in fields infested with nightshade and other disease hosts, including insects. In the latter situation, weed growth should be kept to a minimum throughout the year. If cover crops are

planted, those crops should be plants that do not serve as hosts for pepper diseases and insects. Some perimeter areas are easily disked, but berms and field ditches are not, so some form of chemical weed control may have to be used on those areas.

Bare ground can lead to other serious problems, such as soil erosion and sandblasting of plants. However, where undesirable plants exist, some control should be practiced, if practical, and replacement of undesirable plant species with less troublesome ones, such as bahiagrass, might be worthwhile.

Certainly fencerows and areas around buildings and pumps should be kept weed free, if for no other reason than safety. Herbicides can be applied in these situations, provided care is exercised to keep the herbicide from drifting onto the pepper crop.

Use of rye as a windbreak is a common practice in the spring; however, in some cases, it can have adverse effects. If undesirable insects, such as thrips, build up on the rye, contact and systemic grass herbicides can be applied to kill the rye, eliminating it as a host, while the remaining stubble continues to serve as a windbreak.

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The greatest row middle weed problems confronting the pepper industry today are nightshade and dodder.

Nightshade has developed varying levels of resistance to some postemergence herbicides in different areas of Florida. Best control with postemergence (directed) contact herbicides is obtained when the nightshade is 4–6 in. tall, rapidly growing, and not stressed. Two applications of herbicide in about 50 gal. per acre, using a good surfactant, is usually necessary. With postdirected contact herbicides, several studies have shown that gallonage above 60 gal. per acre actually dilutes the herbicides and, therefore, reduces efficacy. Good leaf coverage can be obtained with a volume of 50 gal. or less per acre.

A good surfactant can do more to improve the wetting capability of a spray than increasing the water volume. Many adjuvants are available commercially. Some adjuvants contain more active ingredient than others, and herbicide labels may specify a minimum active ingredient rate for the adjuvant in the spray mix. Before selecting an adjuvant, refer to the herbicide label to determine the adjuvant specifications.

Keep in mind, however, that herbicide performance depends on weather, irrigation, soil type, proper selection for weed species to be controlled, and accurate application and timing. Obtain consistent results by reading the herbicide label and other information about proper application and timing of each herbicide. Use only labeled herbicides and use those herbicides in the proper formulation. Use of an herbicide that is not labeled for use on peppers—even if the herbicide may be labeled for row middles in crops that are closely related to peppers, such as tomatoes and eggplant—may damage peppers. When applying an herbicide for the first time in a new area, use only in a small trial area.

Crop destruction at the end of the season is important to prevent the spread of disease, viruses, and insects. Diquat (Reglone Dessicant®) can be sprayed for crop destruction. Use a minimum of 35 gal./A to increase crop coverage and improve complete plant death.

Table 1 contains herbicides that should be applied before planting. Table 2 contains chemical control of weeds after planting. Before applying an herbicide, *carefully read and follow the label.*

Table 1. Pretransplant chemical weed control in peppers.

Active ingredient lb. a.i./A	(Trade name) amount of product/A	MOA code	Weeds controlled / remarks
Bensulide 5–6	(Prefar®) 4 E 5–6 qt.	8	Broadleaves and grasses. Incorporate mechanically 1–2 in. deep or with irrigation 2–4 in. deep.
Carfentrazone Up to 0.031	(Aim®) 2 EC or 1.9 EW Up to 2 fl. oz.	14	Apply as a preplant burndown for emerged broadleaf weeds up to 4 in. tall or rosettes less than 3 in. across. Good coverage is essential. A nonionic surfactant, methylated seed oil, or crop oil concentrate is recommended. No pretransplant interval.
Clomazone 0.25 to 1	(Command) 3ME 0.67-2.67 pt.	15	Annual broadleaves and grasses.
Flumioxazin Up to 0.128	(Chateau®) 51 WDG Up to 4 oz.	14	Annual broadleaves and grasses. Apply to row middles of raised plastic mulched beds that are at least 4 in. higher than the treated row middles and with a 24 in. bed width. Label is a Third-Party Registration (TPR, Inc.). Use without a signed authorization and waiver of liability is a misuse of the product. Tank mix with a burndown herbicide to control emerged weeds. 0 day pretransplant interval.
Fomesafen 0.25–0.38	(Reflex®) 2 SC 1–1.5 pt.	14	Broadleaves and yellow/purple nutsedge. Suppression of some annual and perennial grasses. Label is a 24(C) local indemnified label and a waiver of liability must be signed for use. Transplanted crop only. May be applied to bareground production 7 days before transplanting or to a formed bed but prior to laying plastic. Use shields or hooded sprayers if applying to row middles and prevent contact with plastic mulch. 7 and 0 day pretransplant interval on bareground and plastic mulch, respectively. PHI 60 days.
Glyphosate 0.3–1.0	(Various formulations) Consult labels	9	Emerged broadleaves, grasses, and nutsedge. Apply as a preplant burndown. Allow 3 days between application and planting. Consult label for individual product directions.
Halosulfuron 0.024–0.05	(Sanda®) 75 DF 0.5–1 oz.	2	Broadleaves and yellow/purple nutsedge suppression. Apply to row middles only. Do not exceed 2 oz./A per 12 month period. PHI 30 days.
Lactofen 0.25–0.5	(Cobra®) 2 EC 16–32 fl. oz.	14	Broadleaves. Label is a Third-Party Registration (TPR, Inc.). Use without a signed authorization and waiver of liability is a misuse of the product. Apply to the row middles only with a shielded or hooded sprayer. Cobra® in contact with green foliage or fruit can cause excessive injury. Drift of Cobra® treated soil particles onto plants can cause contact injury. Limit of 1 PRE and 1 POST application per growing season. PHI 30 days.
S-metolachlor 0.64–0.95	(Dual Magnum®) 7.62 EC 0.67–1.0 pt.	15	Annual broadleaves, grasses, and suppression of yellow/purple nutsedge. Label is a Third-Party registration (TPR, Inc.). Use without a signed authorization and waiver of liability is a misuse of the product. Apply to the finished bed immediately before laying the plastic. Do not exceed 1.68 pt. of Dual Magnum®/A per crop cycle. PHI 60 days.
Napropamide 1–2	(Devrinol®) 50 DF 2–4 lb.	15	Annual broadleaves. Apply to bed tops after forming beds, but before plastic application. Rainfall or overhead irrigate to 1 in. within 24 hr. of application. For row-middle treatments, do not apply between bloom and harvest and do not exceed 2 lb. a.i./A per crop cycle.
Oxyfluorfen 0.25–0.5	(Goal®) 2 XL 1–2 pt. (GoalTender®) 4 E 0.5–1 pt.	14	Broadleaves. Apply as a preemergence broadcast to preformed beds or banded treatment. 30-day pretransplant interval. Mulch may be applied any time during the 30-day interval.
Paraquat 0.5–1.0	(Gramoxone Inteon®) 2 SL 2.0–4.0 pt. (Firestorm®) 3 SL 1.3–2.7 pt.	22	Emerged broadleaves and grasses. Apply as a preplant burndown treatment. Surfactant recommended.
Pelargonic acid	(Scythe®) 4.2 EC 3%–10% v/v		Emerged broadleaves and grasses. 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.
Pendimethalin 0.48–0.72	(Prowl® H <sub>2</sub> O) 3.8 1.0–1.5 pt.	3	Annual broadleaves and grasses. May be applied to row middles or under the plastic. Do not exceed 3.0 pt./A per year. PHI 70 days.

Active ingredient lb. a.i./A	(Trade name) amount of product/A	MOA code	Weeds controlled / remarks
Pyraflufen 0.0008–0.003	(ET® Herbicide) 0.208 EC 0.5–2.0 fl. oz.	14	Emerged broadleaves less than 4 in. tall or rosettes less than 3 in. diameter. Apply as a preplant burndown treatment. Nonionic surfactant or crop oil concentrate recommended.
Sulfentrazone 0.09	Willowwood sulfentrazone 3 fl. oz.	14	Broadleaves, grasses, and nutsedge. Apply under the plastic mulch or in row middles. Do not use on soils with less than 1% organic matter.
Trifluralin 0.5–0.75	(Treflan®, Trifluralin, Trifluralin HF) 4 EC 1–1.5 pt. (Treflan® TR-10) 5–7.5 lb.	3	Annual broadleaves and grasses. Incorporate 4 in. or less within 8 hr. of application. Results in Florida are erratic on soils with low organic matter and clay contents. Note label precautions against planting noncrops within 5 months. Do not apply after transplanting. PHI 60 days.

Table 2. Posttransplant weed control in pepper

Active ingredient lb. a.i./A	(Trade name) amount of product/A	MOA code	Weeds controlled / remarks
Carfentrazone Up to 0.31	(Aim®) 2 EC or 1.9 EW Up to 2 oz.	14	Emerged broadleaves. Apply as hooded application to row middles only. May be tank mixed with other herbicides. Do not exceed 6.1 fl. oz. per cropping season. A nonionic surfactant, methylated seed oil, or crop oil concentrate is recommended. PHI 0 days.
Clethodim 0.09–0.13 0.07–0.13	(Select®, Arrow®) 2 EC 6–8 fl. oz. (Select Max®) 1 EC 9–16 fl. oz.	1	Perennial and annual grasses. Use higher rates under heavy grass pressure or larger weeds. Surfactant or crop oil concentrate recommended. Consult label. PHI 20 days.
Diquat 0.5	(Reglone®) 2 EC 1 qt.	22	Broadleaves and grasses. Apply to row–middles only. Maximum of 2 applications per season. Prevent drift to crop. Nonionic surfactant recommended. PHI 30 days.
Halosulfuron 0.024–0.05	(Sanda®) 75 DF 0.5–1 oz.	2	Broadleaves and yellow/purple nutsedge. Apply to row–middles only. Do not exceed 2 oz./A per 12 month period. Nonionic surfactant recommended. PHI 30 days.
Imazosulfuron 0.19–0.3	(League™) 0.5 DF 4–6.4 oz.	2	Broadleaves and yellow/purple nutsedge suppression. Pepper must be well established and 10 in. tall. Direct sprays to base of the stem and avoid contact with leaves or fruit. Do not exceed 6.4 oz./A per crop season. Observe crop rotation restrictions. Nonionic surfactant recommended. PHI 21 days.
S-metolachlor 0.95	(Dual Magnum®) 7.62 EC 1.0 pt.	15	Annual broadleaves, grasses, and yellow/purple nutsedge. Label is a Third-Party Registration (TPR, Inc.). Use without a signed authorization and waiver of liability is a misuse of the product. Direct spray solution to row–middles only with minimal contact to plants and plastic. Do not exceed 1.68 pt. Dual Magnum®/A per crop. PHI 60 days.
Paraquat 0.5	(Gramaxone®) 2 SL 2 pt. (Firestorm®) 3 SL 1.3 pt.	22	Emerged broadleaves and grasses. Direct spray over emerged weeds 1 to 6 in. tall in the row middles between mulched beds. Use low pressure and shields to control drift. Do not apply more than 3 times per season. Nonionic surfactant recommended.
Pelargonic acid	(Scythe®) 4.2 EC 3%–10% v/v		Emerged broadleaves and grasses. 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.
Pendimethalin 0.48–0.72	(Prowl H2O) 3.8 1.0–1.5 pt.	3	Broadleaves and grasses. May be applied posttransplant to row middles if previously untreated. Do not exceed 3.0 pt./A per year. PHI 70 day.
Sethoxydim 0.19–0.28	(Poast®) 1.5 EC 1.0–1.5 pt.	1	Actively growing grasses. A total of 4.5 pt./A applied in one season. Unsatisfactory results may occur if applied to grasses under stress. Crop oil concentrate recommended. PHI 20 days.
<b>Postharvest</b>			
Diquat 0.5	(Reglone Dessiccant) 2.0 pt.	22	Minimum of 35 gal./A thorough coverage is required. Nonionic surfactant recommended.