

Crop, Situation, and Active Chemical Per Broadcast Acre	Weeds Controlled	Formulated Material Per 1,000 Square Feet	Time of Application	Method of Application and Precautions
<b>ORNAMENTALS</b>				
<b>Preplant Soil Fumigation</b>				
methyl bromide @ 435 lb/A	Most annual and perennial weeds.	<b>Methyl Bromide (Brom-O-Gas, etc)</b> 10 lb ai/1,000 sq ft.	Preplant.	For certified applicators only. Expose soil to chemical for at least 24 hours and then aerate for 24 to 48 hours before transplanting. Use an airtight cover. Soil temperature should be above 55°F. <u>Methyl bromide is extremely poisonous.</u> Do not breathe vapor or let it get on your skin.
metham @ 340 lb/A	Most annual and perennial weeds.	<b>Vapam</b> 10 qt of 32% formulation per 1,000 sq ft.	Preplant.	A plastic film cover will increase effectiveness. Apply to freshly prepared moist soil when the soil temperature is above 55°F. Keep cover on for at least 48 to 72 hours. Do not disturb for 14 days. Work soil to a depth of 2 inches at least 7 days before transplanting. Do not get metham on your skin or in your eyes. If application requires walking over the treated area wear rubber boots.
dazomet @ 240 to 513 lb/A	Most annual and perennial weeds.	<b>Basamid Granular</b> 5.6 to 11.9 lb per 1,000 sq ft. See label for detailed rates.	Preplant.	Soil must be freshly tilled with good moisture and temperatures above 55°F for good results. Do not breathe dust. Wear rubber gloves and shoes when handling the product. The product must be incorporated and kept moist. Cover with airtight plastic film for best results. Replant time varies with soil temperature. Aerate the soil before planting but no sooner than 5-7 days after application. Do not apply to growing crops. A radish seed germination test is recommended before plant back.
<b>Postplant but Preemergence to Weeds</b>				
prodiamine @ 0.75 to 1.0 lb/A	Annual grasses and small seeded broadleaf weeds.	<b>Factor 65 WDG</b> 0.4 to 0.55.	Postplant but preemergence to weeds.	Apply to established trees, shrubs, and flowers listed on the label. Allow the soil to settle around the roots before application. Do not apply more than 1.15 lb in any 60 day period and do not exceed 2.3 lb per year.
dichlobenil @ 4 lb/A	Many broadleaf weeds and grasses.	<b>Casoron, Dyclomec, Norosac</b> 4.6 lb of 2G, 2.3 lb of 4G, 3 oz of 50W.	Postplant but preemergence to weeds.	Apply to a well-prepared, weed-free soil in late fall, winter or early spring. If Casoron remains on the surface during warm weather, it will be lost. Apply only to woody plants that have been established at least 4 months.

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dithiopyr @ 0.5 lb/A	Annual grasses and some broadleaf weeds.	<b>Dimension Ultra 40 WP</b> 0.36 oz.	Preemergence to weed free soil.	Apply to established ornamentals. Do not incorporate. Activate by applying 0.5 inch of sprinkler irrigation. Check label for tolerant species.
isoxaben @ 0.5 to 1 lb/A	Many annual broadleaf weeds.	<b>Gallery 75 DF</b> 0.25 to 0.5 oz.	Postplant but preemergence to weeds.	Do not apply until the soil has settled around the roots and no cracks are present. Will not control emerged weeds. Combine with Surflan for improved annual grass control. <b>See label for plant back restrictions.</b> Do not treat seed, liner or cutting beds. Do not treat ground covers until they are established and well-rooted.
pendimethalin @ 2 to 3 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Pendulum 2G</b> 2.25 + 3.44 lb.	Postplant but preemergence to weeds.	May be applied to container and field grown ornamentals. Do not apply to moist foliage. Apply only to established plants. Do not apply to soil with cracks that would allow direct contact of Pendulum with roots. Do not apply to seedbeds, liner or transplant beds. Weed control spectrum similar to Treflan (trifluralin).
metolachlor @ 1.2 to 2.5 lb/A	Annual grasses and small-seeded broadleaf weeds.	<b>Pennant Magnum 7.62</b> 0.5 to 1.003.	Postplant but preemergence to weeds.	Apply to weed-free soil. Direct toward the base of ornamentals established at least 2 weeks. For additional broadleaf control, tank mix with Princep. Derby is a premix which contains Princep and Pennant.
norflurazon @ 2.0 lb/A	Annual grasses and many broadleaf weeds.	<b>Predict 80 DF</b> 1 oz.	Postplant but preemergence to weeds.	For use on field grown nursery crops only. Do not apply until the fall following the first full season of growth after transplanting. Apply as a directed spray. Apply only once per year.
simazine @ 1 to 4 lb/A	Annual grasses and broadleaf weeds.	<b>Princep 4L</b> 0.8 to 2.2 fl oz.	Postplant but preemergence to weeds.	Apply in fall or spring before new weed growth appears. Do not apply on Japanese holly, azaleas, or rhododendrons. Apply only once per year. Apply at least one year after transplanting.
oxadiazon @ 2 to 4 lb/A	Annual grasses and some broadleaf weeds. <b>Does not control chickweed.</b>	<b>Ronstar 2G</b> 2.3 to 4.5 lb, 1.5 to 3.0 oz of 50WP.	Postplant but preemergence to weeds.	Apply to weed-free soil. Safe on a wide variety of plant material. Disturbing soil after application may result in reduced weed control. Use on container and field grown nursery stock. Do not apply when the foliage is wet. Higher rates may be needed on bark/peat media. For continued weed control a second application may be made 60 to 120 days later on some species. Ronstar 50WP may cause foliar injury to species that are not affected by Ronstar G. Consult WP label. Toxic to fish. Do not contaminate water.

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oxyfluorfen + oryzalin @ 2 + 1 lb/A	Annual grasses and some broadleaf weeds.	2.3 lb. <b>Rout</b>	Postplant but preemergence to weeds.	Use on container and field grown nursery stock. Apply to weed free soil when plant foliage is dry and plants are not in a growth flush. Apply overhead irrigation to wash granules off foliage. Do not apply when foliage is wet.
oxyfluorfen + pendimethalin @ 2 + 1 lb/A	Annual grasses and some broadleaf weeds.	2.3 lb. <b>Ornamental Herbicide II</b>	Postplant but preemergence to weeds.	Do not apply when foliage is wet. Use on container and field grown nursery stock. Apply to weed free soil immediately after transplanting or to established plants. Apply overhead irrigation to wash granules off foliage.
isoxaben + trifluralin @ 0.5 to 1.0 + 2.0 to 4.0 lb/A	Annual grasses and broadleaf weeds.	2.3 to 4.6 lb. <b>Snapshot 2.5 TG</b>	Postplant but preemergence to weeds.	Prepackaged mix of Gallery and Treflan. Apply before weed germination.
trifluralin + isoxaben + oxyfluorfen @ 2 + 0.25 + 0.25 to 4.0 + 0.5 + 0.5 lb/A	Wide range of grass and broadleaf weeds.	2.3 to 4.6 lb. <b>Showcase 2.5 G</b>	Preemergence.	Useful on a wide range of container and field grown ornamentals. See label for sensitive species.
flumioxazin @ 0.25 to 0.38 lb/A	Many annual grasses and broadleaf weeds.	8 to 12 oz. <b>SureGuard</b>	Preemergence or postemergence to weeds.	This is a new product. It is a very active herbicide. Read the label carefully before using. Do not apply to wet foliage. Do not apply in an enclosed structure. Before moving plants into an enclosed structure, apply 1 inch of irrigation water and wait 14 days. Can severely injure bedding plants and herbaceous perennials, and immature foliage on woody plants.
flumioxazin @ 0.38 lb/A	Many annual grasses and broadleaf weeds.	150 lbs. <b>BroadStar</b>	Preemergence to weeds.	This is a new product. It is a very active herbicide. Read the label carefully before using. Do not apply to wet foliage. Do not apply in an enclosed structure. Before moving plants into an enclosed structure, apply 1 inch of irrigation water and wait 7 days. Can severely injure bedding plants and herbaceous perennials, and immature foliage on woody plants.
oryzalin @ 2 to 4 lb/A	Annual grasses and small seeded broadleaf weeds.	1.5 to 3.0 fl oz. <b>Surflan AS</b>	Postplant but preemergence to weeds.	May be applied over-top or as a directed spray on field and container grown ornamentals. Will not control established weeds. Irrigate to improve weed control. XL is granular formulation that contains Surflan and Balan.
trifluralin @ 2 to 4 lb/A	Annual grasses and small seeded broadleaf weeds.	0.3 to 1.8 lb of 5G. <b>Treflan 5G, Preen</b>	Preemergence or preplant incorporated.	Use lower rate if incorporated, higher rate if irrigation is used for activation.

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prodiamine @ 0.5 to 1.5 lb/A	Annual grasses and some small seeded broadleaves.	<b>RegalKade G</b> 3.0 to 6.0 lb.	Preemergence to weeds.	Apply before weeds germinate. Do not apply more than 300 lbs. per year.
oxadiazon + prodiamine @ 2.0 + 0.4 lb/A	Annual grasses and some small seeded broadleaves.	<b>RegalStar G</b> 4.5 lbs.	Preemergence to weeds.	Apply before weeds germinate. Do not apply when foliage is wet.
bentazon @ 0.75 to 1.0 lb/A	Broadleaf weeds, annual sedges, and yellow nutsedge.	<b>Basagran T/O, Lescogran</b> Mix 0.75 to 1.5 fl oz with 0.75 oz crop oil concentrate and one gallon of water.	Early postemergence for broadleaf annuals, during active growth for yellow nutsedge.	Apply as a directed spray to small actively growing weeds and away from the foliage of desirable plants. Add a crop oil or nonionic surfactant. A second application 7-10 days later may be needed for acceptable yellow nutsedge control.
glufosinate @ 0.75 to 1.5 lb/A	Most annual weeds, top burn on perennials.	<b>Finale 2S</b> 3 to 4 fl oz/gallon of water.	During active growth.	Finale is a non-selective herbicide. Post-directed spray only. Use as an edging treatment. Avoid contact with desirable plants including foliage and green bark. Use shield to prevent spray from contacting desirable plants.
fluazifop-P @ 0.09 to 0.38 lb/A	Grasses.	<b>Fusilade II, Lescro Take-Away, Ornamec, Grass-B-Gon</b> 1.5 fl oz/gal, 1.5 fl oz/gal, 10 fl oz/gal, RTU.	Early postemergence for annual grasses, johnsongrass 8-18", bermudagrass 4-8" runners.	May be applied over-top to selected ornamentals and as a directed spray to others. Do not apply to grass weeds under environmental stress. Use non-ionic surfactant for ornamentals (0.5 fl oz/gal water), not crop oil concentrate.
oxyfluorfen @ 0.5 to 2.0 lb/A	Broadleaf annual weeds.	<b>Goal 1.6 E</b> 1.0 to 3.7 fl oz.	Preemergence or early postemergence. Apply before bud-break or after foliage has hardened off.	Apply to conifers only. Check label for approved species. Has preemergence and postemergence activity. May be tank mixed with Segment for grass + broadleaf control in conifers.
imazaquin @ 0.38 to 0.5 lb/A	Broadleaf annuals, yellow and purple nutsedge.	<b>Image 1.5 LC</b> 0.75 to 1.0 fl oz.	Postemergence also has soil activity.	Add nonionic surfactant. Do not apply over the roots of species that are not approved on the label.
glyphosate @ 0.75 to 4.0 lb/A	Grasses and broadleaf weeds.	<b>Glyphosate (4 lb/gal formulations)</b> See table on page 23 for specific glyphosate conversions and surfactants. Add 2 fl oz per gallon of water and spray to wet, not run-off.	Postemergence.	Apply as a directed spray in established plantings. Avoid contact with bark or foliage of desirable plants. Cleared for site preparation before planting nursery stock.
sethoxydim @ 0.19 to 0.47 lb/A	Grasses.	<b>Segment 1 EC</b> Mix 2-3 fl oz of Segment plus 0.75 fl oz crop oil concentrate per gallon of water.	Early postemergence for annual grasses, johnsongrass 8-18", bermudagrass 4-8" runners.	Apply over-top of ornamentals to actively growing grasses. Retreatment may be needed for perennial grasses. Do not apply to grass weeds under environmental stress. Add a crop oil concentrate.

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<b>ORNAMENTALS Postplant but Preemergence to Weeds [cont.]</b>				
clethodim @ 0.125 to 0.25 lb/A	Annual and perennial grasses.	<b>Envoy 0.94 EC</b> 17 to 34 oz/A.	Postemergence to actively growing grasses.	Add 0.25% non-ionic surfactant (1 pt in 50 gal). Crop oil concentrate is not recommended.
halosulfuron @ 0.063 lb/A	Purple nutsedge, yellow nutsedge, green kyllinga.	<b>Sedgehammer 75 DF</b> Mix 0.9 grams of this product with 0.33 oz surfactant and one gallon of water.	Postemergence to weeds, start applications in late May to early June, repeat 6 to 8 weeks later.	Add as a post-directed spray around any established woody ornamental plants. Wait three months after transplanting before using this product. Begin nutsedge treatment program in May to early June to reduce tuber formation. Manage injured foliage of azalea, crape myrtle, cotoneaster, and Japanese holly.

### ORNAMENTALS

#### Ornamental Weed Control Tips:

- None of the preemergence herbicides will give complete control of all weed species. Tank mixing herbicides will usually broaden the spectrum of control. Typical combinations are a grass herbicide such as Surlan or Pendulum plus a broadleaf herbicide such as Princep or Gallery. If a chemical application kills all but one species, that species will multiply resulting in a shift in the weed population. The resulting shift will eventually render that product ineffective. Rotate chemical usage to reduce the buildup of tolerant weeds. Directed sprays of nonselective herbicides such as Roundup or Gramoxone and cultivation will help provide control of escapes.
- A single application of a preemergence herbicide will not provide season long control. Late fall or winter applications of Gallery, Princep or Casoron will provide weed control well into the growing season. When control begins to break, the area may be clean cultivated or treated with a nonselective postemergence herbicide and an application of one of the other pre-emergence herbicides can be made.
- Always use a new herbicide on a trial basis until sufficient experience is gained to feel comfortable with its use. Leave an untreated area for comparison when using new product so that weed control and crop injury comparisons are possible.
- Small, shallow rooted plants are more susceptible to herbicide injury than mature deep-rooted plants. Other factors that increase the chances of injury are: (1) sandy soils and excessive watering, and (2) failure to use irrigation to remove granular herbicides from the foliage.
- Use a separate sprayer for herbicides only. It is very difficult to completely remove all traces of some chemicals from sprayers.
- Consult the label precautions before using any ornamental herbicide since specific cultivars within a genus and species may have varying degrees of sensitivity to a herbicide. In addition, be certain the herbicide is approved for the use that you have chosen, i.e. propagation beds, container, transplanted liners or rooted cuttings, or large, well-established plants.