Archival copy: for current recommendations see http://edis.ifas.ufl.edu or your local extension office.

UF UNIVERSITY of FLORIDA
IFAS Extension

HS90

Weed Management in Blueberry[1]

Peter J. Dittmar and Jeffrey G. Williamson[2]

Blueberry growers use a system of turf and weed-free strips under the bushes. A weed-free zone under the bushes reduces the impact of weeds on blueberry bush growth. For the first 2–3 years, a strip 2–3 ft. wide is maintained weed free. After 3 years, the weed-free strip is widened to 4–5 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 blueberries. This management practice is not as widely used now because of bush 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. Polyethylene or landscape fabric mulches provide weed control but can be cost prohibitive.

Chemical Control

Herbicides available for weed control in blueberry are included in Tables 1 and 2. Table 1 lists herbicides that control weeds before they emerge (preemergence). Table 2 lists herbicides that control weeds after they emerge (postemergence). Because soil types in Florida vary, consult the labels for application rate restrictions based on soil type. Bearing bushes are blueberry bushes that are currently producing fruit. Nonbearing bushes are blueberry bushes that will not produce fruit for a year after application. The tables include preharvest intervals (PHI) and restricted-entry intervals (REI).

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.

1. This document is HS90, 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 February 2012. Visit the EDIS website at http://edis.ifas.ufl.edu.

2. Peter J. Dittmar, assistant professor, and Jeffrey G. Williamson, professor, Horticultural Sciences Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

Archival copy: for current recommendations see http://edis.ifas.ufl.edu or your local extension office.

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) has been 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 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 to prevent the weed from producing seeds or other methods of propagation. In addition, try to quarantine and eradicate the population. Please also contact your county Extension agent to have the weed resistance confirmed and documented.

Archival copy: for current recommendations see http://edis.ifas.ufl.edu or your local extension office.

Table 1. Preemergence chemical weed control in blueberry

Common name lb. a.i. / A	(Trade name) formulation amount of product / A	Weeds controlled
Dichlobenil, MOA 20 4–6 1.96–3.9	(Casoron®) 4 G 100–150 lb. (Casoron®) 1.4 CS 1.4–2.8 gal.	Annual and some perennial weeds
Remarks: Apply to bearing and nonbearing bushes. Casoron® 1.4 CS must be applied to well-established plantings and not until at least 1 year after transplanting. Casoron® 4 G can be applied 4 weeks after transplanting. Higher rates may be required to control perennial weed species. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. Casoron® 4 G REI 12 hours and Casoron® 1.4 CS REI 24 hours.		
Diuron, MOA 7 1.2–1.6	(Diuron, Karmex®, Karmex® XP) 80 WDG 1.5–2.0 lb. (Direx®) 4 L 1.2–1.6 qt.	Annual broadleaf and grass weeds
Remarks: Apply to bearing and nonbearing bushes, established at least 1 year from transplanting. Direct spray solution to the base of the bush to minimize contact with leaves, flowers, and fruits. Diuron may be applied as a single application in the spring (1.2–1.6 lb. a.i./A) and another application (1.2–1.6 lb. a.i./A) in the fall. Read labels for restrictions on soil type. REI 12 hours.		
Flumioxazin, MOA 14 0.188–0.38	(Chateau®) 51 WDG 6–12 oz.	Annual broadleaf and grass weeds
Remarks: Apply to bearing and nonbearing bushes. Direct spray solution to the base of the bush. Do not apply to bushes less than 2 years old unless protected by a nonporous wrap, grow tubes, or waxed cylinders. Do not apply between bud break and final harvest. Do not apply more than 12 oz. in a 12-month period. Do not apply more than 6 oz. per application to bushes less than 3 years old in soils with sand plus gravel content greater than 80%. Do not allow Chateau® to come in contact with any green tissue, or injury may occur. Chateau® may be applied in sequential applications, but not within 30 days of each other. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. REI 12 hours.		
Hexazinone, MOA 5 1–2	(Velpar®) 2 L 4–8 pt. (Velpar®) 75 DF 1.3–2.6 lb.	Broadleaf and grass weeds
Remarks: Apply to bearing bushes. Crop must be established for 3 or more years. Apply in the spring before leaves are fully expanded. Direct spray solution to the base of the bush to minimize contact with leaves, flowers, and fruits. Do not apply to soils with greater than 85% sand. Use lower rates in sandy soil; consult label for quantity based on soil type. Do not apply within 90 days of harvest. REI 48 hours.		
Isoxaben, MOA 12 0.5–1.0	(Gallery®, Gallery® T&V) 75 DF 0.66–1.33 lb.	Certain broadleaf weeds
Remarks: Apply to nonbearing bushes. Allow 60 days between applications and do not apply more than 4 lb. product within a 12-month period. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. REI 12 hours.		
Isoxaben, MOA 12+ **Oryzalin**, MOA 3 2.0–4.0 + 0.5–1	(Snapshot®) 2.5 TG 100–200 lb.	Certain broadleaf and annual grass weeds
Remarks: Apply to nonbearing bushes. A single rainfall or sprinkler irrigation of 0.5 in. is necessary within 3 days of application for optimum weed control. Allow 60 days between applications of 150 lb. product/A or greater. Do not apply more than 600 lb./A product within a 12-month period. Do not apply to bushes that have wet foliage from rainfall or dew. REI 12 hours.		
Mesotrione, MOA 27 0.09–0.19	(Callisto®) 4 L 3–6 fl. oz.	Annual broadleaf weeds
Remarks: Apply to bearing and nonbearing bushes. Apply before prebloom, or illegal residues may occur. Can be applied as a split application of 3 oz. followed by 3 oz. with no less than 14 days between applications. Limit contact with green foliage and stems, or injury may result. Include a crop oil concentrate at 1% v/v. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. The University of Florida has conducted limited testing; thus, any application should be made on a small acreage first to determine cultivar tolerance. REI 12 hours.		
Napropamide, MOA 15 4	(Devrinol®) 50 DF 8 lb. (Devrinol®) 10 G 40 lb.	Small-seed broadleaf and annual grass weeds
Remarks: Apply to bearing and nonbearing bushes. Do not apply within 1 year of planting. Direct spray solution to the base of the bush to minimize contact with foliage and fruit. Applications should be made to a weed-free surface. Napropamide should be cultivated or irrigated to a depth of 2 in. within 24 hours of application. REI 24 hours.		

Archival copy: for current recommendations see http://edis.ifas.ufl.edu or your local extension office.

Norflurazon, MOA 12 2–4	(Solicam®) 80 WDG 2.5–5.0 lb.	Small-seed broadleaf and annual grass weeds
Remarks: Apply to bearing and nonbearing bushes. Consult label for amount of formulation based on soil texture. Do not apply within 6 months of planting. Rainfall or irrigation is required within 4 weeks of application. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. Do not apply within 60 days of harvest. REI 12 hours.		
Oryzalin, MOA 3 2–4	(Oryzalin, Surflan®) 4 AS 2–4 qt.	Certain broadleaf and annual grass weeds
Remarks: Apply to bearing and nonbearing bushes. Irrigation or 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.		
Pronamide, MOA 3 1–2	(Kerb®) 50 W 2–4 lb.	Certain annual and perennial broadleaf and grass weeds
Remarks: Apply to bearing and nonbearing bushes. Apply in the fall or early winter when temperature is less than 55°F for maximum efficacy. Do not apply to newly planted bushes; wait for root establishment. Immediately follow application with rainfall or irrigation for additional weed control. Do not apply more than 4 lb. product/A or more than one application in 1 year. REI 24 hours.		
Simazine, MOA 5 2–4	(Princep®) 90 WDG 2.2–4.4 lb. (Princep®) 4 L 2–4 qt.	Annual broadleaf and grass weeds
Remarks: Do not apply more than 1 lb. a.i./A on plantings less than 6 months old. Apply half the maximum in the spring before bud break and half in the fall. REI 48 hours.		
Terbacil, MOA 5 0.4–1.6	(Sinbar®) 80 WP 0.5–2 lb.	Annual broadleaf and grass weeds
Remarks: Apply to bearing and nonbearing bushes. Only apply to bushes that have been planted for 1 year or longer. Do not use in soils with less than 3% organic matter. Use in the spring or after harvest before weeds emerge or shortly after. REI 12 hours.		

Archival copy: for current recommendations see http://edis.ifas.ufl.edu or your local extension office.

Table 2. Postemergence chemical weed control in blueberry

Common name lb. a.i. / A	(Trade name) formulation amount of product / A	Weeds controlled
Carfentrazone, MOA 14 0.016–0.031	(Aim®) 2 EC 1–2 fl. oz. (Aim®) 1.9 EW 1–2 fl. oz.	Broadleaf weeds
Remarks: Direct spray solution to the base of the bush to minimize contact with green stems, leaves, flowers, and fruits. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. Coverage is essential; use a minimum of 20 gal. of spray solution per acre. Include a nonionic surfactant, methylated seed oil, or crop oil concentrate; see label for rate. Do not apply more than 0.031 lb. a.i./A during the dormant stage, 0.064 lb. a.i./A during the growing stage, and more than 0.096 lb. a.i./A per crop season. REI 12 hours.		
Clethodim, MOA 1 0.07–0.13	(Select Max®) 2 EC 9–16 fl. oz.	Annual and perennial grass weeds
Remarks: Apply to bearing and nonbearing bushes. The spray solution should include a nonionic surfactant at 0.25% v/v. Do not apply within 14 days of harvest. REI 24 hours.		
Diuron, MOA 7 1.2–1.6	(Diuron, Karmex®, or Karmex® XP) 80 WDG 1.5–2 lb. (Direx®) 4 L 1.2–1.6 qt.	Annual broadleaf and grass weeds
Remarks: Apply to bearing and nonbearing bushes established at least 1 year from transplanting. Direct spray solution to the base of the bush to minimize contact with leaves, flowers, and fruits. Diuron may be applied as a single application in the spring (1.2–1.6 qt./A) and another application (1.2–.6 qt./A) in the fall. Read labels for restrictions on soil type. Include surfactant at 0.25% v/v or crop oil concentration at 1.0% v/v to improve postemergence weed control. REI 12 hours.		
Diquat, MOA 22 0.7–0.9	(Diquat) 2 L 1.5–2.0 pt.	Broadleaf and grass weeds
Remarks: Nonbearing bushes. Direct spray to the base of the bush to minimize contact with green stems and foliage. Include a nonionic surfactant at 0.06%–0.5% v/v. REI 24 hours.		
Fluazifop, MOA 1 0.25–0.375	(Fusilade® DX) 2 EC 16–24 fl. oz.	Annual and perennial grass weeds
Remarks: Apply to nonbearing bushes. Include nonionic surfactant at 0.25%–0.5% v/v or crop oil concentrate at 1% v/v. REI 12 hours.		
Glufosinate, MOA 10 1.0–1.5	(Rely® 200) 1.67 SL 77–115 fl. oz. (Rely® 280) 2.34 SL 48–82 fl. oz.	Broadleaf and grass weeds
Remarks: Apply to bearing and nonbearing bushes. Does not control goosegrass. Efficacy is reduced when temperatures are cool or when weeds are under drought stress. Direct spray solution to the base of the bush to minimize contact with leaf, flower, and fruit tissue. Do not apply to green or noncallused stems unless protected by nonporous wraps, grow tubes, or waxed containers. Do not apply more than 3 lb. a.i./A. Consult label for preemergence herbicides that can be tank mixed to broaden spectrum of weed control. Do not apply within 14 days of harvest. REI 12 hours.		
Glyphosate, MOA 9 0.5–1.5	(Various formulations)	Broadleaf and grass weeds
Remarks: Direct spray solution to the base of the bush to minimize contact with green stems, leaves, and fruits. Do not apply within 14 days of harvest. Consult label for preemergence herbicides that can be tank mixed to broaden spectrum of weed control. REI 4 hours.		
Mesotrione, MOA 27 0.09–0.19	(Callisto®) 4 L 3–6 fl. oz.	Annual broadleaf weeds
Remarks: Apply to bearing and nonbearing bushes. The University of Florida has conducted limited testing; thus, any application should be made on a small acreage first to determine cultivar tolerance. Apply before prebloom, or illegal residues may occur. Can be applied as a split application of 3 oz. followed by 3 oz. with no less than 14 days between applications. Include a crop oil concentrate at 1% v/v. Limit spray contact with green foliage and stems, or injury may result. Consult label for herbicides that can be tank mixed to broaden spectrum of weed control. Can be tank mixed with burndown herbicides. REI 12 hours.		
Paraquat, MOA 22 0.56–1	(Gramoxone Inteon®) 2 SL 2–4 pt. (Firestorm®) 3 SL 1.3–2.7 pt.	Broadleaf and grass weeds
Remarks: Direct spray to the base of the stem. Use a coarse spray and hooded sprayer to minimize contact with foliage. New canes or shoots can be injured. Include a nonionic surfactant at 0.125%–0.25% v/v or crop oil concentrate at 1% v/v. REI 12 hours.		

Archival copy: for current recommendations see http://edis.ifas.ufl.edu or your local extension office.

Pelargonic Acid 3%–10% v/v	(Scythe®)	Broadleaf and grass weeds
Remarks: Bearing and nonbearing bushes. Contact herbicide that should be applied with a shielded sprayer and direct spray to the base of the bush to minimize contact with foliage and green bark. Apply before new growth or crop emerges from the soil. Should be tank mixed with preemergence herbicide to broaden spectrum of weed control. REI 12 hours.		
Sethoxydim, MOA 1 0.3–0.5	(Poast®) 1.5 EC 1.5–2.5 pt.	Annual and perennial grass weeds
Remarks: Apply to bearing and nonbearing bushes. Consult label for exact rate to control specific grass species. Include a crop oil concentrate at 1 qt./A. Multiple applications may be necessary to control perennial grasses, such as bermudagrass. Do not apply within 30 days of harvest. REI 12 hours.		