

Weeds

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Measures considered practical weed control by the homeowner on a small area are quite different from those employed by the commercial producer. Homeowners often have a very limited area that may make a precise pesticide application difficult. Thus, some of the materials recommended for commercial use are excluded from homeowner recommendations because they are highly toxic, not readily available in small quantities, or require rather precise applications.

If your need for use of these materials is sufficient, you may consult the information designed for commercial production. Some of the materials used by commercial growers require that the applicator be certified as a pesticide applicator.

Chemical Control

If you are not familiar with the application of pesticides, consult a knowledgeable individual before proceeding. Used correctly, herbicides can be very effective, but if misused they may kill the desirable crop plant.

Rates of application are given in ounces of both active ingredient (and commercial product) per 1000 sq ft. These are extremely small quantities and very careful measurement and application are required.

Products cannot be measured on a volume basis because products vary in density. Even a given product will vary depending upon whether it is loose or compressed.

You can make the conversion to a volume basis by weighing a given volume of product and measuring the volume occupied. For instance, 10 oz weight of a given wettable powder, loosely compacted, might occupy 20 oz on a volumetric basis. Once you determine a volumetric conversion factor, you can proceed to measure the product volumetrically (teaspoons or tablespoons) rather than by weight.

Small Sprayer Calibration

To determine the output of a manually-pressurized sprayer, fill the sprayer with water, measure a 1000 sq ft area (8 x 125 ft), and using the same procedure that you would use to spray the orchard floor, spray the entire 1000 sq ft area. Then measure the number of cups of water required to refill the sprayer. Then divide by 16 (16 cups/gallon) to get the number of gallons. Usually, adequate coverage for ground sprays can be obtained with 1–2 gallons per 1000 sq ft. Next, determine the amount of herbicide needed for 1000 sq ft and add this to the volume of water required to spray the area.

During application, do not make a circle around a tree, because this would result in a heavier application near the tree trunk and may result in injury. To obtain uniform distribution of material on an 8 x 8 area, apply a 4 x 8 ft strip on both sides of the tree.

Nonchemical Control

For extremely small areas, the mechanical removal by mowing or tillage is often the most practical. Mulching is also an extremely effective way to handle annual weeds on a limited area. Several types of material may be used as mulch. Some commonly used include: black plastic, landscape fabrics, several layers of newspapers, pine bark and grass clippings that have not been treated with pesticides. Some pesticides can be carried in the grass clippings and may affect the growth of the plants in the mulched area or result in undesirable chemical residues in the fruit itself.

Table 3.13 - Relative Effectiveness of Preemergence Herbicides in Fruit

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

	Dichlobenil (Casoron)	Diuron (Karmex)	Napropamide (Devrinol)	Norflurazon (Solicam)	Oryzalin (Surflan)
Annual Grasses					
Barnyardgrass	G	G	G	E	G
Cheat	G	G	G	G	G
Crabgrass	G	G	E	E	E
Fall panicum	F	F	G	E	G
Foxtails	G	G	E	E	E
Goosegrass	F	G	E	G	E
Johnsongrass (seedling)	F	G	P	G	F-G
Annual Broadleaf Weeds					
Annual fleabane	E	G	G	F	G
Annual morning-glory	G	G	N	F	P-F
Black nightshade	G	G	N	F-G	P-F
Carpetweed	G	E	G	G	G
Common chickweed	G	E	G	G	G
Common lambsquarters	G	E	F-G	G-E	G
Common ragweed	G	E	F	F	P
Hairy galinsoga	G	E	G	-	P
Henbit	G	E	F	-	G
Horseweed	G	G	P	G	F
Knotweed	G	G	G	F	G
Mustards	G	G	P	F	P-F
Pennsylvania smartweed	G	G	P	-	P-F
Pigweeds	G	E	G	F	G
Prickly lettuce	G	G	G	-	F
Prickly sida	F-G	G	N	P	P-F
Purslane	G	E	G	G	G
Shepherds' purse	G	G	F	G	G
Speedwells	-	-	-	-	-
Velvetleaf	-	F	N	-	P-F
Virginia pepperweed	G	G	F	G	G
Perennial Grasses And Sedges					
Bermudagrass	N	N	N	P	N
Dallisgrass	-	F	N	P	N
Fescues	G	F	N	F	N
Johnsongrass (rhizome)	-	P	N	P	N
Nimblewill	-	P	N	F	N
Orchardgrass	G	P-F	N	F	N
Purpletop, Redtop	-	P	N	F-G	N
Quackgrass	G	G	N	P	N
Yellow nutsedge	P-F	P	P	P	N

Table 3.13 - Relative Effectiveness of Preemergence Herbicides in Fruit (cont.)

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

	Dichlobenil (Casoron)	Diuron (Karmex)	Napropamide (Devrinol)	Norflurazon (Solicam)	Oryzalin (Surflan)
Perennial Broadleaf Weeds					
Broadleaf plantain	G	P-F	N	P	N
Buckhorn plantain	G	P-F	N	P	N
Canada thistle	P-F	N	N	N	N
Chicory	G	G	N	N	N
Common mallow	G	F	N	N	N
Common milkweed	-	N	N	N	N
Common yarrow	-	N	N	N	N
Dandelion	E	P-F	N	N	N
Docks (broadleaf, curly)	G	F	N	N	N
Goldenrod	F-G	-	N	N	N
Ground ivy	E	N	N	N	N
Hemp dogbane	N	N	N	N	N
Horsenettle	N	P-F	N	N	N
Mugwort	G-E	P	N	N	N
Red sorrel	G	N	N	N	-
Thistles (bull, musk, curl)	F	N	N	N	N
White flowered aster	G	N	N	N	N
Wild carrot	G	P	N	F	N
Wild strawberry	G	G	N	P	N
Yellow rocket	G	P	N	F	N
Yellow woodsorrel	G	F	N	F	N
Special Perennial Weed Problems					
Bigroot morning-glory	N	N	N	N	N
Brambles (Rubus spp.)	N	N	N	N	N
Common greenbriar	N	N	N	N	N
Japanese honeysuckle	N	N	N	N	N
Poison ivy	N	N	N	N	N
Virginia creeper	N	N	N	N	N
Wild garlic	F	N	N	N	N
	Oxyfluorofen (Goal)	Simazine (Princep)	Terbacil (Sinbar)		
Annual Grasses					
Barnyardgrass	F	F-G	G		
Cheat	-	G	G		
Crabgrass	F	F-G	F-G		
Fall panicum	-	F-G	G		
Foxtails	F	G	G		
Goosegrass	F	E	-		
Johnsongrass (seedling)	-	N	-		

Table 3.13 - Relative Effectiveness of Preemergence Herbicides in Fruit (cont.)

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

	Dichlobenil (Casoron)	Diuron (Karmex)	Napropamide (Devrinol)	Norflurazon (Solicam)	Oryzalin (Surflan)
Annual Broadleaf Weeds					
Annual fleabane	G	G	E		
Annual morning-glory	G	E	G		
Black nightshade	G	E	-		
Carpetweed	G	E	E		
Common chickweed	G	E	G		
Common lambsquarters	G	E	G		
Common ragweed	F	E	G		
Hairy galinsoga	G	E	E		
Henbit	G	E	G		
Horseweed	F	E	G		
Knotweed	G	E	G		
Mustards	G	G	E		
Pennsylvania smartweed	G	E	G		
Pigweeds	G	E	G		
Prickly lettuce	G	E	G		
Prickly sida	G	G	-		
Purslane,	G	E	E		
Shepherds'-purse	-	E	G		
Speedwells	G	-	-		
Velvetleaf	G	G	G		
Virginia pepperweed	-	E	-		
Perennial Grasses And Sedges					
Fescues	N	P	F		
Johnsongrass (rhizome)	N	N	P		
Nimblewill	N	P	P		
Orchardgrass	N	P-F	G-E		
Quackgrass	N	P-F	G		
Yellow nutsedge	N	N	F-G		
Purpletop, Redtop	N	N	F-G		
Dallisgrass	N	N	F-G		
Bermudagrass	N	N	F		
Perennial Broadleaf Weeds					
Broadleaf plantain	N	G	F		
Buckhorn plantain	N	G	F		
Canada thistle	N	N	N		
Chicory	N	P-F	G		
Common mallow	N	N	-		
Common milkweed	N	N	N		
Common yarrow	N	-	N		

Table 3.13 - Relative Effectiveness of Preemergence Herbicides in Fruit (cont.)

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

	Dichlobenil (Casoron)	Diuron (Karmex)	Napropamide (Devrinol)	Norflurazon (Solicam)	Oryzalin (Surflan)
Dandelion	N	P-F	G-E		
Docks (broadleaf, curly)	N	N	F		
Goldenrod	N	N	P-F		
Ground ivy	N	N	N		
Hemp dogbane	N	N	N		
Horsenettle	N	P	F-G		
Mugwort	N	N	P		
Red sorrel	N	N	P		
Thistles (bull, musk, curl)	-	N	-		
White flowered aster	N	N	N		
Wild carrot	-	N	F		
Wild strawberry	-	N	N		
Yellow rocket	-	P	G		
Yellow woodsorrel	G	F	G		
Special Perennial Weed Problems					
Bigroot morning-glory	N	N	N		
Brambles (<i>Rubus</i> spp.)	N	N	N		
Common greenbriar	N	N	N		
Japanese honeysuckle	N	N	N		
Poison ivy	N	N	N		
Virginia creeper	N	N	N		
Wild garlic	N	N	N		

Table 3.14 - Relative Effectiveness of Postemergence Herbicides in Fruit

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

	Fluazifop-P- Butyl (Fusilade)	Glufosinate (Rely)	Glyphosate (Roundup)	Sethoxydim (Poast)	2,4-D
Annual Grasses					
Barnyardgrass	E	G	E	E	N
Cheat	G	-	E	G	N
Crabgrasses	E	G	E	E	N
Fall panicum	E	G	E	E	N
Foxtails	E	G	E	E	N
Goosegrass	E	G	E	E	N
Johnsongrass (seedling)	E	-	E	E	N
Annual Broadleaf Weeds					
Annual fleabane	N	-	E	N	G
Annual morningglory	N	G	E	N	E
Black nightshade	N	G	E	N	F-G
Carpetweed	N	-	E	N	E
Common chickweed	N	G	E	N	P
Common lambsquarters	N	G	E	N	G
Common ragweed	N	G	E	N	G
Hairy galinsoga	N	-	E	N	G
Henbit	N	G	E	N	P
Horseweed	N	G	E	N	G
Knotweed	N	-	E	N	F
Mustards	N	G	E	N	G
Pennsylvania smartweed	N	G	E	N	P
Pigweeds	N	G	E	N	G
Prickly lettuce	N	G	E	N	P
Prickly sida	N	G	E	N	G
Purslane	N	G	E	N	F
Shepherds' purse	N	G	E	N	G
Speedwells	N	-	E	N	P
Velvetleaf	N	G	E	N	G
Virginia pepperweed	N	-	E	N	G
Perennial Grasses and Sedges					
Bermudagrass	G	P	G	G	N
Dallisgrass	G	-	E	G	N
Fescues	P-F	F	E	P-F	N
Johnsongrass (rhizome)	G	P	E	G	N
Nimblewill	F-G	-	G-E	F-G	N
Orchardgrass	F	P	E	F	N
Purpletop, Redtop	G	-	E	G	N
Quackgrass	G	P	G	G	N
Yellow nutsedge	N	P	G	N	N

Table 3.14 - Relative Effectiveness of Postemergence Herbicides in Fruit (cont.)

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

	Fluazifop-P- Butyl (Fusilade)	Glufosinate (Rely)	Glyphosate (Roundup)	Sethoxydim (Poast)	2,4-D
Perennial Broadleaf Weeds					
Broadleaf plantain	N	F	E	N	G
Buckhorn plantain	N	F	E	N	G
Canada thistle	N	-	F-G	N	F-G
Chicory	N	-	E	N	G
Common mallow	N	-	E	N	-
Common milkweed	N	-	G	N	P-F
Common yarrow	N	-	G	N	F
Dandelion	N	G	E	N	G
Docks (broadleaf)	N	-	G	N	G
Docks (curly)	N	-	E	N	F-G
Goldenrod	N	-	E	N	P-F
Ground ivy	N	G	G	N	P-F
Hemp dogbane	N	-	F	N	P-F
Horsenettle	N	F-G	F-G	N	P
Mugwort	N	-	F	N	P
Red sorrel	N	G	G	N	P
Thistles	N	-	G	N	F
(bull, musk, curl)	N	-	G	N	G
White flowered aster	N	-	E	N	N
Wild carrot	N	-	E	N	G
Wild strawberry	N	-	E	N	P-F
Yellow rocket	N	-	E	N	P-F
Yellow woodsorrel	N	G	E	N	F
Special Perennial Weed Problems					
Bigroot morning-glory	N	-	F-G	N	F-G
Brambles (Rubus spp.)	N	F-G	G	N	P
Common greenbriar	N	-	P	N	N
Japanese honeysuckle	N	-	F-G	N	P-F
Poison ivy	N	-	G	N	F
Virginia creeper	N	-	F-G	N	F
Wild garlic	N	G	F	N	F

Table 3.15 - Spray Schedule for Weed Control in Home Fruit Orchards

Crop	Herbicide Active Ingredient/1000 sq ft (Product/1000 sq ft)	Remarks
Apples and Pears	dichlobenil 0.1 lb (Casoron 4G 3.4 lb)	Apply granules in the late winter or early spring. Shallow incorporation may improve weed control, especially if application is made during warm temperatures. Do not apply to newly planted trees until 4 weeks after transplanting. Will not give season long weed control. Do not make more than one application/year. Do not apply within one month of harvest. Do not allow livestock to graze treated area. Especially effective for many herbaceous perennial weeds.
	diuron 1.2 oz (Karmex 80DF 1.5 oz)	Apply once as a directed spray to orchard floor in early spring (March-May) before fruit sets. Does not kill emerged weeds but may be used in conjunction with a contact herbicide. Apply only to trees established two years or more. Do not use on dwarf or semi-dwarf trees. Do not use on light (sand, loamy sand, or gravelly) soil or on soils having less than 1% organic matter. Avoid contact of foliage or fruit. Do not replant treated area to any crop within two years after last application.
	diuron 0.3-0.6 oz + terbacil 0.3-0.6 oz (Karmex 80DF 0.4-0.8 oz + Sinbar 80W 0.4-0.8 oz)	Use on apples only. Terbacil is not registered for use on pears. Apply tank mixture either in the spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth. Use only under trees established for at least two years. Use lower rates on light soils and soils with low organic matter (1-2%); higher rates on soils with a higher percentage of organic matter. Do not use on soils with less than 1% organic matter, or eroded areas where tree roots are exposed. Do not replant treated areas to any crop within two years after the last application. Avoid spraying tree foliage and fruit.
	fluazifop-P-butyl 0.19 oz (Fusilade DX 0.75 fl oz + 1.5 fl oz crop oil concentrate or 0.5 fl oz nonionic surfactant in 1.0 gal of water)	Spot treatment for emerged grasses. Use in non-bearing orchards only. Use as a directed spray on actively growing grasses. Treat annual grasses with lower rate before tillering or heading. Treat perennial grasses according to the following stages of growth: johnsongrass, field paspalum, and purpletop before boot stage; bermudagrass, 4-8 inch runners; quackgrass, 3-5 inch leaves and not more than 10 inches tall. Perennial grasses such as bermudagrass, paspalums, and quackgrass need to be treated with Fusilade when regrowth is evident. Do not treat trees to be harvested within one year after application.
	glufosinate (Rely)	Controls annual weeds and certain perennial weeds. Apply when weeds are actively growing. Mix 4.0 fl oz/gal. Ensure thorough coverage of weed foliage. Do not allow spray to contact desired foliage or green bark. Do not apply within 14 days of harvest. Use only on apples.
	glyphosate (Roundup and various other formulations. See label for rates)	Apply as a directed spray. Do not contact bark or foliage of trees or severe injury may result. Extensive care must be exercised to avoid contact of spray, drift, or mist with green foliage, green bark or bark of trees established less than two years, suckers, or fruit of desirable trees. Spray contact with other than mature bark on main trunk can cause serious localized or systemic injury. Injury may become increasingly severe the second season. WARNING: Do not mix, store, or apply Roundup spray solution in galvanized metal or lined steel tanks. Chemical reaction produces hydrogen gas, which is very explosive.
	napropamide 1.5 oz (Devrinol 50 DF 3.0 oz)	Apply to the soil surface in the fall through early spring prior to weed emergence. Do not apply to frozen ground. Does not control existing weeds. Use as a directed spray and avoid contact with fruit or foliage. Do not apply when fruit is on the ground during the harvest period. Do not graze treated areas. Make only one application/season.
	norflurazon 0.75-1.5 oz (Solicam 80 DF 1.0-1.9 oz)	Apply as a directed spray to weed-free soil and avoid contact with fruit or foliage. May be applied under new plantings if there are no depressions or large cracks which allow the herbicide to accumulate around the root system. Pears must be established one year before treatment. Use the lower rate on sandy soils and the higher rate on clay and loamy soils.

Table 3.15 - Spray Schedule for Weed Control in Home Fruit Orchards (cont.)

Crop	Herbicide Active Ingredient/1000 sq ft (Product/1000 sq ft)	Remarks
Apples and Pears (cont.)	oryzalin 0.75-2.3 oz (Surflan 4AS 1.5-4.5 fl oz)	For use under newly planted or established trees. Areas to be treated should be free of weeds. Remove or thoroughly mix trash into the soil before application. Use lower rate for short-term control (4 months) and higher rate for long-term control (6–8 months). Apply as a directed spray and avoid spray contact with leaves, branches, or trunks of trees. Do not apply to newly transplanted trees until soil has settled and there are no cracks present. Make only one application/growing season.
	oxyfluorfen 0.2-0.7 oz (Goal 2XL 0.7-2.9 fl oz)	Apply to dormant trees only. Will control certain small seedling weeds plus provide soil residual control of annual broadleaf weeds and certain annual grasses.
	sethoxydim 0.21 oz (Poast 1.5E 1.25 fl oz + 1.25 fl oz crop oil concentrate in 1.0 gal of water)	Do not apply within 14 days of harvest. Spot treatment for emerged grasses. Apply lower rate to annual grasses up to six inches, apply higher rate to annual grasses up to 12 inches tall and to perennial grasses.
	simazine 0.8-1.6 oz (Princep 4L 1.5-3.0 fl oz)	Apply to weed free soil around trees established 1 year or more. Best results are obtained with winter or early spring applications. Adjust rate of application to soil type. Do not use on sandy or gravelly soils. Do not make more than one application/year.
	terbacil 0.3-0.6 oz (Sinbar 80W 0.4-0.7 oz)	Use on apples only, not registered for use in pears. Apply once in early spring as directed spray to orchard floor where trees have been established three years or more. Kills most existing weeds and gives residual control of annual weed seedlings. Use lower rates on light soils and soils with low organic matter (2% or less); higher rates on heavy soils with 2% or more organic matter. Do not use on sand, loamy sand, gravelly soils, soil with less than 1% organic matter, or on eroded areas where tree roots are exposed. Do not replant treated areas to any crop within 2 years after last application. Keep spray off crop foliage and fruit.
	2,4-D 0.5 oz (Weedar 64, Orchard Master 1.1 fl oz)	Apply as a directed spray to actively growing broadleaf weeds. Gives good control of annual broadleaf weeds and partial control of perennials. Keep spray off tree foliage and fruit or serious injury may result. Use a coarse spray and low pressure to avoid spray drift. Do not harvest within 14 days of application.
Peaches	dichlobenil 0.1 lb (Casoron 4G 3.4 lb)	Apply granules in the late winter or early spring. Shallow incorporation may improve weed control, especially if application is made during warm temperatures. Do not apply to newly planted trees until four weeks after transplanting. Will not give season long weed control. Do not make more than one application/year. Do not apply within 1 month of harvest. Do not allow livestock to graze treated area.
	diuron 1.2 oz (Karmex 80 DF 1.5 oz)	Apply once as a directed spray to weed-free orchard floor in early spring (March-May) before fruit sets. Apply only to trees established two years or more. Do not use on dwarf or semi-dwarf trees. Do not use on light (sand, loamy sand or gravelly) soil or on soils having less than 1% organic matter. Avoid contact of foliage or fruit. Do not replant treated area to any crop within two years after last application.

Table 3.15 - Spray Schedule for Weed Control in Home Fruit Orchards (cont.)

Crop	Herbicide Active Ingredient/1000 sq ft (Product/1000 sq ft)	Remarks
Peaches (cont.)	diuron 0.3-0.6 oz plus terbacil 0.3-0.6 oz (Karmex 80 DF 0.4-0.8 oz plus Sinbar 80W 0.4-0.8 oz)	Apply tank mixture either in the spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth. Use only under trees established for at least two years. Use lower rates on light soils and soils with low organic matter (1-2%); higher rates on soils with a higher percentage of organic matter. Do not use on soils with less than 1% organic matter, or on eroded areas where tree roots are exposed. Do not replant treated areas to any crop within two years after the last application. Avoid spraying tree foliage and fruit.
	fluazifop-P-butyl 0.19 oz (Fusilade DX 0.75 fl oz + 1.5 fl oz crop oil concentrate or 0.5 fl oz nonionic surfactant in 1.0 gal of water)	Do not harvest within 14 days of application. Use as a directed spray on actively growing grasses. Treat annual grasses with lower rate before tillering or heading. Treat perennial grasses according to the following stages of growth: johnsongrass, field paspalum, and purpletop, before boot stage; bermudagrass, 4–8 inch runners; quackgrass, 3–5 leaves and not more than 10 inches tall. Perennial grasses such as bermudagrass, paspalums, and quackgrass need to be treated with Fusilade when regrowth is evident.
	glyphosate (Roundup and various other formulations. See label for rates.)	Wick or wiper application only. Use on emerged annual and perennial weeds with fully expanded leaves.
	napropamide 1.5 oz (Devrinol 50 DF 3.0 oz)	Apply to the soil surface in the fall through early spring prior to weed emergence. Do not apply to frozen ground. Does not control existing weeds. Use as a directed spray and avoid contact with fruit and foliage. Do not apply when fruit is on the ground during the harvest period. Do not graze treated areas. Make only one application/season.
	norflurazon 0.75-1.5 oz (Solicam 80 DF 1.0-1.9 oz)	Apply as a directed spray to weed-free soil and avoid contact with fruit or foliage. May be applied under new plantings if there are no depressions or large cracks which allow the herbicide to accumulate around the root system. Use the lower rate on sandy soils and the higher rate on clay and loam soils.
	oryzalin 0.75-2.3 oz (Surflan 4AS 1.5-4.5 fl oz)	Areas to be treated should be free of weeds. Remove or thoroughly mix trash into the soil before application. Use the lower rate for short term control (4 months) and the higher rate for long-term control (6–8 months). Apply as a directed spray and avoid contact with leaves, branches, or trunks of trees. Do not apply to newly transplanted trees until soil has settled and there are no cracks present. Make only one application/growing season.
	oxyfluorfen 0.2-0.7 oz (Goal 2XL 0.7-2.9 fl oz)	Apply to dormant trees only. Will control certain small seedling weeds plus provide soil residual control of annual broadleaf weeds and certain annual grasses.
	sethoxydim 0.21 oz (Poast 1.5E 1.25 fl oz + 1.25 fl oz crop oil concentrate in 1.0 gal of water)	Spot treatment for emerged grasses. Apply lower rate to annual grasses up to 6 inches. Apply higher rate to annual grasses up to 12 inches tall and to perennial grasses. Do not apply within 14 days of harvest.
	simazine 0.8-1.6 oz (Princep 4L 1.5-3.0 fl oz)	Apply to weed free soil around trees established 1 year or more. Best results are obtained with winter or early spring applications. Adjust rate of application to soil type. Do not use on sandy or gravelly soils. Do not make more than one application/year.

Table 3.15 - Spray Schedule for Weed Control in Home Fruit Orchards (cont.)

Crop	Herbicide Active Ingredient/1000 sq ft (Product/1000 sq ft)	Remarks
Peaches (cont.)	terbacil 0.3-0.6 oz (Sinbar 80W 0.4-0.7 oz)	Apply once in early spring as directed spray to orchard floor where trees have been established three years or more. Kills most existing weeds and gives residual control of annual weed seedlings. Use lower rates on light soils and soils with low organic matter (2% or less); higher rates on heavy soils with 2% or more organic matter. Do not use on sand, loamy sand, gravelly soils, soils with less than 1% organic matter, or on eroded areas where tree roots are exposed. Do not replant treated areas to any crop within two years after last application. Keep spray off crop foliage and fruit.
	2,4-D 0.5 oz (Weedar 64, Orchard Master 1.1 fl oz)	Apply as a directed spray to actively growing broadleaf weeds. Gives good control of annual broadleaf weeds and partial control of perennials. Keep spray off tree foliage and fruit or serious injury may result. Use a coarse spray and low pressure to avoid spray drift. Do not harvest within 40 days of application.
Blackberries, Blueberries, and Raspberries	dichlobenil 1.4 oz (Casoron 4G 2.3 lb)	Apply dry granules in late winter or early spring. Use only on established plantings and do not apply during new shoot emergence.
	fluazifop-P-butyl 0.19 (Fusilade DX 0.75 fl oz + 1.5 fl oz crop oil concentrate or 0.5 fl oz nonionic surfactant in 1.0 gal of water)	Spot treatment for emerged grasses. Use in non-bearing orchards only. Use as a directed spray on actively growing grasses. Treat annual grasses with lower rate before tillering or heading. Treat perennial grasses according to the following stages of growth: johnsongrass, field paspalum, and purpletop before boot stage; bermudagrass, 4 to 8 inch runners; quackgrass, 3 to 5 leaves and not more than 10 inches tall. Perennial grasses such as bermudagrass, paspalums, and quackgrass need to be retreated with Fusilade when regrowth is evident. Do not treat plants to be harvested within one year after application.
	glyphosate (Roundup and various other formulations. See label for rates.)	Use lower rate to control annual weeds and higher rates for perennial weeds. Can be applied preplant or as a spot treatment after planting. Do not allow spray to contact desired stems or foliage.
	napropamide 1.5 oz (Devrinol 50 DF 3.0 oz)	Apply to the soil surface in the fall through early spring prior to weed emergence. Do not apply to frozen ground. Does not control existing weeds. Use as a directed spray and avoid contact with fruit or foliage. Do not apply when fruit is on the ground during the harvest period. Do not graze treated areas. Make only one application/season.
	oryzalin 0.75-2.3 oz (Surflan 4AS 1.5-4.5 fl oz)	Apply in early spring for control of annual grasses and certain broadleaf weeds. Apply to new plantings after rainfall has firmed the soil. May be tank-mixed with simazine or diuron for increased broadleaf weed control.
	sethoxydim 0.21 oz (Poast 1.5E 1.25 fl oz + 1.25 fl oz crop oil concentrate in 1.0 gal of water)	Do not apply within 45 days of raspberry or blackberry harvest or within 30 days of blueberry harvest. Apply as spot treatment for emerged grasses. Treat emerged annual grasses prior to tillering. Perennial grasses may require retreatment.
	simazine 0.8-1.2 oz (Princep 4L 1.5-3.0 fl oz)	Apply for control of annual grasses and broadleaf weeds in the early spring; or as a split treatment with 1/2 applied in the spring and 1/2 applied in the fall. Do not use more than 1/2 rate on new plantings less than 6 months old. Do not apply to foliage or while fruit is present.
	terbacil 0.3-0.6 oz (Sinbar 0.4-0.7 oz)	Only treat plantings established one year or more. Use higher rate on clay soils and soils with high organic matter (3%+). Do not apply over 0.3 oz of terbacil/1000 sq ft to blackberries or raspberries.

Table 3.15 - Spray Schedule for Weed Control in Home Fruit Orchards (cont.)

Crop	Herbicide Active Ingredient/1000 sq ft (Product/1000 sq ft)	Remarks
Grapes	dichlobenil 1.4-2.2 oz (Casoron 4G 2.3-3.4 lb)	Apply granules in winter or early spring. Do not apply until four weeks after transplanting.
	diuron 0.8 oz (Karmex 80 DF 1.0 oz)	Apply a single application per year in the early spring after clean cultivation and where vines have been established at least three years. Single application may give season-long control of annual weeds. Do not plant treated area to any crop not on the label for two years.
	fluazifop-P-butyl 0.19 oz (Fusilade DX 0.75 fl oz + 1.5 fl oz crop oil concentrate or 0.5 fl oz nonionic surfactant in 1.0 gal of water)	Spot treatment for emerged grasses. Use in non-bearing vineyards only. Use as a directed spray on actively growing grasses. Treat annual grasses before tillering or heading. Treat perennial grasses according to the following stages of growth: johnsongrass, field paspalum, and purpletop, before boot stage; bermudagrass, 4–8 inch runners; quackgrass, 3–5 leaves and not more than 10 inches tall. Perennial grasses such as bermudagrass, paspalums, and quackgrass need to be retreated with Fusilade when regrowth is evident. Do not treat trees to be harvested within one year after application.
	glufosinate (Rely)	Controls annual weeds and certain perennial weeds. Apply when weeds are actively growing. Mix 1.5 to 4.0 fl oz/gal. Ensure thorough coverage of weed foliage. Do not allow spray to contact desired foliage or green bark. Do not apply within 14 days of harvest.
	glyphosate (Roundup and various other formulations. See label for rates.)	Use as a directed spray in established vineyards or for site preparation prior to transplanting new vines. Do not apply when green shoots or canes or foliage are in the spray zone. Do not allow spray, drift, or mist to contact green foliage, green bark, suckers, or vines and renewals less than three years of age. Spray contact, other than with mature bark on the main trunk, can result in serious localized or systemic injury.
	napropamide 1.5 oz (Devrinol 50 DF 3.0 oz)	Apply to soil surface in the fall through early spring prior to weed emergence. Do not apply to frozen ground. Does not control existing weeds. Use as a directed spray and avoid contact with fruit or foliage. Do not apply when fruit is on the ground during the harvest period. Do not graze areas. Make only one application/ season.
	oryzalin 0.75-2.2 oz (Surflan 4AS 1.5-4.5 fl oz)	Areas to be treated should be free of weeds. Remove or thoroughly mix trash into the soil before application. Use lower rate for short-term control (4 months) and higher rate for long-term control (6–8 months). Apply as a directed spray and avoid contact with leaves, branches, or trunks of vines. Do not apply to newly transplanted vineyards until soil has settled and there are no cracks present. Make only one application/growing season.
	oxyfluorfen 0.2-0.7 oz (Goal 2XL 0.7-2.9 fl oz)	Dormant application only. Will control certain small seedling weeds plus provide soil residual control of annual broadleaf weeds and certain annual grasses.
	sethoxydim 0.21 oz (Poast 1.5E 1.25 fl oz + 1.25 fl oz crop oil concentrate in 1.0 gal of water)	Do not apply within 50 days of harvest. Spot-treatment for emerged grasses. Treat annual grasses prior to tillering. Perennial grasses may require repeat treatment.
	simazine 0.8-1.6 oz (Princep 4L 1.5-3.0 fl oz)	Apply a single application in fall or early spring to weed-free soil. Vineyards must be established at least three years.

Table 3.15 - Spray Schedule for Weed Control in Home Fruit Orchards (cont.)

Crop	Herbicide Active Ingredient/1000 sq ft (Product/1000 sq ft)	Remarks
Strawberries	napropamide 1.5 oz (Devrinol 50 DF 3.0 oz)	Use on established strawberries. Delay application until the desired number of daughter plants has become established. Do not apply from bloom to harvest. Make only one application/season. Does not control established weeds.
	sethoxydim 0.21 fl oz (Poast 1.5E 1.25 fl oz plus 1.25 fl oz crop oil concentrate in 1.0 gal of water)	Do not apply within 7 days of harvest. Spot-treatment for emerged grasses. Treat annual grasses prior to tillering. Perennial weeds may require retreatment.
	2,4-D amine 0.4 oz (Formula 40 0.7 fl oz)	Apply for control of emerged broadleaf weeds in established beds. Apply in late winter or early spring when strawberries are dormant, or apply immediately after last picking. Do not apply during bud, flower, or fruit stage; or during runner formation. Some foliar injury is to be expected.

