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IFAS Extension

HS93

Weed Management in Peach[1]

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Proper weed management is important for a healthy peach orchard. Peach trees and weeds compete for water, nutrients, and light. North Carolina State University reported that 12 weeks of weed control after bloom increased total yield and fruit diameter as compared to a weedy plot (MacRae et al. 2007). Weeds serve as hosts for insects that cause catfacing and nematodes that carry viral diseases. Weeds use nutrients and water, thus limiting their availability to peach trees.

Peach growers use a system of turf and weed-free strips under the trees (Figure 1). A weed-free zone under the trees reduces the impact of weeds on peach tree growth. For the first 2–3 years, a strip 4–6 ft. wide is maintained weed free. After 3 years, the weed-free strip is widened to 10–12 ft. Turf strips are mowed or growth is chemically controlled on a regular basis. The turf minimizes erosion and provides an area for machinery and picking crews.

Nonchemical weed management practices are part of a complete weed management program. Cultivation was once a common practice for weed management in peaches. This management practice is not as widely used now because of tree root pruning, erosion, and reduced radiant heat in the spring. Reduce the spread of weed species by controlling the plants before seeds are produced and by cleaning mowing equipment. Mulches provide weed control but can be cost prohibitive.

Figure 1. Weed-free strip under peach trees and grass strips between rows
Credits: Peter J. Dittmar

Chemical control

Herbicides available for weed control in peaches are included in Tables 1 and 2. Because soil types in Florida vary, consult the labels for application rate restrictions based on soil type. Bearing trees are peach trees that are currently producing fruit. Nonbearing trees are peach trees that will not produce fruit for a year after application. The tables include preharvest intervals (PHI) and restricted-entry intervals (REI).

1. This document is HS93, one of a series of the Horticultural Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date October 1993. Revised January 2012. Visit the EDIS website at http://edis.ifas.ufl.edu.

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Practices for improving weed control with herbicides are as follows:

1) Herbicide selection. Preemergence herbicides control the weeds before they emerge from the seed or soil surface. Postemergence herbicides control weeds that have emerged through the soil surface.

2) Optimal timing. Preemergence herbicides should be applied in the early spring or fall before annual weeds emerge. Postemergence herbicide efficacy decreases as weeds grow. Consult the label for the correct size of weed to control.

3) Sufficient coverage. Herbicide labels require certain gallons per acre (GPA) or nozzle types for proper coverage. Before spraying, check that all nozzles have a correct spray pattern and correct output.

4) Adequate activation. Preemergence herbicides require rainfall or irrigation to move the herbicide into the soil profile where the weed seeds are present. Postemergence herbicides require a nonionic surfactant, crop oil concentrate, or methylated seed oil for increased herbicide uptake.

Herbicide resistance

Herbicide-resistant weeds are a continuous and growing concern for farmers. Methods for reducing the chances of herbicide resistance include the following:

1) Rotate herbicide's mode of action. Each herbicide's mode of action (MOA) is assigned a numerical group. Tables 1 and 2 list the MOA for each herbicide. Rotate between modes of action/numerical groups.

2) Include multiple MOA. Many herbicides allow for tank mixing herbicides. It is often suggested that preemergence herbicides be tank mixed with a postemergence herbicide. This method controls weeds that will emerge as well as weeds that have already emerged.

3) Managing known resistance. If an area of the field is known to have a resistant weed species, use mechanical weed removal and prevent the weed from producing seeds or other methods of propagation. Please contact your county Extension agent to have the weed resistance confirmed and documented.

References

MacRae, A. W., W. E. Mitchem, D. W. Monks, M. L. Parker, and R. K. Galloway. 2007. "Tree growth, fruit size, and yield response of mature peach to weed-free intervals." *Weed Technol.* 21 (1): 102–105.

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Table 1. Preemergence chemical weed control in peach

Common name (Trade name)	Amount of formulation/acre	Pounds of active ingredient/acre	Weeds controlled
Diuron, MOA 7 (Diuron, Karmex®, or Karmex® XP) 80 WDG (Diuron, Direx®) 4 L	2–2.75 lb. 1.6–2.2 qt.	1.6–2.2	Annual broadleaf and grass weeds
Remarks: Bearing trees. Use in established orchards at least 3 years of age. Do not apply more than 4.4 pt./A per application. If using furrow irrigation or raised-berm flood irrigation, apply only as a banded treatment. Karmex® DF PHI 20 days. Diuron 4 L PHI 3 months. REI 12 hours.			
Flumioxazin, MOA 14 (Chateau®) 51 WDG	6–12 oz.	0.19–0.38	Broadleaf and annual grass weeds
Remarks: Bearing and nonbearing trees. A maximum of 6 oz./A per application in soils with a sand plus gravel content greater than 80% on trees less than 3 years of age. Do not apply more than 24 oz./year. Best results if applied as a split application with a minimum of 30 days between applications. Avoid direct or indirect spray contact with foliage and green bark. Do not apply after flowering unless using a shielded sprayer. Do not apply to trees established less than 1 year unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers. Tank mix with burndown herbicides. PHI 60 days. REI 12 hours.			
Isoxaben, MOA 12 (Gallery® or Gallery® T&V) 75 DF	0.66–1.33 lb.	0.5–1.0	Certain broadleaf weeds
Remarks: Nonbearing trees. Direct spray solution to the base of the tree. Apply after a rain event or irrigation to settle soil around newly transplanted trees. Within 21 days of application, 0.5 in. or more of rainfall or irrigation is required for activation. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. REI 12 hours.			
Isoxaben, MOA 12 + **Oryzalin**, MOA 3 (Snapshot®) 2.5 TG	100–200 lb.	2.0–4.0 + 0.5–1	Certain broadleaf and annual grass weeds
Remarks: Nonbearing trees. Apply with a drop or rotary type spreader. Requires 0.5 in. or more of rainfall or irrigation within 3 days of application for activation. Do not exceed 600 lb. of product/A per year. Allow 60 days between applications. REI 12 hours.			
Norflurazon, MOA 12 (Solicam®) 80 WDG	1.25–1.50 lb.	0.98–1.18	Small-seed broadleaf and annual grass weeds
Remarks: Bearing and nonbearing trees. Do not apply until 6 months after planting. Temporary loss of pigment (whitening) in leaf veins may occur with normal use. Rainfall or irrigation is required within 4 weeks of application. Consult label for postemergence herbicides that can be tank mixed to broaden spectrum of weed control. Can be applied as a sequential application, but do not exceed 2.5 lb. a.i./A per year. Do not apply within 60 days of harvest. REI 12 hours.			
Oryzalin, MOA 3 (Oryzalin, Surflan®) 4 AS	2–6 qt.	2–6	Certain annual broadleaf and grass weeds
Remarks: Bearing and nonbearing. Apply as a sequential treatment with 2.5 months between applications. Do not exceed 12 lb. a.i./A per year. Irrigation or a rain event of 0.5–1 in. is required within 1 week of application. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. REI 24 hours.			
Oxyfluorfen, MOA 14 (Goal® 2 XL or Galigan®) 2 EC (Goaltender®) 4 E	5–8 pt. 2.5–4 pt.	1.25–1.5	Broadleaf weeds
Remarks: Bearing and nonbearing trees. Apply after dormancy is initiated and before bud break. Do not apply more than 1.5 lb. a.i./A per year in broadcast applications and 2 lb. a.i./A per year in banded applications. Direct spray solution to the base of the tree using a shielded sprayer. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. REI 24 hours.			
Pendimethalin, MOA 3 (Prowl® H_2O) 3.8 (Prowl®, Pendulum®) 3.3 EC	2.0–6.3 qt. 2.3–7.3 qt.	1.9–6.0	Broadleaf and grass weeds
Remarks: Nonbearing trees. Direct spray solution to the base of the tree. Apply during the dormant period. Apply as a single application or sequential application with 30 days between applications. After application, 1–2 in. of rainfall or irrigation are required for activation. For newly transplanted trees, apply after a rain or irrigation event settles soil around the roots. PHI 90 days. REI 24 hours.			
Pronamide, MOA 3 (Kerb®) 50 W	2–4 lb.	1–2	Certain broadleaf and grass weeds
Remarks: Bearing and nonbearing trees. Do not apply until 1 year after fall transplanting or 6 months after spring transplanting. Direct spray solution to the base of the tree after fruit harvest. Apply in the fall when temperatures are below 55°F and before soil freezes. Do not apply more than 4 lb. a.i./A or one application per year. REI 24 hours.			

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Common name (Trade name)	Amount of formulation/acre	Pounds of active ingredient/acre	Weeds controlled
Rimsulfuron, MOA 2 (Matrix® FNV, Matrix® SG) 25 WG	2–4 oz.	0.03–0.06	Certain broadleaf weeds and annual grasses
Remarks: Bearing and nonbearing trees. Apply after trees are 1 year old. Broadcast application is limited to one application per year at 4 oz./A per year. Banded application may be applied twice a year with 30 days between applications, not to exceed 4 oz./A per year. Direct spray solution to the base of the tree, avoiding contact with foliage and fruit (except undesirable suckers). Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. Do not apply within 14 days of harvest. REI 4 hours.			
Simazine, MOA 5 (Princep®, Simazine) 90 WDG (Princep®, Simazine) 4 L	1.77–4.4 lb. 1.6–4 qt.	1.6–4	Annual broadleaf and grass weeds
Remarks: Bearing and nonbearing trees. Do not apply more than 4 lb. a.i./A per calendar year. Apply half the maximum in the fall and the other half in the spring before weed emergence. Apply in late fall to early spring prior to weed emergence. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. REI 48 hours.			
Terbacil, MOA 5 (Sinbar®) 80 WP	0.5–2 lb.	0.4–1.6	Annual broadleaf and grass weeds
Remarks: *Nonbearing trees:* Apply to newly planted trees after a significant rainfall or irrigation that will allow soil to settle around the tree base. Make one to two applications per season; do not exceed 1 lb./A. *Bearing trees:* Apply 2 lb./A. Direct spray to the base of the tree and minimize contact with foliage and fruit. PHI 60 days. *Bearing and nonbearing:* Do not apply to soils containing less than 1% organic matter. Approximately 0.5–1.0 in. of rainfall or irrigation is required within 2 weeks of application. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. REI 12 hours.			
Trifluralin, MOA 3 (Triflurex®, Treflan®, Trust®) 4 EC (Treflan®, Trust®) 10 G	1–4 pt. 5–20 lb.	0.5–2	Annual broadleaf and grass weeds
Remarks: Bearing and nonbearing trees. Apply 0.5–0.75 lb. a.i./A for newly transplanted trees after soil has settled. Apply 1–2 lb. a.i./A for established trees. Within 3 days of application, 0.5–2 in. of rainfall or irrigation are required for activation. Consult label for restriction based on soil type. PHI 60 days. REI 12 hours.			

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Table 2. Postemergence chemical weed control in peach

Common name (Trade name)	Amount of formulation/acre	Pounds of active ingredient/acre	Weeds controlled
2,4-D, MOA 4 (Various formulations)		1.43	Broadleaf weeds
Remarks: Bearing and nonbearing. Consult individual labels for amount of formulation to include in spray solution. Do not apply during bloom. Trees must be at least 1 year old. Prevent drift from contacting foliage, fruit, stems, and trunk of the tree. Withhold irrigation 2 days before irrigation and 3 days after application. Do not apply more than 2 lb. a.i./A per application, and do not make more than two applications in a growing season. Allow 75 days between applications. PHI 40 days. REI 48 hours.			
Carfentrazone, MOA 14 (Aim®) 2 EC (Aim®) 1.9 EW	Up to 2.0 fl. oz. Up to 2.0 fl. oz.	Up to 0.031	Broadleaf weeds
Remarks: Apply to bearing and nonbearing trees. Consult label for appropriate rate based on weed species. Do not apply more than 0.124 lb. a.i./A in a growing season. Apply with a hooded sprayer direct to the base of the tree to reduce contact with green stem tissue, desirable fruit, blooms, and foliage. Applications must be 14 days apart. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. For control of undesirable suckers at the base of the tree, apply 0.031 lb. a.i./A. Suckers must be young and not mature. For all types of applications, include a nonionic surfactant at 0.25% v/v or crop oil concentrate at 1% v/v**.** PHI 3 days. REI 12 hours.			
Clethodim, MOA 1 (Arrow®, Select®) 2 EC (Select Max®) 1 EC	6–8 fl. oz. 9–16 fl. oz.	0.14–0.25	Annual and perennial grass weeds
Remarks: Nonbearing trees. Include a nonionic surfactant at 0.25% v/v. Direct the spray to the base of the tree. Do not apply more than 16 fl. oz./A in a single application and no more than 64 fl. oz./A per season. Only Select Max® may be applied to bearing trees; do not apply it within 14 days of harvest. REI 24 hours.			
Clopyralid, MOA 4 (Clopyr AG) 3 EC	0.33–0.66 pt.	0.12–0.25	Broadleaf weeds
Remarks: Bearing and nonbearing trees. Do not exceed 0.25 lb. a.i./A in a single application. Apply one to two broadcast applications per year. PHI 30 days. REI 12 hours.			
Diquat, MOA 22 (Diquat) 2 L	1.5–2.0 pt.	0.7–0.9	Broadleaf and grass weeds
Remarks: Nonbearing trees. Direct spray to the base of the tree to minimize contact with green stems and foliage. Include a nonionic surfactant at 0.06%–0.5%. REI 24 hours.			
Flumioxazin, MOA 14 (Chateau®) 51 WDG	6–12 oz.	0.19–0.38	Broadleaf and annual grass weeds
Remarks: Nonbearing trees. A maximum of 6 oz./A per application in soils that have a sand plus gravel content greater than 80% on trees less than 3 years of age. Do not apply more than 24 oz. per year. Best results if applied as a split application with a minimum of 30 days between applications. Avoid direct or indirect spray contact to foliage and green bark. Do not apply after flowering unless using a shielded sprayer. Do not apply to trees established less than 1 year unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers. Tank mix with burndown herbicides. REI 12 hours.			
Fluazifop, MOA 1 (Fusilade® DX) 2 EC	16–24 fl. oz.	0.25–0.38	Annual and perennial grass weeds
Remarks: Nonbearing trees. Direct spray solution to the base of the tree to minimize contact with leaves. Do not apply more than 72 fl. oz./A per season. Include nonionic surfactant at 0.25%–0.5% v/v or crop oil concentrate at 1% v/v. PHI 14 days. Do not apply when harvestable fruit are on the ground. REI 12 hours.			
Glyphosate, MOA 9 (Various formulations)		0.47–4.5	Broadleaf and grass weeds
Remarks: Bearing and nonbearing. Consult individual labels for rates. Do not exceed 9.6 lb. a.i./A in a single season. Direct spray solution to the base of the tree to minimize contact with desirable vegetation. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. PHI 17 days. REI 4 hours.			
Oxyfluorfen, MOA 14 (Goal® 2 XL or Galigan®) 2 EC (Goaltender®) 4 E	2–8 pt. 1–4 pt.	0.5–1.5	Broadleaf weeds
Remarks: Bearing and nonbearing trees. Apply after dormancy is initiated and before bud break. Lower rates for weeds up to the four-leaf stage and higher rates for weeds up to the six-leaf stage. Do not apply more than 1.5 lb. a.i./A per year in broadcast applications and 2 lb. a.i./A per year in banded applications. Direct spray solution to the base of the tree using a shielded sprayer. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. Include a nonionic surfactant at 2 pt. per 100 gal. of spray solution. REI 24 hours.			

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Common name (Trade name)	Amount of formulation/acre	Pounds of active ingredient/acre	Weeds controlled
Paraquat, MOA 22 (Gramoxone Inteon®) 2 SL (Firestorm®) 3 SL	2.5–4 pt. 1.7–2.7 pt.	0.63–1	Broadleaf and grass weeds
Remarks: Bearing and nonbearing trees. Use a shielded sprayer or wrap trees when spraying under young trees. Direct spray to the base of the trees to minimize drift to foliage, flowers, and fruits. Do not make more than three applications per year. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. PHI 14 days. REI 12 hours.			
Pelargonic Acid (Scythe®)	3%–10% v/v		Broadleaf and grass weeds
Remarks: Bearing and nonbearing trees. Contact herbicide that should be applied with a shielded sprayer and direct sprayed to the base of the tree to minimize contact with foliage and green bark. Consult label for control of suckers. Should be tank mixed with preemergence herbicide to broaden spectrum of weed control. REI 12 hours.			
Rimsulfuron, MOA 2 (Matrix® FNV, Matrix® SG) 25 WG	2–4 oz.	0.03–0.06	Certain broadleaf weeds and annual grasses
Remarks: Bearing and nonbearing trees. Apply after trees are 1 year old. Broadcast application is limited to one application per year at 4 oz./A. Banded application may be applied twice a year with 30 days between applications, not to exceed 4 oz./A per year. Use a nonionic surfactant at 0.125% v/v. Direct spray solution to the base of the tree, avoiding contact with foliage and fruit (except undesirable suckers). Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. PHI 14 days. REI 4 hours.			
Sethoxydim, MOA 1 (Poast®) 1.5 EC	1.5–2.5 pt.	0.3–0.5	Annual and perennial grass weeds
Remarks: Bearing and nonbearing trees. Include crop oil concentrate at 2 pt./A or methylated seed oil at 1.5 pt./A. Do not apply more than 2.5 pt./A in a single application. Do not exceed 5.0 pt./A per season. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. PHI 25 days. REI 12 hours.			