

## WEED CONTROL IN HOME FRUIT PLANTINGS

Many home gardeners have fruit plantings that are too large to hand weed and too small to use heavy equipment in. Hand pulling and mulching can be used to control weeds in many cases. In addition, herbicides can be used to supplement the above cultural practices to make controlling weeds easier and faster. For small areas, several chemical manufacturers (e.g., Ortho, Scott, Southern States, Security and others) sell a variety of herbicides in small quantities which are ideal for this job. These chemicals are formulated to make them more convenient and easier for the homeowner to use. For larger areas, several products can be purchased over the counter at farm chemical retail stores. For all-purpose weed knock-down, use glyphosate. These knockdown materials (postemergence) will kill many emerged weeds already growing. Remember to keep these materials off the crop plants to avoid damage.

To control germinating seedlings, several preemergence herbicides are available. General use recommendations are given below, but consult the label on each product for specific directions before application.

### **Strawberries**

Weed control is difficult since newly set strawberries are sensitive to many of the herbicides. Dacthal is the only herbicide which can be applied to clean soil after planting strawberries. Use 4 ounces by weight of Dacthal 75% wettable powder in one gallon of water to spray 1,000 square feet. Up to three applications can be made per year with at least one month intervals. Dacthal will be effective for 4 to 8 weeks. Devrinol can also be used on established plants. See the label for directions. Apply one-half inch of irrigation immediately after application of Devrinol for best results. Poast can be used for control of emerged annual and perennial grasses at any time except during harvest and during the period up to 30 days before harvest begins.

### **Small Fruits**

(raspberries, blackberries, blueberries, grapes) and Orchard Fruit (apples, pears, peaches, plums, nuts)

A weed-free strip around the base of each plant is desirable. Mowing a grass or natural weed strip between crop plants and applying a preemergence herbicide and/or a 3-inch mulch under the crop plants is the ideal method of managing weeds in your home fruit planting. Following are general suggestions for using weed control chemicals in fruit plantings. Read the information on the container for more detailed directions.

### **Preemergence Herbicides**

These materials are used to prevent weed germination. They must be applied as a directed spray to the base of the crop plant. Contact of the spray with the lower stems or leaves of these plants, however, will not damage them. Mixing these herbicides into the soil surface is often suggested to increase effectiveness. Watering with an inch or more of water can often be used as a substitute for incorporation around established plants.

- Casoron (dichlobenil) is available as a 2 or 4% granule. It can be used on most woody plants 30 days after transplanting. This material is excellent for control of cool-season grasses and weeds. It is best applied during the winter months.
- Devrinol 50% dry flowable granules can be used on many newly planted and established fruit crops. Put 1 ounce by weight in one gallon of water (or more) and spray uniformly over 1,000 square feet. It is best applied either in early spring or after harvest to weed-free soil.
- Princep (simazine) is available as a wettable (90 WP) powder and a liquid (4L) and can be used on many established woody plants. Do not apply to plants less than 3 years old. It is best applied either in early spring or after harvest to weed-free soil.
- Surflan is available as a liquid (4AS). Apply 2 to 4 quarts of the 4AS evenly over one acre in at least 20 gallons water or put 1½ to 3 tablespoons of 4AS in one gallon water and spray evenly over 1,000 square feet. Surflan can be applied safely after transplanting on many woody stemmed crops. It is best applied either in early spring or after harvest to weed-free soil.

### **Postemergence Herbicides**

These materials are used to eliminate existing weeds. Remember to keep these materials off crop plants or damage will result.

- Roundup or Ortho Kleenup – This material is most effective on small annuals and perennials in the middle of the summer. Roundup is a slow-acting material which will completely kill the plants, including the roots of perennials. It will take 10 to 14 days for the plants to die. Since the concentration of active ingredient in these products varies, follow the mixing directions on the container. Do not use these materials during bloom or harvest periods.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>FRUIT AND NUT CROPS</b>				
<b>Tree Fruits</b>				
<b>Preemergence</b>				
indaziflam @ 0.065 to 0.085 lb/A		<b>Alion 1.67 SC</b> 5 to 6.5 fl oz/A.		Use in orchards established three years or more. See label for details pertaining to replants in established orchards. Allow at least 30 days between applications. Use 5 fl oz/A on medium- and coarse-textured soils. Do not use on soils that have a 20% or greater gravel content. Do not use in orchards with open channels or cracks in soil. Do not apply more than 10.3 oz/A per year. Alion has a 14-day PHI. Tank mix glyphosate, glufosinate, or paraquat for non-selective POST weed control.
pendimethalin @ 1.9 to 3.8 lb/A	Annual grasses and some broadleaf weeds.	<b>Prowl H<sub>2</sub>O 3.8 AS</b> 2 to 4 qt/A.	Preemergence.	Most effective when adequate rainfall or irrigation is received within 7 days of application. Do not apply to newly transplanted trees until ground has settled around roots. Apply with paraquat to control emerged weeds. Prowl has a 60-day preharvest interval (PHI). May be applied as sequential applications so long as total amount used does not exceed 4.2 qt/A. Allow at least 30 days between applications.
oryzalin @ 2 to 4 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Surflan 4 AS</b> 2 to 4 qt/A. Use low rate for short-term (4 months) weed control and high rate for 6- to 8-month weed control. May be tank mixed with Karmex or Princep. See comment at right.	Apply to weed-free soil. Mix any weed residue or trash thoroughly into soil before application.	Sprayer must have thorough agitation and avoid spray drift to foliage. For broader spectrum of control, Surflan may be tank mixed with Karmex or Princep as recommended individually. See label for details. May be used on apples, peaches, pears and most other tree fruits.
diuron @ 2 to 3.2 lb/A	Annual weeds and some perennials.	<b>Karmex 80 DF</b> 2.5 to 4 lb/A.	Apply February through May or in fall after harvest.	Time period that trees should be established in the orchard before using Karmex: apples 1 year, peaches 3 years, pears 1 year.
norflurazon @ 2 to 4 lb/A	Annual weeds and some perennials.	<b>Solicam 80 DF</b> 2.5 to 5 lb/A.	From fall to early spring before weeds emerge.	Orchard floor should be free of weeds. Use only on trees 18 months or older. May be applied to apples, cherries, pears, nectarines, peaches and plums.
terbacil @ 1.6 to 3.2 or 0.8 to 1.6 lb/A	Annual weeds and some perennials.	<b>Sinbar 80W</b> 1 to 2 lb/A.	From fall to early spring before weeds emerge.	Time period that trees should be established in the orchard before using Sinbar: apples 3 years, peaches 3 years.

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simazine @ 2 to 4 lb/A	Annual weeds, primarily broad-leaves.	<b>Princep</b> 2 to 4 qt/A of 4L.	From fall to early spring before weeds emerge.	Time period that trees should be established in the orchard before using Princep: apples, peaches, plums, nectarines, cherries, pears 1 year.
flumioxazin @ 0.19 to 0.38 lb/A	Annual broadleaf and grass weeds.	<b>Chateau</b> 6 to 12 oz/A.	Preemergence, dormant applications preferred or use shielded sprayer.	For trees established less than three years growing in soil with a sand plus gravel content of over 80 percent, use a maximum rate of 6 ounces per acre. Do not harvest fruit from treated trees within one year of application.
<b>Tree Fruits</b>				
<b>Postemergence</b>				
paraquat @ 0.63 to 1 lb/A	Annual weeds and foliage of perennials.	<b>Paraquat</b> (3 lb/gal formulations) 1.7 to 2.7 pt/A.	Apply in spring with preemergence herbicide. If needed, repeat alone throughout the season as required to contain weeds.	For paraquat: apply directly to weed foliage. May be used with preemergence material to eliminate existing weeds or 6 to 8 weeks later to eliminate escape weed plants. May be used in apples, cherries, peaches, nectarines, pears, plums, prunes and apricots.
fluazifop-P @ 0.19 lb/A	Annual and perennial grasses, including johnsongrass and bermudagrass.	<b>Fusilade DX 2 EC</b> 1.5 pt/A.	When grasses are actively growing. See label for growth stages. Repeat applications needed for bermudagrass and johnsongrass.	Do not use on bearing apples or pears. Do not harvest apricots, cherries, nectarines, peaches, plums or prunes within 14 days of application.
sethoxydim @ 0.3 to 0.5 lb/A	Annual and perennial grasses.	<b>Poast 1.5 EC</b> 1.5 to 2.5 pt/A.	Apply to small annual grasses preferably within 14 days after emergence. See label for timing for perennial grasses.	Labeled for apple, crabapple, pear and quince. Do not harvest within 14 days of treatment. Add 1% crop oil concentrate.
glyphosate @ 0.75 to 3.75 lb/A	Annual weeds, johnsongrass and bermudagrass.	<b>Glyphosate</b> (4 lb/gal formulations) 1 to 5 qt/A in 10 to 20 gal water.	To actively growing vegetation.	Apply to peach orchards that have been planted for 2 years or more. Application <b>must</b> be made with a shielded boom sprayer or wiper applicator which prevents any contact of Roundup with the peach foliage or bark. Remove suckers and hangers at least 10 days before application. Misapplication of Roundup around peach trees can result in severe tree injury or death. Use 20 gpa or less of clean water.
<b>Blueberry and Blackberry</b>				
<b>Preplant - Burndown</b>				
glyphosate @ 1 to 4 lb/A	Annual grasses and broadleaf weeds.	<b>Glyphosate</b> (4 lb/gal formulations) 1 to 4 qt/A	Prior to planting for planting into a weed free bed.	Apply directly to emerged weeds. Provides only postemergence control.

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<b>FRUIT AND NUT CROPS</b>				
<b>BLUEBERRY AND BLACKBERRY</b>				
<b>Preplant - Burndown [cont.]</b>				
flumioxazin @ 0.188 to 0.38 lb/A	Annual broadleaf and grass weeds.	<b>Chateau 51WDG</b> 6 to 12 oz.	Early winter and not later than mid-February.	Shallow incorporation or irrigation of ½ to 1 inch recommended. Apply to bearing and nonbearing plants. <b>Established plants (&gt;1 year).</b>
<b>Preemergence - Blueberry and Blackberry</b>				
dichlobenil @ 4 to 6 lb/A or 2 to 4 lb /A	Annual broadleaf and grass weeds.	<b>Casoron 4G or Casoron CS</b> 100 lb/A or 1.4 to 2.8 gal/A.	Early winter and not later than mid-February.	Shallow incorporation or irrigation of ½ to 1 inch recommended. Apply to bearing and nonbearing plants. <b>Established plants (&gt;1 year).</b>
diuron @ 1.2 to 1.6 lb/A	Annual broadleaf and grass weeds.	<b>Karmex 80DF</b> 1.5 to 2 lb/A.	Early spring and again in fall.	Apply as a band treatment to the base of the canes. Use low rate on sandy, gravelly soils with low organic matter. May cause injury. <b>Established plants (&gt;1 year).</b>
isoxaben @ 0.5 to 1 lb/A	Annual broadleaf weeds.	<b>Gallery 75DF</b> 0.66 to 1.33 lb/A.	Sequential applications throughout the year.	Apply to crops that will not be harvested for one year. Apply sequential applications no sooner than 60 days apart and no more than 4 lb/A per year. <b>Nonbearing plants only.</b>
isoxaben + trifluralin @ 2.5 to 5 lb/A	Annual broadleaves and grasses.	<b>Snapshot 2.5TG</b> 100 to 200 lb/A.	Sequential applications throughout the year.	Apply to crops that will not be harvested for one year. Irrigation or rainfall of ½ to 1 inch needed within 3 days of application. Make applications no sooner than 60 days apart. No more than 600 lb/A per year. <b>Nonbearing plants only.</b>
mesotrione @ 0.1 to 0.2 lb/A	Broadleaves.	<b>Callisto</b> 3 to 6 fl oz/A.	Pre-bloom.	Callisto has some POST activity, add 1% v/v crop oil concentrate. No more than two applications at 2 fl oz, 14 days apart per season. May cause bleaching. <b>Established plants (&gt;1 year).</b>
napropamide @ 4 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Devrinol 50 DF</b> 8 lb/A.	Early spring or after harvest.	Apply to a weed-free surface or tank mix with a POST herbicide. Must be incorporated with irrigation or rainfall within 24 hours. Do not exceed 8 lb/A per crop cycle.
norflurazon @ 2 to 4 lb/A	Annual grasses and small-seeded broadleaves and some seedling perennials.	<b>Solicam 80DF</b> 2.5 to 5 lb/A.	Apply from fall to early spring while plants are dormant.	Apply while plants are dormant. Limit to one application per year. Do not apply within 60 days of harvest. Use higher rates on higher clay soil. May cause some bleaching or yellowing. <b>Established plants (&gt;18 m).</b>

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oryzalin @ 2 to 6 lb/A	Annual grasses and small-seeded broadleaf weeds	<b>Surflan 4AS</b> 2 to 6 qt/A.	Sequential applications throughout the year	Irrigation or rainfall of ½ to 1 inch needed for proper activation. Sequential applications on 2½-month intervals. No more than 12 qt/A per year.
simazine @ 1 to 2 lb/A @2 to 4 lb/A	Annual broadleaf and grass weeds.	<b>Princep 4L</b> 1 to 2 qt/A. 2 to 4 qt/A.	Before bud break and after harvest. New planting (<6 m) Established plants	Split applications with half the recommendation in the fall and half in the spring. Do not apply when fruit is present.
terbacil @ 0.4 to 1.6 lb/A	Annuals and some perennials.	<b>Sinbar 80W</b> 0.5 to 2 lb/A.	In spring before fruit set or after harvest in the fall.	Use low rates on coarse/ sandy soils and/or soils with less than 3% organic matter. Avoid contact with foliage. <b>Established plants (&gt;1 year).</b>
indaziflam @ 0.045 to 0.09 lb ai/A	Annual grasses and broadleaf weeds. Also controls bermudagrass.	<b>Alion 1.67E</b> 3.5 to 7 fluid oz/A.	Preemergence. Apply to weed-free soil, before budbreak.	<b>Do not use on low-bush blueberry.</b> For plantings at least 1-year old. To control bermudagrass, apply when dormant. Can tank mix with other preemergence herbicides to broaden spectrum of control and also with nonselective herbicides for burndown of emerged weeds. Do not apply more than a total of 7.0 fl oz product/A (0.09 lb ai/A) per year on soils containing < 1 % organic matter content, or 10.0 fl oz product/A (0.13 lb ai/A) on soils containing ≥1% organic matter in a 12-month period when used in any highbush blueberry planting.
<b>Postemergence - Blueberry and Blackberry</b>				
carfentrazone @ 0.016 to 0.031 lb/A for weed control @0.1 lb/A for primocane control	Annual broadleaves.	<b>Aim 2EC</b> 1 to 2 fl oz/A for weed control. 6.4 fl oz/A for primocane control.	Apply to emerged and actively growing weeds.	Apply to primocanes as post-directed spray when they are approximately 6 inches tall. Use a crop oil concentrate at 1% v/v or non-ionic surfactant at 0.25%. Avoid contact with green tissues or foliage. Sequential application should not be made sooner than 14 days. Do not apply within 15 days of harvest.
clethodim @ 0.09 to 0.25 lb/A	Annual and perennial grasses ONLY.	<b>Select 2EC or Select Max</b> 8 or 16 fl oz/A	Apply to emerged and actively growing weeds.	Use on nonbearing crop only. Do not apply within one year of harvest. Multiple applications are required for perennial grass control. Repeat application on 14- to 21-day intervals. Add a nonionic surfactant a 0.25% v/v.
sethoxydim @ 0.2 to 0.5 lb/A	Annual and perennial grasses ONLY.	<b>Poast 1.5EC</b> 1 to 2.5 pt/A.	Apply to emerged and actively growing weeds.	Do not apply within 45 days of harvest. Use a crop oil concentrate at 1% v/v. Apply no more than 5 pt/A per year.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>FRUIT AND NUT CROPS BLUEBERRY AND BLACKBERRY Postemergence [cont.]</b>				
fluazifop @ 0.19 to 0.38 lb/A	Annual and perennial grasses ONLY.	<b>Fusilade DX 2EC</b> 12 to 24 fl oz/A.	Apply to emerged and actively growing weeds.	Use on nonbearing crop only that will not be harvested for one year. Use a crop oil concentrate at 1% v/v or nonionic surfactant at 0.25%. Apply no more than 72 fl oz/A per year. Use 14-day intervals for sequential applications.
glyphosate @ 1 to 2 lb/A	Annual and perennial weed control.	<b>Glyphosate</b> (4 lb/gal formulations) 2 to 4 pt/A.	Apply to emerged and actively growing weeds.	Apply directly to emerged weeds; provides only postemergence control. Consult label for proper restrictions and rates.
halosulfuron @ 0.667 to 1.33 oz/A	Sedge and broadleaf control; should be mixed with other herbicides to enhance grass activity.	<b>Sandea 75 DG</b> 0.5 to 1 oz/A.	Apply to emerged and actively growing weeds.	Do not apply more than 2 oz/A per year and sequential applications should not be made more than 45 days apart. Does have some residual control. Can be tank mixed with paraquat or glyphosate. <b>Established plants (&gt;1 year).</b>
paraquat @ 0.5 to 1 lb/A	Annual weeds and foliage of perennials.	<b>Gramoxone SL</b> 2 to 4 pt/A.	Apply to emerged and actively growing weeds.	Direct spray to weed foliage and avoid any green or exposed tissues on the blackberry. Make no more than five applications per year. Use a crop oil concentrate at 1% v/v or non-ionic surfactant at 0.25%. Can be tank mixed with PRE herbicides for residual activity. Contact with blackberry will cause necrotic lesions but the canes should grow through it.
pelargonic acid	Annual weeds and foliage of perennials.	<b>Scythe</b> 3% -10% v/v.	Apply to emerged and actively growing weeds.	The only herbicide recommended for weed control in organic production systems. Herbicide must have direct contact and adequate coverage with the foliage of young weeds for activity.
<b>Postemergence - Blueberry ONLY</b>				
glufosinate @ 0.8 to 1.5 lb/A	Annual and perennial weeds.	<b>Rely 280 (2.34 lb ai/gal)</b> 48 to 82 fl oz/A.	Postemergence as required to contain weeds. Use in the spring and fall as a burndown when applying preemergence herbicides.	Avoid contact or drift onto green tissue. Shielded applications are recommended. Repeat application is needed to control regrowth. Do not exceed 246 fl oz/A of Rely 280 per year, or no more than three applications of 82 fl oz/A. Do not apply within 14 days of harvest.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>Grapes</b>				
<b>Preemergence</b>				
diuron @ 2 lb or 1 lb/A	Annual weeds and some perennials.	<b>Karmex 80 DF</b> 2.5 lb/A (1.25 lb/A after second year).	Early spring before weeds emerge.	Apply in 4-ft band centered under the trellis to soil free of trash and weeds. Do not use on 1- and 2-year-old plantings. May be tank mixed with Sinbar or Surflan.
simazine @ 1 to 2 lb/A	Annual grasses and broadleaf weeds.	<b>Princep</b> 1 to 2 qt/A 4L. 1.1 to 2.2 lb 90WDG.	Early spring before weeds emerge.	Vineyard must be at least 3 years old. May be tank mixed with Surflan, paraquat or Roundup.
oryzalin @ 2 to 4 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Surflan 4 AS</b> 2 to 4 qt/A. Use low rate for short-term (4 months) weed control and high rate for 6- to 8-month weed control.	Apply to weed-free soil. Mix any weed residues or trash thoroughly into soil before application.	Sprayer must have thorough agitation and avoid spray drift to foliage. See label for further details. Surflan may be tank mixed with Karmex or Princep as recommended individually to broaden spectrum of control. See label for details.
norflurazon @ 2 to 4 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Solicam 80 DF</b> 2.5 to 5 lb/A. Use low rate on light soils.	Fall to early spring. Do not apply to sandy loam soils after bud break.	Do not use on sandy or gravelly soils. Vines must be established for 2 years. Do not use on nursery stock.
flumioxazin @ 0.19 to 0.38 lb/A	Annual broadleaf and grass weeds.	<b>Chateau</b> 6 to 12 oz/A.	Preemergence, dormant applications preferred or use shielded sprayer.	Apply as a directed spray to dormant vines or use a shielded sprayer. Do not apply to vines established less than 2 years unless they are protected from spray contact by nonporous wraps, grow tubes or waxed containers. Combine with a labeled postemergence herbicide for control of emerged weeds.
isoxaben @ 0.5 to 1.0 lb/A	Annual broadleaf weeds.	<b>Gallery 75 DF</b> 0.66 to 1.33 lb/A.	Preemergence.	Use on nonbearing grapes only. Do not apply until soil has settled after transplanting. Tank mix with Surflan for grass control.
pendimethalin @ 2.0 to 4.0 lb/A	Annual broadleaf and grass weeds.	<b>Prowl H<sub>2</sub>O</b> 2.0 to 4.0 qt/A.	Preemergence. Apply only to dormant plants. Do not apply after bud swell.	Use on nonbearing plantings only. Allow soil to settle around vines before applying. Do not apply overtop vines.
oxyfluorfen @ 1.25 to 2.0 lb/A	Annual broadleaf weeds.	<b>Goal 2 XL</b> 5 to 8 pt/A.	Use only on dormant grapes for pre-emergence or postemergence control of weeds.	Direct spray to base of plant. Do not apply after buds begin to swell or when foliage or fruit is present. Do not apply to grapes established less than 3 years unless vines are on a trellis wire at least 3 feet above the ground.



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<b>FRUIT AND NUT CROPS</b>				
<b>GRAPES</b>				
<b>Postemergence [cont.]</b>				
flumioxazin @ 0.19 to 0.375 lb/A	Annual grasses and small broadleaf weeds.	<b>Chateau 51 WDG</b> 6 to 12 oz/A.	Apply with hooded or shielded application equipment. Grapes established less than 2 years must be shielded from contact with spray solution using grow tubes.	Once vines break dormancy, do not apply in combination with glyphosate. Do not apply more than 6 ounces per acre per application to vines less than 3 years old on soils having a sand plus gravel content greater than 80%.
dichlobenil @ 4 to 6 lb/A	Annuals and many perennials.	<b>Casoron 4G</b> 100 to 150 lb/A.	In early winter and not later than mid-February.	Granular form preferred. Apply in early spring. Incorporate lightly for best results. May be used in vineyards in first year after transplanting after vines are established. Do not apply immediately after transplanting.
<b>Grapes</b>				
<b>Postemergence</b>				
glyphosate @ 0.75 to 1.5 lb/A	Annual weeds, bermudagrass and johnsongrass.	<b>Glyphosate</b> (4 lb/gal formulations) 1 to 2 qt/A.	Apply to actively growing weeds.	Direct to base and avoid contact with green bark or foliage. Do not apply to vines less than 3 years old or within 14 days of harvest. See label.
paraquat @ 0.47 to 0.94 lb/A	Annual weeds and foliage of perennials.	<b>Paraquat</b> (3 lb/gal formulations) 1.3 to 2.7 pt/A.	Apply in spring with preemergence herbicide. If needed, repeat alone throughout the growing season as required to contain weeds.	Direct spray to weed foliage, avoiding vines. Do not graze treated areas.
sethoxydim @ 0.3 to 0.5 lb/A	Annual and perennial grasses including johnsongrass and bermudagrass.	<b>Poast 1.5 EC</b> 1.5 to 2.5 pt/A.	Use low rate on annual grasses up to 6 inches tall; high rate on annual grasses up to 12 inches tall and perennial grasses. Broadleaf weeds and nutsedge(s) will not be controlled by Poast.	Do not apply within 50 days of harvest. Apply as a directed spray using 5 to 20 gal water/acre and 40 to 60 psi pressure. Use flat fan nozzle tips. Always use a nonphytotoxic oil concentrate (1 qt/acre).
fluzifop-P @ 0.19 lb/A	Annual and perennial grasses including johnsongrass and bermudagrass.	<b>Fusilade DX 2EC</b> 1.5 pt/A.	Make application to johnsongrass – 12 to 18 inches tall; bermudagrass – 3 inches tall or with 4- to 6-inch runners; annual grasses – 2 to 8 inches tall. Broadleaf and nut-sedge(s) will not be controlled by Fusilade.	Apply to NONBEARING vines that will not be harvested within 1 year of application. Apply as a directed spray using 25 gal water/acre and 30 to 60 psi pressure. Use flat fan nozzle tips and DO NOT contact foliage. Always use a crop oil concentrate (1 qt/25 gal water/acre) or a nonionic surfactant (0.5 pt/25 gal water/acre).
clethodim @ 0.09 to 0.25 lb/A	Annual and perennial grasses.	<b>Select 2 EC</b> 6 to 16 oz/A.	Postemergence to grasses.	Use on nonbearing crop only. Do not apply within one year of harvest. Effective for annual bluegrass control.



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glyphosate @ 1 to 2 lb/A	Annual grasses and broadleaf weeds.	<b>Glyphosate</b> (4 lb/gal formulations) 2 to 4 pt/A.	Prior to planting for planting into a weed-free bed.	Apply directly to emerged weeds. Provides only postemergence control.
<b>Strawberries</b>				
<b>Preplant - Before Plastic Laying</b>				
acifluorfen @ 0.125 to 0.375 lb/A	Annual broadleaf weeds.	<b>Ultra Blazer 2L</b> 0.5 to 1.5 pt/A.	Apply after bed formation and prior to plastic laying and transplanting.	Can be applied to row middles after transplanting as a directed/shielded spray. Avoid contact with foliage.
flumioxazin @ 0.1 lb/A	Annual broadleaf and grass weeds.	<b>Chateau 51WDG</b> 3 oz/A.	Apply to preformed beds a minimum of 30 days prior to transplanting.	Can be applied to crop rows and row middles. Avoid soil disturbance after application. Do not apply over the top of strawberries.
napropamide @ 4 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Devrinol 50 DF</b> 8 lb/A.	Apply after bed formation and prior to plastic laying and transplanting.	Apply to a weed-free surface. Must be incorporated with irrigation or rainfall within 24 hours. Lay plastic the same day as application. Can be used in row middles, requires incorporation.
sulfentrazone @ 0.125 to 0.25	Annual grasses and small-seeded broadleaf weeds.	<b>Spartan 4F</b> 4 to 8 oz/A.	Apply prior to transplanting to reduce injury to the crop.	
terbacil @ 0.1 to 0.3 lb/A	Annual broadleaf and grass weeds.	<b>Sinbar</b> 2 to 6 oz/A.	FOR USE IN MATTED STRAWBERRIES ONLY. Preemergence.	For planting year: apply 2 to 3 oz of Sinbar per acre after transplanting but before new runner plants start to root. If strawberry transplants are allowed to develop new foliage before application, apply 0.5 to 1.0 inch of overhead irrigation immediately after application. For control of winter weeds, apply 2 to 6 oz per acre in late summer or early fall. If the crop is not dormant, apply 0.5 to 1.0 inch of overhead irrigation immediately after application. To extend control through harvest of the following year, apply 2 to 4 oz per acre just before mulching in the late fall. For harvest years: after postharvest renovation and before new growth begins in midsummer, apply 4 to 6 oz of Sinbar per acre in midsummer. To extend control through harvest of the following year, apply 4 to 6 oz of Sinbar per acre just before mulching in the late fall. Do not apply within 110 days of harvest. See label for more information.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
<b>Strawberries</b> <b>Postemergence - Over the Top</b>				
2,4-D amine @ 1 to 1.5 lb/A	Broadleaf weeds only.	<b>2,4 D Amine 4SL</b> 2 to 3 pt/A.	FOR USE IN MATTED STRAWBERRIES ONLY. Apply to established plants that are dormant or after final harvest.	Do not apply on plasticulture annual strawberries. Will cause injury to actively growing strawberries.
clopyralid @ 0.125 to 0.25 lb/A	Broadleaf weeds, especially clovers, vetch, curly dock, horsenettle.	<b>Stinger 3 SL</b> 1/3 to 2/3 pt/A.	Apply in the spring up to 30 days before harvest and after harvest following the spring application.	Section 24(c) label. Up to 2 applications per year. Do not exceed 2/3 pt/A. Do not use any surfactant. May cause some injury in certain conditions.
clethodim @ 0.09 to 0.125 lb/A	Annual and perennial grasses ONLY.	<b>Select 2EC</b> 6 to 8 fl oz/A.	Apply to emerged and actively growing weeds.	Multiple applications are required for perennial grass control. Repeat application on 14- to 21-day intervals. Add a crop oil concentrate at 1% to increase efficacy. Do not apply within 14 days of harvest.
sethoxydim @ 0.2 to 0.3 lb/A	Annual and perennial grasses ONLY.	<b>Poast 1.5EC</b> 1 to 1.5 pt/A.	Apply to emerged and actively growing weeds.	Do not apply within 3 days of harvest. Use a crop oil concentrate at 1% v/v. Total cannot exceed 2.5 pt/A/year.
<b>Strawberries</b> <b>Preemergence and Postemergence - Row Middles</b>				
carfentrazone @ 0.03 lb/A	Annual broadleaves, excellent control of morningglories.	<b>Aim 2EC</b> 2 fl oz/A	Apply to actively growing weeds less than 4 inches tall.	Apply post-directed/ shielded to the row middles. If contact with foliage occurs some burning will occur. Does not have activity on grasses.
paraquat @ 0.325 to 0.5 lb/A	Annual weeds and foliage of perennials.	<b>Gramoxone 2SL</b> 1.3 to 2 pt/A	Apply to actively growing weeds.	Apply post-directed/shielded to the row middles. If contact with foliage occurs some burning will occur.
pendimethalin @ 0.9 lb/A	Annual grasses and small-seeded broadleaves.	<b>Prowl H2O 3.8 EC</b> 1.5 pt/A	Apply to row middles prior to weed emergence	Apply to row middles only. Must be activated with at least ½ inch of rainfall. PHI = 35 days.
<b>Pecans</b> <b>Preemergence</b>				
diuron @ 1.6 to 3.2 lb/A	Most annual broadleaf weeds and grasses.	<b>Karmex 80 DF</b> 2 to 4 lb/A.	Apply in spring or early summer.	Apply as directed spray. Avoid contact of foliage with spray. Do not use on soils with less than ½ percent organic matter. Do not graze livestock in treated groves.
simazine @ 1 to 2 lb/A	Most annual broadleaf weeds and grasses.	<b>Princep</b> 1 to 2 qt/A 4L. 1.1 to 2.2 lb 90WDG.	Apply in spring or early summer.	Direct to floor of orchard. Avoid contact with foliage. Do not use on sand or loamy sand soils. May be tank mixed with Roundup, paraquat or Surflan.

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per Broadcast Acre	Time of Application	Method of Application and Precautions
oryzalin @ 2 to 4 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Solicam 80 DF</b> 2.5 to 5 lb/A.	Apply to weed-free soil. Mix any weed residues or trash thoroughly into soil before application.	Sprayer must have thorough agitation and avoid spray drift to foliage. May be tank mixed with Karmex or Princep as recommended individually to broaden spectrum of control. See label for details. May be tank mixed with Roundup, paraquat or Princep.
dichlobenil @ 4 to 6 lb/A	A wide range of annual weeds and some perennials.	<b>Casoron 50W</b> 8 to 12 lb/A.	Apply in January or February. Granular form may be applied in late fall.	Do not apply within 6 months after transplanting or within 1 month of harvest. Rainfall or sprinkler irrigation is needed after application to move the herbicide into the soil.
norflurazon @ 2 to 4 lb/A	Annual grasses and some broadleaf annual weeds.	<b>Solicam 80 DF</b> 2.5 to 5 lb/A.	Apply in early spring or after harvest in the fall.	Do not apply until transplanted trees have completed their first growing season (fall application). Make only one application per year. Do not graze treated areas. May be tank mixed with paraquat.
diuron + terbacil @ 1 to 1.5 + 0.8 to 1.6 lb/A	A wide range of annual weeds.	<b>Karmex 80 DF + Sinbar 80W</b> 1.2 to 1.8 lb/A + 1 to 2 lb/A.	Apply in early spring.	Use under trees established 2 years or more. See label for soil type and organic matter precautions. Do not graze treated areas.
<b>Pecans</b>				
<b>Postemergence</b>				
glyphosate @ 0.75 to 1.5 lb/A	Annual weeds, johnsongrass and bermudagrass.	<b>Glyphosate</b> (4 lb/gal formulations) 1 to 2 qt/A.	To actively growing vegetation.	Direct to base of tree and do not allow drift to contact foliage or green bark. See label for details. May be tank mixed with Surflan or Princep.
paraquat @ 0.47 to 0.94 lb/A	Annual weeds and foliage of perennials.	<b>Paraquat</b> (3 lb/gal formulations) 1.3 to 2.7 pt/A.	Apply in spring and repeat as needed.	Directed spray. Do not allow spray to contact green stems, fruit or foliage of pecan tree. Do not apply when nuts to be harvested are on ground. May be tank mixed with Princep or Surflan.
sethoxydim @ 0.3 to 0.5 lb/A	Annual and perennial grasses including johnsongrass and bermudagrass.	<b>Poast 1.5 EC</b> 1.5 to 2.5 pt/A.	Use low rate on annual grasses up to 6 inches tall; high rate on annual grasses up to 12 inches tall and perennial grasses. Broadleaf weeds and nutsedge(s) will not be controlled by Poast.	Apply to NONBEARING trees that will not be harvested within 1 year of application. Apply as a directed spray using 5 to 20 gal water/acre and 40 to 60 psi pressure. Use flat fan nozzle tips. Always use a nonphytotoxic oil concentrate (1 qt/acre).
fluazifop @ 0.19 lb/A	Annual and perennial grasses including johnsongrass and bermudagrass.	<b>Fusilade DX 2 EC</b> 1.5 pt/A.	Make application to johnsongrass – 12 to 18 inches tall; bermudagrass – 3 inches tall or with 4- to 8-inch runners; annual grasses – 2 to 8 inches tall. Broadleaf weeds and nutsedge(s) will not be controlled by Fusilade.	Do not apply to pecans within 30 days of harvest. Apply as a directed spray using 25 gal water/acre and 30 to 60 psi pressure. Use flat fan nozzle tips and DO NOT contact pecan tree foliage. Always use a crop oil concentrate (1 qt/25 gal water/acre) or a nonionic surfactant (0.5/25 gal water/acre).