

## Weeds

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**Table 2.11 - Herbicides**

Crop	Weeds Controlled	Chemical Rate/A (Product/A)	Remarks
<i>Preemergence directed</i>			
Blueberries, Blackberries, and Raspberries	Most annuals, fescue, quackgrass, dandelions, dock, and other herbaceous perennials	dichlobenil 4.0-6.0 lb (Casoron 4G 100.0-150.0 lb or 2.3-3.4 lb/1000 sq ft)	Apply dry granules in late winter or early spring. Shallow incorporation may improve weed control. Do not apply within 4 weeks after transplanting. Short residual activity, regrowth usually occurs in late summer. Do not graze livestock in treated areas. Do not make application within one month of harvest. Do not apply over 4.0 lb of dichlobenil to blackberries or raspberries and do not apply during new shoot emergence.
	Annual grasses and certain broadleaf weeds	napropamide 4.0 lb (Devrinol 50 DF 8.0 lb)	Apply to a weed-free surface or include an appropriate postemergence herbicide. May be applied to newly planted and established crop. Must be incorporated by rainfall or irrigation within 24 hours of application for optimum results. May be tank-mixed with other herbicides for broader-spectrum weed control.
	Annual grasses, certain broadleaf weeds, and suppression of perennial grasses and nutsedge	norflurazon 2.0-4.0 lb (Solicam 80DF 2.5-5.0 lb)	Apply only to blueberries established at least 6 months and to raspberries and blackberries established at least 12 months. Apply when crop is dormant. Apply to weed-free soil or include an appropriate postemergence herbicide. Combine with simazine for improved broadleaf control.
	Annual grasses and certain broadleaf weeds	oryzalin 2.0-6.0 lb (Surflan 4AS 2.0-6.0 qt, Oryzalin 4AS 2.0-6.0 qt, Surflan DF 2.4-7.1 lb)	May be used immediately after planting or in established plantings. Apply to weed-free soil or include an appropriate postemergence herbicide. Use lowest rate for short-term control, 4.0 lb for full-season control, and the highest rate for long-term (8–12 months) control. May be tank-mixed with such herbicides as simazine or terbacil to control a broader spectrum of weeds in established plantings.
	Annual grasses and broadleaf weeds	simazine 2.0-4.0 lb (Princep 4L 2.0-4.0 qt)	Apply to weed-free soil or include an appropriate postemergence herbicide. Split application possible with 1/2 rate in fall and 1/2 rate in spring. On plantings less than 6 months old use 1/2 the total rate of application.
	Annual grasses and broadleaf weeds plus some perennial broadleaf weeds	terbacil 0.8-1.6 lb (Sinbar 80W 1.0-2.0 lb)	Only treat plantings established for one year or more. Use higher rate on heavy (clay) soils with high organic matter (3% +). May be applied in early spring or late fall.
	Annual broadleaf weeds	carfentrazone-ethyl 0.016-0.031 lb (Aim 2EC, 1.9 EW 1.0-2.0 fl oz/A)	Apply post-directed using a hooded sprayer for control of small annual broadleaf weeds less than 4 inches tall. Add a crop-oil concentrate or non-ionic surfactant. Can be tank mixed with other herbicides for broader-spectrum weed control. Can also be used for control of primocanes – see label rates and directions for this use.

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**Table 2.11 - Herbicides (cont.)**

Crop	Weeds Controlled	Chemical Rate/A (Product/A)	Remarks
Blueberries, Blackberries, and Raspberries (cont.)	Annual and perennial grasses	clethodim 0.09-0.12 lb (Select 6.0-8.0 fl oz + 0.25% v/v nonionic surfactant)	Apply to actively growing grasses. Will control annual bluegrass. For spot treatment use a 0.33 to 0.65 fl oz/gal solution plus 0.33 fl oz nonionic surfactant. A repeat application may be required for perennial grass control. Can only be used on nonbearing plants. Allow at least one year between application and harvest.
	Annual and perennial grasses	fluazifop-P-butyl 0.25- 0.375 lb (Fusilade DX 16.0-24.0 fl oz + 2 pt crop oil concentrate or 1/2 pt nonionic surfac- tant/25.0 gal)	Use a directed spray on actively growing grasses. Treat annual grasses before tillering for optimum results. Perennial grasses may need repeat treatment for total control. Do not treat canes to be harvested within one year of application. For spot treatment use 0.75 oz Fusilade DX plus 1.5 fl oz crop-oil concentrate or 0.5 fl oz nonionic surfactant/gal.
	Annual and perennial weeds	glufosinate 0.75-1.25 lb Rely 3.0-5.0 pt	Blueberries only. Apply as a directed spray, keeping droplets off blueberry foliage and stems. Repeat application may be needed for perennial weed control. Do not apply within 14 days of harvest. For spot application apply 4.0 fl oz/gal.
	Annual and perennial grasses and broad- leaf weeds	glyphosate 0.75-3.75 lb ae (Roundup UltraMax 26 fl oz-4 qt, Touchdown 1.0-5.0 qt, or other labeled formula- tion. For wiper application use 1 part Roundup to 4 parts water)	Can be applied prior to planting or to control emerged weeds after planting. Avoid contacting leaves or stems of crop plants or systemic injury could occur. For spot- treatment use 2.0 fl oz Roundup UltraMax, or Touchdown/gal and spray to wet. Other glyphosate formulations are available. Check the label for appropriate rates.
	Annual weeds, con- tact activity only, will not control estab- lished perennial weeds	paraquat 0.5-1.0 lb (Gramoxone Inteon 2.0-4.0 pt/A + 1-2 pt nonionic sur- factant/100 gal water)	Apply as coarse directed spray to thoroughly wet emerged weeds. Apply before emergence of new crop shoots. Do not allow spray to contact new shoots or green stems, otherwise injury is likely. <b>RESTRICTED USE PESTICIDE</b>
	Annual and perennial grasses	sethoxydim 0.28-0.47 lb a.i. (Poast 1.5-2.5 pt + 1.0 qt crop-oil concentrate)	Do not apply within 45 days of harvest in raspberries and blackberries or within 30 days of harvesting blueberries. Apply in a minimum of 10 gal/A of water. Apply the lower rate to annual grasses up to 6 inches tall and apply higher rate to annual grasses up to 12 inches tall and to perennial grasses. For spot treatment, use 1.25 fl oz Poast plus 1.25 fl oz crop-oil concentrate/gal.
Strawberries	Annual and perennial grasses	clethodim 0.09-0.125 lb (Select 6.0-8.0 fl oz + 1% crop-oil concentrate)	Apply to actively growing grasses. Will control annual bluegrass. For spot treatment use a 0.25% to 0.50% solution (0.33-0.65 fl oz/gal) plus 1% crop-oil concentrate. A repeat application may be required for perennial grass control. Allow at least 4 days between application and harvest.

**Table 2.11 - Herbicides (cont.)**

<b>Crop</b>	<b>Weeds Controlled</b>	<b>Chemical Rate/A (Product/A)</b>	<b>Remarks</b>
Strawberries (cont.)	Certain annual and perennial broadleaves	clopyralid 0.12-0.25 lb (Stinger 0.33-0.67 pt/A)	Apply to actively-growing broadleaf weeds. Primarily controls weeds in the legume and composite families. Stinger can be applied to strawberries at 0.33 pt/A in spring. Do not apply within 30 days of harvest. Up to 0.67 pt/A can be used after harvest. Growers who intend to use the product in strawberries must sign a waiver of liability.
	Annual broadleaf weeds	carfentrazone-ethyl 0.006-0.025 lb (Aim 40DF 0.33-1.0 oz, Aim 1.9EW or 2EC 0.5-1.6 fl oz)	Apply post-directed using a hooded sprayer for control of small annual broadleaf weeds less than 4 inches tall. Add a crop-oil concentrate or non-ionic surfactant. Can be tank mixed with other herbicides for broader-spectrum weed control.
	Annual grasses and broadleaf weeds	flumioxazin 0.9 lb (Chateau WDG 3.0 oz/A)	Apply to dormant strawberries for preemergence weed control. Addition of a crop-oil concentrate or nonionic surfactant may improve postemergence weed control. Can be applied using a hooded or shielded spray to row middles prior to fruit set. Do not apply overtop of strawberries.
	Annual grasses and certain broadleaf weeds	DCPA 6.0-9.0 lb (Dacthal W-75 8.0-12.0 lbs/A)	Can be used in new and established plantings. Apply prior to weed germination. Do not apply after first bloom through harvest.
	Annual grasses and certain broadleaf weeds	napropamide 4.0 lb (Devrinol 50 DF 8.0 lb)	Use on established strawberries. Delay application until daughter plants in the desired number have become established. Do not apply from bloom to harvest. Make only one application/season. Does not control established weeds. Apply in fall through early winter. Early spring applications may also be made, but rainfall or irrigation will be needed for optimum weed control.
	Annual broadleaf weeds	oxyfluorfen 0.25-0.5 lb (Goal 2XL 1.0-2.0 pt)	Apply to the surface of preformed fallow beds at least 30 days prior to transplanting strawberries. Incorporation prior to planting reduces the potential for crop injury. Plastic mulch can be applied anytime after application but ideally, soon after the Goal was applied.
	Annual and perennial grasses	sethoxydim 0.28-0.47 lb ai (Poast 1.5-2.5 pt + 1.0 qt crop-oil concentrate)	Do not apply within 7 days of harvest. Apply the lower rate to annual grasses up to 6 inches tall. Apply higher rate to taller annual grasses and perennial grasses. For spot treatment use 1.25 fl oz Poast plus 1.25 fl oz crop-oil concentrate/ gal.
	Annual broadleaf weeds	2,4-D amine 1.0-1.5 lb (Formula 40 1.0-1.5 qt)	Apply to established beds in late winter when the strawberries are dormant or immediately after last picking 7-10 days before renovation. Do not apply during bud, flower, or fruit stage, or during runner formation. Do not apply unless some injury is acceptable.
	Annual grasses and broadleaf weeds	terbacil 0.1-0.3 lb (Sinbar 80W 2-6 ounces/A)	Use only on plants established at least 6 months. Apply after postharvest renovation before new growth begins or in late fall to control winter annuals. Do not apply more than 8 oz of Sinbar/A/ growing season. Do not use on soils less than 2% organic matter.

**Table 2.12 - Relative Effectiveness of Preemergence Herbicides in Small Fruit**

	Dichlobenil	DCPA	Flumioxazin	Napropamide	Nor-flurazon	Oryzalin	Oxyfluorfen	Simazine	Terbacil
<i>Annual Grasses</i>									
Barnyardgrass	G	G	P	G	E	G	F	F-G	G
Cheat	G	-	-	G	G	G	-	G	G
Crabgrass	G	G	P	E	E	E	F	F-G	F-G
Fall panicum	F	G	P	G	E	G	-	F-G	G
Foxtails	G	G	P	E	E	E	F	G	G
Goosegrass	F	G	P	E	G	E	F	E	-
Johnsongrass (seedling)	F	-	N	P	G	F-G	-	N	-
<i>Annual Broadleaf Weeds-</i>									
Annual fleabane	E	-	-	G	F	G	G	G	E
Annual morningglory	G	N	F-G	N	F	P-F	F	E	G
Black nightshade	G	N	G	N	F-G	P-F	G	E	-
Carpetweed	G	F	-	G	G	G	G	E	E
Common chickweed	G	G	-	G	G	G	G	E	G
Common lambsquarter	G	G	G	F-G	G-E	G	G	E	G
Common ragweed	G	N	-	F	F	P	F	E	G
Hairy galinsoga	G	N	-	G	-	P	G	E	E
Henbit	G	-	-	F	-	G	G	E	G
Horseweed	G	-	G	P	G	F	F	E	G
Knotweed	G	-	-	G	F	G	G	E	G
Mustards	G	P	-	P	F	P-F	G	G	E
Pennsylvania smartweed	G	N	P	P	-	P-F	G	E	G
Pigweeds	G	F	G	G	F	G	G	E	G
Prickly lettuce	G	-	-	G	-	F	G	E	G
Prickly sida	F-G	-	G	N	P	P-F	G	G	-
Purslane	G	G	-	G	G	G	G	E	E
Shepherds' purse	G	P	-	F	G	G	G	E	G
Speedwells	-	G	-	-	-	-	-	-	-
Velvetleaf	-	N	P	N	F	P-F	F	G	G
Virginia pepperweed	G	-	-	F	G	G	-	E	-
<i>Perennial Grasses And Sedges</i>									
Fescues	G	N	N	N	F	N	N	P	F
Johnsongrass (rhizome)	-	N	N	N	P	N	N	N	P
Nimblewill	-	N	N	N	F	N	N	P	P
Orchardgrass	G	N	N	N	F	N	N	P-F	G-E
Quackgrass	G	N	N	N	P	N	N	P-F	G
Yellow nutsedge	P-F	N	N	P	P-F	N	N	N	F-G

(E=Excellent ; G=Good ; F=Fair ; P=Poor; N=None; --=Unknown)

**Table 2.12 - Relative Effectiveness of Preemergence Herbicides in Small Fruit (cont.)**

	Dichlobenil	DCPA	Flumioxazin	Napropamide	Nor-flurazon	Oryzalin	Oxyfluorfen	Simazine	Terbacil
Purpletop, Redtop	-	N	N	N	F-G	N	N	N	F-G
Dallisgrass	-	N	N	N	P	N	N	N	F-G
Bermudagrass	N	N	-	N	P	N	N	N	F
<i>Perennial Broadleaf Weeds</i>									
Broadleaf plantain	G	N	-	N	P	N	N	G	F
Buckhorn plantain	G	N	-	N	P	N	N	G	F
Canada thistle	P-F	N	-	N	N	N	N	N	N
Chicory	G	N	-	N	N	N	N	P-F	G
Common dandelion	E	N	-	N	N	N	N	P-F	G-E
Common mallow	G	N	-	N	N	N	N	N	-
Common milkweed	-	N	-	N	N	N	N	N	N
Common yarrow	-	N	-	N	N	N	N	-	N
Docks (broadleaf, curly)	G	N	-	N	N	N	N	N	F
Goldenrod	F-G	N	-	N	N	N	N	N	P-F
Ground ivy	E	N	-	N	N	N	N	N	N
Hemp dogbane	N	N	-	N	N	N	N	N	N
Horsenettle	N	N	-	N	N	N	N	P	F-G
Mugwort	G-E	N	-	N	N	N	N	N	P
Red sorrel	G	N	-	N	N	N	N	N	P
Thistles (bull, musk, curly)	F	N	-	N	N	-	N	-	-
White flowered aster	G	N	-	N	N	N	N	N	N
Wild carrot	G	N	-	N	F	N	N	N	F
Wild strawberry	G	N	-	N	P	N	N	N	N
Yellow rocket	G	N	-	N	F	N	N	P	G
Yellow woodsorrel (from seed)	G	G	-	P	F	F	N	F	G
<i>Special Perennial Weed Problems</i>									
Bigroot morningglory	N	N	-	N	N	N	N	N	N
Brambles (Rubus spp.)	N	N	-	N	N	N	N	N	N
Common greenbriar	N	N	-	N	N	N	N	N	N
Japanese honeysuckle	N	N	-	N	N	N	N	N	N
Poison ivy	N	N	-	N	N	N	N	N	N
Virginia creeper	N	N	-	N	N	N	N	N	N
Wild garlic	F	N	-	N	N	N	N	N	N

(E=Excellent ; G=Good ; F=Fair ; P=Poor; N=None; --=Unknown)

**Table 2.13 - Relative Effectiveness of Postemergence Herbicides in Small Fruit**

	Carfentrazone	Fluazifopbutyl	Glyphosate	Sethoxydim	2,4-D	Clopyralid	Paraquat	Clethodim
<i>Annual Grasses</i>								
Barnyardgrass	N	E	E	E	N	N	G	E
Cheat	-	G	E	G	N	N	G	-
Crabgrass	N	E	E	E	N	N	G	E
Fall panicum	N	E	E	E	N	N	G	E
Foxtails	N	E	E	E	N	N	G	E
Goosegrass	N	E	E	E	N	N	G	E
Johnsongrass (seedling)	N	E	E	E	N	N	G	E
<i>Annual Broadleaf Weeds</i>								
Annual fleabane	-	N	E	N	G	-	E	N
Annual morningglory	F	N	E	N	E	N	G	N
Black nightshade	G	N	E	N	F-G	F	G	N
Carpetweed	G	N	E	N	E	-	E	N
Common chickweed	F	N	E	N	P	-	E	N
Common lambsquarter	G	N	E	N	G	P	E	N
Common ragweed	P	N	E	N	G	E	E	N
Hairy galinsoga	-	N	E	N	G	-	E	N
Henbit	G	N	E	N	G	-	E	N
Horseweed	-	N	E	N	G	G	G	N
Knotweed	-	N	E	N	F	-	F	N
Mustards	-	N	E	N	G	-	F	N
Pennsylvania smartweed	-	N	E	N	P	F	G	N
Pigweeds	G	N	E	N	G	P	G	N
Prickly lettuce	-	N	E	N	P	-	G	N
Prickly sida	-	N	E	N	G	-	E	N
Purslane	-	N	E	N	F	-	G	N
Shepherds' purse	-	N	E	N	G	-	G	N
Speedwells	G	N	E	N	P	-	P	N
Velvetleaf	E	N	E	N	G	P	E	N
Virginia pepperweed	-	N	E	N	G	-	G	N
<i>Perennial Grasses And Sedges</i>								
Fescues	N	P-F	E	P-F	N	N	F	F
Johnsongrass (rhizome)	N	G	E	G	N	N	P	G
Nimblewill	N	G	G-E	F-G	N	N	P	—
Orchardgrass	N	F	E	F	N	N	F	F

(E=Excellent; G=Good; F=Fair; P=Poor; N=None; --=Unknown)

**Table 2.13 - Relative Effectiveness of Postemergence Herbicides in Small Fruit (cont.)**

	Carfentrazone	Fluazifopbutyl	Glyphosate	Sethoxydim	2,4-D	Clopyralid	Paraquat	Clethodim
Quackgrass	N	G	G	G	N	N	P	G
Yellow nutsedge	N	N	G	N	N	N	P	N
Purpletop, Redtop	N	G	E	G	N	N	P	—
Dallisgrass	N	G	E	G	N	N	P	—
Bermudagrass	N	G	G	G	N	N	P	G
<i>Perennial Broadleaf Weeds</i>								
Broadleaf plantain	-	N	E	N	G	-	P	N
Buckhorn plantain	P	N	E	N	G	P	P	N
Canada thistle	-	N	F-G	N	F-G	G	P	N
Chicory	-	N	E	N	G	-	P	N
Common dandelion	P	N	E	N	G	F	P	N
Common mallow	-	N	E	N	—	-	P	N
Common milkweed	-	N	G	N	P-F	-	P	N
Common yarrow	-	N	G	N	F	-	P	N
Docks (broadleaf, curly)	P	N	G	N	G	-	P	N
Goldenrod	-	N	E	N	P-F	-	P	N
Ground ivy	-	N	G	N	P-F	-	P	N
Hemp dogbane	-	N	F	N	P-F	-	P	N
Horsenettle	-	N	F-G	N	P	-	P	N
Mugwort	-	N	F	N	P	P-F	P	N
Red sorrel	-	N	G	N	P	-	P	N
Thistles (bull, musk, curly)	-	N	G	N	F-G	G	P	N
White flowered aster	-	N	E	N	N	-	P	N
Wild carrot	-	N	E	N	P-F	-	P	N
Wild strawberry	-	N	E	N	P-F	-	P	N
Yellow rocket	-	N	E	N	P-F	-	P	N
Yellow woodsorrel	-	N	E	N	F	N	P	N
<i>Special Perennial Weed Problems</i>								
Bigroot morningglory	-	N	F-G	N	F-G	-	P	N
Brambles ( <i>Rubus</i> spp.)	-	N	G	N	P	-	P	N
Common greenbriar	-	N	P	N	N	-	P	N
Japanese honeysuckle	-	N	F-G	N	P-F	-	P	N
Poison ivy	-	N	G	N	F	-	P	N
Virginia creeper	-	N	F-G	N	F	-	P	N
Wild garlic	-	N	F	N	F	-	P	N

(E=Excellent; G=Good; F=Fair; P=Poor; N=None; —=Unknown)

