HS199

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Weed Control in Pepper[1]

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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 possible herbicide-label restrictions, too, 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, fence rows 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.

We do not advocate bare ground on the farm as this can lead to other serious problems, such as soil erosion and sand blasting 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 fence rows 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 has become a common practice in the spring; however, in some cases, adverse effects have resulted. If undesirable insects --

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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.

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

Nightshade has developed varying levels of resistance to some post-emergence herbicides in different areas of Florida. Best control with post-emergence (directed) contact herbicides is obtained when the nightshade is 4 - 6 inches tall, rapidly growing and not stressed. Two applications of herbicide in about 50 gallons per acre, using a good surfactant, is usually necessary. With post-directed contact herbicides, several studies have shown that gallonage above 60 gal per acre will actually dilute the herbicides and, therefore, reduce 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 can 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.

Dodder is a parasitic plant that emerges in row middles. The dodder plants then will infect a weed in the row middle and bridge to the pepper plants. If a pepper is "infected" by dodder, control of the dodder in the row middle will not control the "infection," and the dodder plant may bridge to other pepper plants in the row. Control of dodder then necessitates control of all weeds in the row middles, as well as control of young dodder seedlings. Contact herbicides labeled for row middles will also control young, emerged dodder. Dual and Dacthal applied preemergence also will control dodder.

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 cause damage to peppers. When applying a herbicide for the first time in a new area, use only in a small trial area.

To avoid confusion between formulations, suggested rates listed in Table 1 are stated in pounds active ingredient per acre (lb ai/acre).

Before application of a herbicide, *carefully read and follow the label.*

Table 1. Chemical Weed Control: Peppers

Herbicide	Labeled crops	Time of application to crop	Rate (lbs. AI./Acre)	
			Mineral	Muck
Bensulide (Prefar 4E) (Prefar 6E)	Pepper	Preplant incorporated Preemergence	5-6	
Remarks: Preplant incorporate using power-driven cultivations or may be incorporated using irrigation. Controls many grasses. Provides fair-to-good control of lambsquarter, purslane and amaranths.				
Carfentrazone (Aim)	Pepper	Preplant Directed-hooded Row-middles	0.031	0.031
Remarks: Aim may be applied as a preplant burndown treatment and/or as a post-directed hooded application to row middles for the burndown of emerged broadleaf weeds. May be tank mixed with other registered herbicides. May be applied at up to 2 oz (0.031 lb ai). Use a quality spray adjuvant -- such as crop oil concentrate (coc) or non-ionic surfactant -- at recommended rates.				
Clethodim (Select 2 EC) (Arrow) (SelectMAX)	Pepper (bell and non-bell)	Postemergence	0.09-0.125	
Remarks: Postemergence control of actively growing annual grasses. Apply at 6-8 fl oz/acre. Use high rate under heavy grass pressure and/or when grasses are at maximum height. Always use a crop-oil concentrate at 1% v/v in the finished spray volume. Do not apply within 20 days of tomato harvest. Rates for SelectMAX range from 9 to 16 fl oz/A with the use of a non-ionic surfactant.				
Clomazone (Command)	Pepper (all except banana)	Preemergence	0.25-1.0	
Remarks: May be utilized as a preemergent, soil-applied treatment for the control of annual grasses and certain broadleaf weeds, including common ragweed, galinsoga, lambsquarter, prickly sida, purslane, Florida pusley, and others. Make a single application at a rate of 2 pts. (1 lb ai) per acre prior to seeding or transplanting. Incorporate to a depth of 1 inch or less and place seed or transplant below chemical barrier. May be tank mixed with other herbicides registered for use in peppers. May be applied to all pepper varieties including bell, hot pimento and sweet, except banana.				
DCPA (Dacthal W-75)	Established pepper	Posttransplanting after crop establishment (non mulched) Mulched row middles after crop establishment	6.0-8.0	
Remarks: Controls germinating annuals. Apply to weed-free soil 4 - 6 weeks after crop is transplanted or seeded crop is 4 - 6 inches in height and growing rapidly or apply to moist soil in row middles after crop establishment. Note label cautionary statements about replanting non-registered crops within eight months.				
Flumioxazin (Chateau)	Fruting Vegetables Pepper	Directed Row-middles	0.125	
Remarks: Chateau may be applied up to 4 oz product/application to row middles of raised, plastic-mulched beds that are at least 4 inches higher than the treated row middle and the mulched bed, which must be a minimum of a 24-inch bed width. Do not apply after crops are transplanted/seeded. All applications must be made with shielded or hooded equipment. For control of emerged weeds, a burn down herbicide may be tank-mixed. Label is a Third-Party registration (TPR, Inc.). Use without a signed authorization and waiver of liability is a misuse of the product.				
Halosulfuron (Sandea)	Pepper	Row middle	0.024-0.048	
Remarks: Sandea may be applied between rows of direct-seeded or transplanted pepper for the control of nutsedge and other listed broadleaf weeds. Avoid contact of the herbicide with the planted crop. Application to be made at 1/2 - 1 oz. product/A. Do not apply more than 2 oz. per crop cycle. Use a non-ionic surfactant in the spray mix.				
Glyphosate (Roundup, Durango, Touchdown, Glyphomax)	Pepper	Chemical Fallow, Preplant, Pre emergence, Pre transplant	0.3 - 1.0	
Remarks: Roundup, Glyphomax and Touchdown have several formulations. Check the label of each for specific labeling directions.				

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			Mineral	Muck
S-Metolachlor (Dual Magnum)	Pepper	Pretransplant Posttransplant	0.64-0.095	
Remarks: For pre-transplant application, apply as a directed spray to preformed beds. Apply to the soil surface of the bed as the last step immediately prior to the plastic laying operation. Apply at a maximum rate of 0.64-0.95 lbs ai (0.67-1 pint) per acre. For post-transplant, apply as a directed, shielded spray to pepper row middles between plastic rows. Label is a third-party registration (TPR, Inc). Use of Dual Magnum on bell pepper row middles without a signed authorization and waiver and limitation of liability agreement is a misuse of the product.				
Lactofen (Cobra)	Fruiting Vegetables	Row middles	0.25-0.5	
Remarks: Third Party label for use pre-transplant or post-transplant shielded or hooded to row middles. Apply 16 - 32 fluid oz per acre. A minimum of 24 fl oz is required for residual control. Add a COC or non-ionic surfactant for control of emerged weeds. 1 pre and 1 post application may be made per growing season. Cobra contacting green foliage or fruit can cause excessive injury. Drift of Cobra-treated soil particles onto plants can cause contact injury. Do not apply within 30 days of harvest. The supplemental label must be in the possession of the user at the time of application.				
Napropamide (Devrinol 50-WP) (Devrinol 50-DF)	Pepper	Preplant incorporated	1.0 - 2.0	
Remarks: Apply to well worked soil that is dry enough to permit thorough incorporation to a depth of 1-2 inches. Incorporate same day as applied. For direct-seeded or transplanted pepper. Does not control established weeds.				
Napropamide (Devrinol 2E) (Devrinol 50DF)	Pepper	Surface treatment	2.0	
Remarks: Controls germinating annuals. Apply to bed tops after bedding, but before plastic application. Within 24 hours of treatment, rainfall or overhead-irrigate should wet soil to 1 inch in depth. May be applied to row middles between mulched beds. A Special Local Needs 24(c) Label for Florida.				
Oxyfluorfen (Goal 2X L) (Goaltender)	Pepper	Fallow bed	0.25-0.5	
Remarks: Must have a 30-day treatment-planting interval. Apply as a preemergent broadcast or banded treatment to preformed beds at 1-2 pts/A. Mulch may be applied any time during the 30-day period.				
Paraquat (Gramoxone Inteon) (Firestorm)	Pepper	Preemergence, Pretransplant	0.63 - 0.94	
Remarks: Controls emerged weeds. Use a non-ionic spreader and thoroughly wet weed foliage.				
Paraquat (Gramoxone Inteon) (Firestorm)	Pepper	Post directed spray in row middle	0.47	
Remarks: Controls emerged weeds. Direct spray over emerged weeds that are 1 - 6 inches tall in row middles between mulched beds. Use a non-ionic spreader. Use low pressure and shields to control drift. Do not apply more than three times per season.				
Pelargonic Acid (Scythe)	Fruiting vegetables (pepper)	Preplant Preemergence Post-directed	3-10% v/v	
Remarks: Product is a contact, non-selective, foliar-applied herbicide. Provides no residual control. May be tank mixed with soil-residual herbicides. Consult label for rates and other information.				
Pendimethalin (Prowl H2O)	Pepper	Post directed Row Middles	0.0475-1.43	
Remarks: May be applied pre-transplant, but not under mulch. May be applied at 1 - 3 pts/A to row middles. Do not apply within 70 days of harvest.				
Sethoxydim (Poast)	Pepper (all types)	Postemergence	0.188 - 0.28	
Remarks: Controls actively growing grass weeds. Do not use on grasses under stress, or unsatisfactory results may occur. Several applications -- to a total of 4.5 pts. product per acre -- may be made per season. Do not apply within 20 days of harvest. Apply in 5 - 20 gals. of water plus 2 pts. of crop-oil concentrate per acre. Use 0.188 lb. ai. (1 pt.) to seedling grasses and up to 0.28 lb. ai. (1.5 pts.) to perennial grasses emerging from rhizomes, etc. Consult label for grass species and growth stage for best control.				

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Trifluralin (Treflan TR-10) (Treflan EC) (Treflan MTF) (Treflan 5)	Pepper	Pretransplant incorporated	0.75 - 1.0 0.50 - 1.0	
Remarks: Controls germinating annuals. Incorporate 4 inches or less within eight hours. Results in Florida are erratic on soils with low organic-matter and clay contents. Note label precautions against planting non-registered crops within five months. Do not apply after transplanting. Label states control of many grasses and broadleaf weeds, including Brachiaria, crabgrass, goosegrass, fall and Texas panicum, Florida pusley, pigweed, purslane and lambsquarter.				