

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

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Strawberries are produced in Florida on the annual hill system instead of the matted row system that is used in the more northern states. Because the production scheme is more closely related to other vegetables in Florida instead of the more perennial fruit crops, the strawberry is handled as a vegetable.

Florida's strawberry production was greater than 5,000 acres each year between 1990 and 2010. In 2011, Florida grew strawberry on 9,900. The production season is spread over 6–7 months, and the weed species present in the field change during that time. No herbicide could be expected to suppress weeds for the entire strawberry production season. A combination of weed control methods is needed.

Broad-spectrum fumigants at rates that control weeds, when used in combination with plastic mulch, greatly enhance weed, nematode, and soilborne disease control. Weeds can grow in the plant holes. Hand weeding along with herbicides can assist in alleviating this problem.

Weeds growing in the nonmulched row middles may be controlled through cultivation and herbicides. A hay or straw mulch placed between the plastic-covered beds also can assist in weed control, and it helps keep soil from splashing up onto the bed during rains, irrigation, and harvest traffic. One should take care not to bring in more problem weed seeds with the straw mulch.

Herbicides must be applied at exactly the correct rate and time to selectively control weed growth pretransplant (Table 1) and posttransplant (Table 2). Obtain consistent results by reading the herbicide label and other information about the proper application and timing of each herbicide. Herbicides applied to the row middles incorrectly may be absorbed by strawberry roots growing in the row middles, or the herbicide may move laterally under the plant bed with the soil water.

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Table 1. Pretransplant chemical weed control in strawberry.

Active Ingredient lb. a.i./A	(Trade name) amount of product/A	MOA code	Weeds controlled/remarks
Acifluorfen up to 0.375	(Ultra Blazer®) 1.5 pt.	14	Broadleaves. May be applied under the plastic mulch or with a shielded or hooded spray directed to row middles. 60 day PHI
Carfentrazone Up to 0.031	(Aim®) 2 EC or 1.9 EW Up to 2 fl. oz.	14	Broadleaves. Apply as a preplant burndown for emerged broadleaves up to 4 in. tall or rosettes less than 3 in. across. Good coverage is essential. Use of a crop oil concentrate, methylated seed oil, or nonionic surfactant is recommended. No pretransplant interval.
Flumioxazin 0.1	(Chateau®) 51 WDG 3 oz.	14	Broadleaves. May be applied under the plastic mulch or with a shielded or hooded spray directed to row middles before weed emergence. 30-day pre-transplant interval if applied under the plastic. Do not apply after fruit set.
Glyphosate	(Various formulations) Consult label	9	Emerged broadleaves and grasses. Apply as a preplant burndown. Consult label for individual product directions.
Napropamide 4	(Devrinol®) 2 EC 8 qt. (Devrinol® DF XT) 50 DF 8 lb.	15	Annual broadleaves and grasses. Apply under the plastic and in the row middles. Mechanically incorporated in the row middle to a 1–2 in. depth within 24 hr. of application. When applied under plastic, incorporate mechanically or with irrigation. Do not apply between bloom and harvest.
Oxyfluorfen 0.25–0.5	(Galigan® H <sub>2</sub> O, GoalTender®) 4 EC 0.5–1.0 pt. (Goal® 2XL) 2 EC 1–2 pt.	14	Broadleaves. Apply pretransplant just prior to installation of plastic mulch. 30 day pretransplant interval. Mulch may be applied any time during the 30 day interval.
Pelargonic acid	(Scythe®) 4.2 EC 3–10% v/v		Emerged broadleaves and grasses. Apply as a preplant burndown treatment. Product is a contact, nonresidual herbicide and can be tank mixed with residual preemergence herbicides to lengthen control.
Pendimethalin 0.72	(Prowl® H <sub>2</sub> O) 3.8 1.5 pt.	3	Broadleaves and grasses in the row middles. Do not apply under the plastic. In systems that use irrigation at planting, delay application until after irrigation regime. 35 day PHI.
Terbacil 0.2	(Sinbar® WDG) 80 WDG 4 oz.	3	Broadleaves, grasses, and some sedges. One application per crop of 4 oz./A after bedding but prior to transplanting. Rainfall or irrigation required. Do not apply to soils with less than 0.5% organic matter. 110 day PHI.

Table 2. Posttransplant chemical weed control in strawberry.

Active Ingredient lb. a.i./A	(Trade name) amount of formulation/A	MOA code	Weeds controlled/remarks
Acifluorfen 0.3	(Ultra Blazer®) 1.5 pt.	14	Broadleaves. Apply directed to the row middles with a shielded or hooded sprayer. Do not allow to contact strawberry plants. 60 day PHI.
Carfentrazone Up to 0.31	(Aim®) 2 EC or 1.9 EW Up to 2 oz.	14	Emerged broadleaf weeds. Apply as hooded application to row middles only. Use crop oil concentrate (COC) or nonionic surfactant (NIS) at recommended rates. May be tank mixed with other herbicides. Do not exceed 6.1 fl. oz. per cropping season. PHI 0 days.
Clopyralid 0.125-0.25	(Stinger) 3 EC 0.33-0.66 pt.	4	Broadleaves. Do not exceed 2/3 pt./A per year. Do not include a surfactant. 7 day PHI.
Clethodim 0.09–0.13 0.07–0.13	(Select®, Arrow®, Intensity® One) 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. 4 day PHI.
Glyphosate	(Various formulations) Consult label	9	Emerged broadleaves and grasses. Apply directed to the row middles. Injury has been observed from translocation from daughter plants in the row middle and mother plants. PHI 14 days. Also a spot treatment registration with 7-day PHI.
Pelargonic acid	(Scythe®) 4.2 EC 3–10% v/v		Emerged broadleaves and grasses. Direct spray to row middles. Do not allow spray to contact plants. May be tank mixed with several soil residual compounds.
Paraquat 0.5	(Gramoxone®) 2.0 SL 2 pt. (Firestorm®) 3.0 EC 1.3 pt.	22	Emerged broadleaves and grasses. Apply as a directed spray to row middles only. Do not allow spray to contact plants. Do not apply more than three times/season. 21 day PHI.
Sethoxydim 0.28–0.47	(Poast®) 1.5 EC 1.5–2.5 pt.	1	Emerged grasses. A maximum of 2.5 pt./A may be applied in one season. Include a COC. Unsatisfactory results may occur if applied to grasses under stress. PHI 7 days.

Table 3. Postharvest weed control in strawberry.

Active Ingredient lb. a.i./A	(Trade name) amount of formulation/A	Remarks
Paraquat 0.49	(Gramoxone®) 2.0 SL 1.95 pt.	Broadcast spray over the top of the plants after the last harvest. Thorough coverage is required to ensure maximum herbicide burndown. Do not use treated crop for human or animal consumption. Nonionic surfactant recommended.