

Preemergence Herbicides for Use In Ornamentals¹

Robert H. Stamps, Diane K. Rock and Jeffrey G. Norcini²

Preemergence herbicides, by definition, are herbicides that are applied prior to weed seed germination. Control of weeds using preemergence herbicides is most successful when the correct herbicide is applied in the correct manner to a weed-free growing medium prior to weed seed germination. In field or landscape situations, the soil should be freshly tilled, and large clods of soil broken up. The growing medium, whether soil or soilless, should be settled and firm at the time of herbicide application.

Herbicides should be applied uniformly to the target area and then immediately incorporated into the growing medium. Uniform herbicide coverage is dependent on good application technique and, for mechanized application, on well-maintained and calibrated equipment. Incorporation is generally employed to reduce herbicide losses from volatility and photodecomposition, but it also serves to activate some herbicides. It is commonly accomplished by applying water using overhead irrigation, often about 0.5 inch [1.2 cm], after the herbicide has been applied. Herbicides can also be mechanically incorporated by mixing the herbicide into the top layer of the growing medium, generally to a depth of 1–3 inches [2.5–7.5 cm]. Recommendations regarding the depth of mechanical incorporation and/or the amount of irrigation water to apply to activate/incorporate the herbicides should be followed carefully in order to minimize the possibility of crop injury.

1. This is document OH-94, one of a series of the Department of Environmental Horticulture, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published March 1993. Revised November 2005. Please visit the EDIS Web site at <http://edis.ifas.ufl.edu>.
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Mention of a commercial or proprietary product or chemical does not constitute a recommendation or warranty of the product by the authors or the University of Florida, Institute of Food and Agricultural Sciences, nor does it imply its approval to the exclusion of other products that may also be suitable. Products should be used according to label instructions and safety equipment required on the label and by federal or state law should be employed. Users should avoid the use of chemicals under conditions that could lead to ground water contamination. Pesticide registrations may change so it is the responsibility of the user to ascertain if a pesticide is registered by the appropriate state and federal agencies for an intended use.

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Many of the preemergence herbicides used in ornamentals are formulated as **granular** materials and should be applied evenly over the treated area. Avoid applications to moist foliage or to whorled or other foliage types that will accumulate and trap the granules. Application equipment used to broadcast these formulations should not grind the granules or increase the amount of dust; this may generate potentially dangerous conditions to nearby plants and people. Use materials that have been screened of fine particles, if available.

For **liquid applications**, spray pressure should be constant and adequate to maintain proper spray pattern for uniformity and ensure droplet penetration through the plant canopy. Excessive pressure can lead to drift and damage to non-target plants. Spray volume should be sufficient for thorough coverage. Herbicides should be thoroughly mixed (agitated) in spray tanks to obtain uniform results, and spray nozzle openings (orifices) should be checked regularly and replaced when wear becomes evident. Spray adjuvants that enhance coverage, penetration and/or persistence of herbicides can be added to some spray mixtures, especially if the mixtures are applied so that the crop foliage is not treated. Test spray solutions that contain any new adjuvant for phytotoxicity on a small part of your crop, just as you would test any new pesticide.

Chemigation is a special type of liquid application in which herbicides are applied using the irrigation equipment. It is the least labor-intensive method to apply herbicides; however, few herbicides are labeled for application in this manner (see Table 1). In addition, some types of irrigation systems (e.g., drip) do not apply water to all areas that need to be treated and/or do not have adequate uniformity for this use. Herbicide formulations applied through irrigation systems must not clog nozzle orifices. Florida and other states have laws that require that safety equipment must be provided if chemicals are to be injected into irrigation systems. Some of the equipment necessary to prevent contamination of the water supply includes check valves, vacuum breakers, low-pressure drains, shutoff valves, remote chemical storage tanks and interconnected power supplies to injector and irrigation pumps.

Liquid herbicides should be measured volumetrically, i.e., using measuring cups, graduated cylinders, etc. Since dry pesticides vary in density, it is not possible to give accurate volumetric conversions across brands and formulations so those formulations must be weighed.

It is a good practice to keep records of all pesticide applications, even of nonrestricted use pesticides — including EPA registration and product lot numbers. These records can be useful for planning future weed control measures. In addition, they can be invaluable if crop damage occurs.

Regardless of the herbicide or application method used, it is strongly recommended that the effects should be evaluated against untreated controls under your particular conditions before treating large areas. This is especially important when there is a statement on the label permitting use of the product on an ornamental not specifically listed on the label. Treat a limited area or number of plants and wait 2 to 3 weeks, or longer if the label recommends, for any phytotoxic effects to appear. Be aware that the larger the area treated, the more likely that phytotoxicity may occur, especially due to volatilization. Also, damage may not occur the first time a herbicide is applied, but may

show up with repeated applications. Several formulations of a herbicide may be available with varying concentrations; consequently, *recommendations on the manufacturer's label should be followed explicitly*. These herbicides formulations are labeled for application in certain environments (outdoors, in shadehouses and/or in greenhouses) and specific locations (containers, field and/or landscape) and can only be applied in those specified environments and locations.

Although most preemergence herbicides labeled for use in ornamentals have relatively low acute mammalian toxicities, they are potentially dangerous if handled improperly and, therefore, *the safety precautions on the label(s) must be followed*. Read the entire label, including the small print, before buying or using the herbicide. Wear personal protective equipment (PPE) and comply with restricted entry intervals (REI) (see Table 1). Keep the telephone number and address of the nearest County Poison Control Center listed in a convenient location in case of an accidental poisoning. Have clean copies of herbicide labels and material safety data sheets (MSDS) available to be taken to the Poison Control Center or hospital in the event of an emergency. If a herbicide is labeled for use specifically in a particular state [for example, 24(c) Special Local Need labeling in Florida], obtain a copy of the supplemental label from your supplier when you purchase the product; otherwise, you will be using it illegally.

Many of these herbicides have low solubilities in water and are quite strongly held to binding sites in growing media and are, therefore, not readily leachable. However, the relatively long persistence (long degradation half-lives, $T_{1/2}$) of some of these products creates the potential for leaching losses to still occur with potential effects on ground water. Relative leaching potential indexes (RLPI) for the listed products range from 3 (high potential to leach) to >2,000 (low potential for leaching, very immobile) and are given, along with relative run-off potential indexes (RRPI), in Table 1. RRPIs range from 1 (high potential to be lost in runoff) to 333 (lower run-off potential). For more information about pesticide leaching and run-off, read *Managing Pesticides for Ornamentals Production and Water Quality Protection* (University of Florida, Institute of Food and Agricultural Sciences, Cooperative Extension Service, Soil Science Department Circular 991, available at <http://edis.ifas.ufl.edu/>).

As an aid to help delay the selection of herbicide-resistant weeds, the herbicide group to which each product belongs is listed in Table 1. The groups are based according to primary sites/modes of action (*Weed Technology* 11:384–393 [1997]) and can be used to select herbicides that have differing sites/modes of action. Repeated use of a herbicide or herbicides having the same sites of action can, over time, cause development of weeds resistant to those herbicides.

Store herbicides in their original labeled containers, out of reach of children. All pesticides should be locked in secure facilities. When containers are empty, rinse with water at least three times and pour the rinse water into the spray tank. Dispose of empty containers promptly and safely (according to local, state and federal disposal laws).

In Table 2, weeds are listed alphabetically by scientific name and along with the preemergence herbicides that control (C), suppress (S) or do not control (N) each weed. Table

3 is similar except that the weeds are listed alphabetically by common name(s). The information in these tables is derived from product labels, and published and unpublished research results. A herbicide may provide variable weed control depending on soil, irrigation and other variables. Where the weed entry in the tables lists only a genus, the labels must be checked to see which species in that genus are controlled by each herbicide.

Table 4 lists the tolerances of ornamentals to preemergence herbicides, with the table subdivided into *Trees and Shrubs*, *Groundcovers and Vining Plants*, and *Annuals and Perennials*. The plants are listed alphabetically by scientific name. This information is derived from product labels. It is only presented as a guide and does not imply that a herbicide can be used in or around that ornamental species in all sites (nursery, landscape, greenhouse). In Table 4, Y indicates that the crop is on product label and N indicates that the product should not be used on the crop. Please note that not all plant species and cultivars listed on the herbicide labels are included in the table and some plants are listed in the table even though, at the current time, they are not listed on any of the herbicide labels. Hopefully, research and future label changes will help alter this situation for this latter group of plants.

To help in situations where the reader does not know the scientific name of the crop, Table 5 is included. It lists the common names of crops beside their scientific names; however, readers should be aware that the same common name may be used for more than one plant so the true identity of the crop should be ascertained before herbicides are applied.

When selecting a herbicide, both of the factors listed below must be determined to legally use a herbicide in or around an ornamental species; the information below is on the product label:

- 1. Determine the tolerances of specific species, varieties, or cultivars, if applicable,**

AND

- 2. Determine which sites the herbicide can be used on, that is – nursery (container or field); landscape (commercial, public, or residential); enclosed greenhouse.**

*Please report any errors, omissions and/or updates to Bob Stamps
(rhs@ifas.ufl.edu).*

Thank you.

Table 1. Trade names, active ingredients, manufacturers/distributors, labeling for chemigation, restricted-entry intervals (REI), vapor pressure (volatility), relative leaching and relative run-off potential indexes (RLPI, RRPI), and herbicide group (mode of action) for some preemergence herbicides labeled for ornamental crops. Various fertilizer formulations containing preemergence herbicides are also available but are not listed in this table. Be aware that not all these products are labeled for use on containerized ornamentals or in all locations (greenhouse, landscape, nursery).

Trade name	Common name (active ingredient)	Manufacturer or distributor	Labeled for chemigation	REI (hours)	Vapor pressure (mPa) ¹	RLPI ²	RRPI ²	Herbicide group ³
Barricade [®] 4FL, 65WG	prodiamine	Syngenta	NO	12	0.003	1,080	1	3
Barrier [®] 4G	dichlobenil	PBI/Gordon	na ⁴	nd ⁵	135.00	67	42	20
Bensumec [™] 4LF	bensulide	PBI/Gordon	NO	when dry	0.10	83	8	8
BroadStar [™] 0.25G	flumioxazin	Valent USA	na	12	0.32	130	130	14
Casoron [®] 4G	dichlobenil	Uniroyal	na	12	135.00	67	42	20
Cavalcade [™] 65WDG	prodiamine	Sipcam Agro USA	NO	12	0.003	1,080	1	3
Corral [™] 2.68G	pendimethalin	Scotts	na	12	3.99	556	2	3
Dacthal [®] 6F, 75WP	DCPA	AMVAC	YES	12	0.33	500	2	3
Devrinol [®] 50DF	napropamide	United Phosphorus	NO	12	0.53	100	20	15
Devrinol [®] 2G	napropamide	United Phosphorus	na	12	0.53	100	20	15
Dimension [®] 1EC, 2SC, 40WSP	dithiopyr	Dow AgroSciences	NO	12	0.53	410	15	3
Eptam [®] 7E	EPTC	Gowan	YES	12	4,700	333	333	8
Galigan [®] 2EC	oxyfluorfen	Makhteshim Agan	NO ⁶	24	0.27	>2,000	1	14
Gallery [™] 75DF	isoxaben	Dow AgroSciences	NO	12	0.05	140	7	21
Goal [®] 1.6E, 2EC	oxyfluorfen	Dow AgroSciences	NO ⁶	24	0.27	>2,000	1	14
Hurdle [®] 3.8ACS	pendimethalin	Olympic Horticultural	NO	24	3.99	556	2	3
Image [®] 70DG	imazaquin	BASF	NO	12	0.003	3	3	2
Kerb [®] 50WP ⁷	pronamide	Dow AgroSciences	NO	24	11.31	133	20	15
Lasar [™] 3G	oxyfluorfen + oxadiazon	Verdicon	na	24	0.27 + 0.10	533	1	14 + 14
Lasso [®] 4EC ⁸	alachlor	Monsanto	NO	12	2.93	113	113	15
OH2 [®] 3G	oxyfluorfen + pendimethalin	Scotts	na	24	0.27 + 3.99	556	1	14 + 3
OO-Herbicide [™] 3G	oxyfluorfen + oxadiazon	Regal Chemical	na	24	0.27 + 0.10	533	1	14 + 14
OxiFlo 2EC	oxyfluorfen	FarmSaver.com	NO ⁶	24	0.27	>2,000	1	14

Table 1. Trade names, active ingredients, manufacturers/distributors, labeling for chemigation, restricted-entry intervals (REI), vapor pressure (volatility), relative leaching and relative run-off potential indexes (RLPI, RRPI), and herbicide group (mode of action) for some preemergence herbicides labeled for ornamental crops. Various fertilizer formulations containing preemergence herbicides are also available but are not listed in this table. Be aware that not all these products are labeled for use on containerized ornamentals or in all locations (greenhouse, landscape, nursery).

Trade name	Common name (active ingredient)	Manufacturer or distributor	Labeled for chemigation	REI (hours)	Vapor pressure (mPa) ¹	RLPI ²	RRPI ²	Herbicide group ³
Pendulum [®] 2G	pendimethalin	BASF	na	24	3.99	556	2	3
Pendulum [®] 3.8CS, 3.3EC, 60WDG	pendimethalin	BASF	NO	24	3.99	556	2	3
Pennant Magnum [®] 7.6EC	S-metolachlor	Syngenta	YES	24	4.2	22	22	15
Predict [®] 78.6WDG	norflurazon	Nufarm Turf & Specialty	NO	12	0.004	233	47	12
Preen [®] 1.875G	trifluralin + isoxaben	Lebanon Seaboard	na	12	14.63 + 0.05	140	2	3 + 21
Prefar [®] 4E	bensulide	Gowan	YES	12	0.10	83	8	8
Pre-M [®] 3.3 EC	pendimethalin	Lesco	NO	24	3.99	556	2	3
Pre-M [®] 60DG	pendimethalin	Lesco	NO	na	3.99	556	2	3
PrePair [®] 6G	napropamide + oxadiazon	Verdicon	na	12	0.53	100	5	15 + 14
Pre-San [®] 7G, 12.5G	bensulide	PBI/Gordon	na	when dry	0.10	83	8	8
Princep [®] 4L	simazine	Syngenta	NO	12	0.003	22	22	5
ProClipse [™]	prodiamine	Nufarm Turf & Specialty	NO	12	0.003	1,080	1	3
ProdiaGuard 65WDG	prodiamine	Control Solutions	YES	12	0.003	1,080	1	3
RegalKade [®] 0.5G, 65WDG	prodiamine	Regal Chemical	na, NO	12	0.003	1,080	1	3
RegalStar [®] G & II, 1.2G	oxadiazon + prodiamine	Regal Chemical	na	12	0.10 + 0.003	533	1	14 + 3
Ronstar [®] 2G	oxadiazon	Bayer CropScience, Regal	na	12	0.10	533	5	14
Ronstar [®] 50WSP	oxadiazon	Bayer CropScience	NO	12	0.10	533	5	14
Rout [®] 3G	oxyfluorfen + oryzalin	Scotts	na	24	0.27 + <0.001	300	1	14 + 3
Showcase [™] 2.5G	trifluralin + isoxaben + oxyfluorfen	Dow AgroSciences	na	24	14.63 + 0.05 + 0.27	140	1	3 + 21 + 14
Simazine 4L	simazine	Drexel, Riverside, UAP	YES	12	0.003	22	22	5
Simazine 90DF, 90WDG	simazine	Drexel, Riverside, UAP	NO	12	0.003	22	22	5
Sim-Trol [®] 4L, 90DF	simazine	Sipcam Agro USA	NO	12	0.003	22	22	5

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Trade name	Common name (active ingredient)	Manufacturer or distributor	Labeled for chemigation	REI (hours)	Vapor pressure (mPa) ¹	RLPI ²	RRPI ²	Herbicide group ³
Snapshot [®] 2.5TG	trifluralin + isoxaben	Dow AgroSciences	na	12	14.63 + 0.05	140	2	3 + 21
SureGuard [™] 51WDG	flumioxazin	Valent USA	na	12	0.32	130	130	14
Surflan [®] 1.67G	oryzalin	Verdicon	NO	24 ⁹	<0.001	300	83	3
Surflan [®] 4AS Specialty	oryzalin	United Phosphorus, Verdicon	NO	24 ⁹	<0.001	300	83	3
Treflan [™] 5G	trifluralin	Lebanon Seaboard, Verdicon	na	12	14.63	1330	2	3
Weedfree 63 [™] 2G	oxyfluorfen	Harrell's	na	24	0.27	>2,000	1	14
Weedfree 75 [™] 5G	oxyfluorfen + trifluralin	Harrell's	na	24	0.27 + 14.63	1330	1	14 + 3
XL [®] 2G	benefin + oryzalin	Helena Chemical	na	24	10.37 + <0.001	300	3	3 + 3

¹ Vapor pressure at 25°C (77°F).

² RLPI = relative leaching potential index, RRPI=relative runoff potential index. The higher the number, the less likely for herbicide movement by that mechanism. See *Managing Pesticides for Ornamentals Production and Water Quality Protection* (University of Florida, Institute of Food and Agricultural Sciences, Cooperative Extension Service, Soil Science Department Circular 991, available at <http://edis.ifas.ufl.edu>) for more details on these indexes.

³ Herbicide groups are based according to primary sites of action (*Weed Technology* 11:384–393, [1997]) and can be used to select herbicides that have differing sites of action. This information can be used to help select herbicides so as to minimize the potential for the development of herbicide-resistant weeds. 2 = ALS/AHAS inhibitors, 3 = microtubule assembly inhibitors, 5 = photosystem II inhibitors, 8 = lipid synthesis inhibitors, 12 = carotenoid biosynthesis inhibitors, 14 = PPO inhibitors, 15 = acetamides (unknown site of action), 20 = cellulose synthase inhibitors, 21 = inhibition of cell wall synthesis site B.

⁴ na = not applicable.

⁵ nd = no data.

⁶ Except conifer seedbeds irrigated with center pivot sprinkler irrigation.

⁷ Kerb[®] is a restricted use pesticide.

⁸ Lasso[®] is not labeled for use in certain locations; for example, Florida and Nassau and Suffolk counties in New York. Before using Lasso[®], check to make sure it is registered for use in your area.

⁹ Workers may enter treated areas without required PPE during the reentry interval following ½ to 1 inch of rainfall or irrigation, if they are performing tasks that do not involve contact with the soil subsurface.

Table 2. Weeds, listed alphabetically by scientific name, and their susceptibilities to preemergence herbicides labeled for use on ornamental crops (N = no/poor control, S = suppression, C = good control).

Weed scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	DevrinoI®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®	
<i>Amaranthus</i> spp. ¹⁰	C	C	S	C	C	C	C	C	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
<i>Ambrosia artemisiifolia</i>	N	S	N	S/C	C			C		C	S		S		N	S	S	C	S		C		C	C	S	N	C		S	
<i>Anthemis cotula</i>		C						C					C										C				C	C		
<i>Bidens bipinnata</i>					C														N					C			S/C			
<i>Brassica</i> spp. ¹⁰		- ¹¹ /C	N	S	C	C		C		C	N		C		N						C	C	C	C	S		C	C	S	
<i>Bryum</i> spp.		C																				C								
<i>Capsella bursa-pastoris</i>	C	C	S	C	C	C		C		C		C	S/C	C	C	C	C	C	C	C	C	C	C	C	C		C	C	C	C
<i>Cardamine</i> spp. ¹⁰		C	N	C	C	C		C	C			C	C	C	N	N		C		C	C	C	C	S	C	N	C	C	C	C
<i>Cerastium vulgatum</i>		C		N	C			C	C	C					C								C	N	N		C			
<i>Chamaesyce hirta</i> (synonym <i>Euphorbia hirta</i>)	N	C				C				N		C	C ¹²	C				C				C								
<i>C. humistrata</i> , (synonym <i>Euphorbia humistrata</i>)	N	C	S	N	C	C		C		N		C		C	C	S	C	C	C	S	S	C	C	S	C		C		S/C	
<i>C. maculata</i> , (synonym <i>E. maculata</i> , <i>E. supina</i>)	N	C	S	N	C	C		S/C		N		C	C	C		S				C	S	C		S	S		C	C	S	
<i>C. vermiculata</i> , (synonym <i>Euphorbia vermiculata</i>)	N									N												C								
<i>Chenopodium</i> spp. ¹⁰	C	C	C	C	C		C	C		C	S		C		C	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C
<i>Commelina diffusa</i>																	S		C											
<i>Cyperus compressus</i>								N	S								C	C			C									
<i>Cyperus esculentus</i>	N		N	S	C		C	N	S/C	N	S	N	N		N	C	S		N	N	N	N		N	N	N				
<i>Cyperus globulosus</i>								C																						

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Weed scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrino [®]	dichlobenil ²	Dimension [®]	Eptam [®]	Gallery™	Image [®]	Kerb [®]	Lasso ^{® 3}	OH2 [®]	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum [®]	Predict [®]	PrePair [®]	prodiamine ⁷	RegalStar [®]	Ronstar [®]	Rout [®]	Showcase	simazine ⁸	Surflan [®] G/Surflan [®] AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL [®]		
<i>Cyperus rotundus</i>			N				C		S/C								S														
<i>Daucus carota</i>				N	C			C															C	N	N		C			S/C	
<i>Desmodium tortuosum</i>		C									S																				
<i>Digitaria</i> spp. ¹⁰	C	C	C	C	C	C	C	S	S	C	C	C	S/C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
<i>Eclipta</i> spp. ¹⁰		C						C	C			C			N	S	C		S		N	C	C		C		C				
<i>Eleusine indica</i>	S/C	C	S	C		C	C	N		C	C	C	S	C	C	S/C	C	C	C	C	S/C	C	C	C	S/C	C	C	C	C	C	
<i>Eupatorium capillifolium</i>		C			C			C				C			N		C		S ³		S	C	C	C			C				
<i>Euphorbia heterophylla</i>		-/C											C																		
<i>Euphorbia hirta</i> (see <i>Chamaesyce hirta</i>)																															
<i>Euphorbia humistrata</i> (see <i>C. humistrata</i>)																															
<i>E. maculata</i> , <i>E. supina</i> (see <i>C. maculata</i>)																															
<i>Euphorbia vermiculata</i> (see <i>C. vermiculata</i>)																															
<i>Fatoua villosa</i>		C										C		C	S	C		C	S		C	C						N		S	
<i>Gamochaeta</i> spp. ¹⁰					C			C	S			C		C	C		C						C	C			C				
<i>Geranium carolinianum</i>		C		C	C	C		C	C				C ¹²				C						C	S	C		C				
<i>Gnaphalium</i> spp. ¹⁰ (see <i>Gamochaeta</i> spp.)																															
<i>Isopterygium albesceus</i>																						C									
<i>Kyllinga brevifolia</i>	C	C	C			C	S	C/S		S					C	C									C					C	

Table 2. Weeds, listed alphabetically by scientific name, and their susceptibilities to preemergence herbicides labeled for use on ornamental crops (N = no/poor control, S = suppression, C = good control).

Weed scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	DevrinoI®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®
<i>Lepidium</i> spp. ¹⁰				C	C			C		C		C	C	C						S			C	C	C		C	C	C
<i>Marchantia polymorpha</i>		S		N	N			N				S	N		N			C	C		S			N					
<i>Medicago lupulina</i>						C		C	C						S/C				S				C	S			C		
<i>Medicago trunculata</i>																						C							
<i>Mollugo verticillata</i>	N	C	C	C	C	C	C	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	S	S	C	C
<i>Murdannia nudiflora</i>		C																											
<i>Oenothera</i> spp. ¹⁰				N	C			S/C	C			C	C ¹²		C	S	S	C	N	N	S	C	C	C	C		C		
<i>Oxalis corniculata</i> (synonym <i>O. stricta</i>)		C		N	C	C		C	C			C	C	C	N/S	N	C	C	C	C	C	C	C	N	C		C	C	C
<i>Phyllanthus tenellus</i>		C						N/S							S/C	N		S/C	C	S/C	S	S	C				S/C		
<i>Phyllanthus urinaria</i>								N/S					S		N		S/C	C	S/C	S	S	C					S/C		
<i>Pilea microphylla</i>																					C	C							
<i>Poa annua</i>	C	C		C	C	C	C	N	S	C		C	S	C	C	C	C	C	C		C	C	C	C	C	C	C	C	C
<i>Portulaca oleracea</i>	S	C	C	C	C	C	C	C		C	C	C	C	C	C	S	C	C	C	C	C	C	C	C	C	C	C	C	C
<i>Richardia scabra</i>		C	C	N	C		C	S			C				C	C	S		C				S	C	C	C	S	C	
<i>Senecio vulgaris</i>		C						C				S	S	S							S	S	C	C			C		
<i>Solanum</i> spp.	N	C	S	N	C		C	C		C	C			N	C								C	C	S	S	C	C	
<i>Sonchus</i> spp. ¹⁰		C	S	C	C			C				C	C	C			S	C	N	C	C	C	C	S	S		C	C	
<i>Stachys floridana</i>																								N					
<i>Stellaria media</i>		C	C	C	C	C	C	C	C	C		C	S	C	C	N/S	C	C	C	C	N	C	C	C	C	C	C	C	C
<i>Vicia sativa</i>														S										S			C		

Table 2. Weeds, listed alphabetically by scientific name, and their susceptibilities to preemergence herbicides labeled for use on ornamental crops (N = no/poor control, S = suppression, C = good control).

Weed scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrinol®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®
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¹ Bensumec™, Prefar® and Pre-San®

² Barrier®, Casoron® — dichlobenil is highly volatile and, therefore, has the potential to be phytotoxic. Use with caution, avoid situations where gaseous concentrations can build up, apply when temperatures are low (volatility increases with increasing temperature), and incorporate immediately after application.

³ Lasso is not labeled for use in certain locations; for example, Florida and Nassau and Suffolk counties in New York. Before using Lasso, check to make sure it is registered for use in your area.

⁴ Goal®, Galigan®, OxiFlo, Weedfree 63™

⁵ O-O Herbicide™, Lasar™

⁶ Corral™, Hurdle®, Pendulum®, Pre-M®

⁷ Barricade®, Cavalcade™, ProClipse™, ProdiaGuard, RegalKade®

⁸ Princep®, Simazine, Sim-Trol®

⁹ Preen®, Snapshot™ TG

¹⁰ Check product labels for species controlled.

¹¹ – = weed not on the label of this formulation.

¹² Not all formulations of this active ingredient are labeled to control this weed(s).

Table 3. Weeds, listed alphabetically by common name, and their susceptibilities to preemergence herbicides labeled for use on ornamental crops (N=no/poor control, S=suppression, C=good control).

Weed common name(s)	bensulide ¹	BroadStar™\SureGuard™	Dacthal®	Devrino [®]	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oryzalin ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	simazine ⁸	Showcase	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®
artilleryweed																					C	C							
beggarweed, Florida		C									S																		
betony, Florida		C																S/C					N						
bittercress ¹⁰		C	N	C	C	C		C	C			C	C	C	N	N		C		C	C	C	S	C	C	N	C	C	C
bluegrass, annual	C	C		C	C	C	C	N	S	C		C	S	C	C	C	C	C	C		C	C	C	C	C	C	C	C	C
carpetweed	N	C	C	C	C	C	C	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	S	S	C	C
carrot, wild				N	C			C															N	C	N		C		S/C
chamberbitter								N/S						S		N		S/C	C	S/C	S	S		C			S/C		
chamomile, stinking		C						C					C											C			C		
chickweed, common		C	C	C	C	C	C	C	C	C		C	S	C	C	N/S	C	C	C	C	N	C	C	C	C	C	C	C	C
chickweed, mouseear		C		N	C			C	C	C					C				C				N	C	N		C		
crabgrass	C	C	C	C	C	C	C	S	S	C	C	C	S/C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
crabweed, hairy												C		C	S	C		C	S		C	C					N		S
cudweed					C			C	S			C		C	C		C						C	C			C		
dayflower, spreading																	S		C										
dogfennel		C			C			C				C			N		C		S ³		S	C	C	C			C		
doveweed		C																											
eclipta		C						C	C			C			N	S	C				N	C		C	C		C		
eveningprimrose				N	C			S/C	C			C	C ¹²		C	S	S	C	N	N	S	C	C	C	C		C		
geranium, Carolina		C		C	C	C		C	C				C ¹²				C						S	C	C		C		
groundsel, common		C						C				S	S	S							S	S	C	C			C		
goosegrass	S/C	C	S	C		C	C	N		C	C	C	S	C	C	S/C	C	C	C	C	S/C	C	S/C	C	C	C	C	C	C

Table 3. Weeds, listed alphabetically by common name, and their susceptibilities to preemergence herbicides labeled for use on ornamental crops (N=no/poor control, S=suppression, C=good control).

Weed common name(s)	bensulide ¹	BroadStar™\SureGuard™	Dacthal®	Devrino [®]	dichlobenil ²	Dimension [®]	Eptam [®]	Gallery™	Image [®]	Kerb [®]	Lasso ^{® 3}	OH2 [®]	oxyfluorfen ⁴	oxyflourfen + oryzalin ⁵	pendimethalin ⁶	Pennant Magnum [®]	Predict [®]	PrePair [®]	prodiamine ⁷	RegalStar [®]	Ronstar [®]	Rout [®]	simazine ⁸	Showcase	Surflan [®] G/Surflan [®] AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL [®]	
kyllinga, green	C	C	C			C	S	C/S		S					C	C			C		C				C					C
lambsquarters ¹⁰	C	C	C	C	C		C	C		C	S		C		C	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C
liverwort, common		S		N	N			N				S	N		N			C	C		S		N							
mayweed		C						C					C											C			C	C		
medic. barrel																						C								
medic, black						C		C	C						S/C				S				S	C			C			
moss ¹⁰		C																				C								
mulberry weed		C										C		C	S	C		C	S		C	C						N		S
mustard ¹⁰			N	S	C	C		C		C	N		C			N					C	C	C	C	S		C	C	C	S
nightshade, black	N	C	S	N	C		C	C		C	C		C		N	C							C	C	S	S	C	C	C	S
nutsedge, purple			N				C		S/C								S													
nutsedge, yellow	N		N	S	C		C	N	S/C	N	S	N	N		N	C	S		N	N	N	N		N	N	N				
pepperweed ¹⁰				C	C			C		C		C	C	C	C						S		C	C	C		C	C	C	C
phyllanthus, long-stalked		C						N/S							S/C	N		S/C	C	S/C	S	S		C			S/C			
pigweeds ¹⁰	C	C	S	C	C	C	C	C	C		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
poinsettia, wild		- ¹¹ /C										C																		
purslane, common	S	C	C	C	C	C	C	C		C	C	C	C	C	C	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C
pusley, Florida		C	C	N	C		C	S			C				C	C	S		C				C	S	C	C	S	C	C	
ragweed, common	N	S	N	S/C	C			C		C	S		S		N	S	S	C	S		C		C	C	S	N	C			S
sedge, annual								N	S									C	C		C									
sedge, globe								C																						
shepherdspurse	C	C	S	C	C	C		C		C		C	S/C	C	C		C	C	C		C	C	C	C	C		C	C	C	C
Spanish needles					C														N				C				S/C			

Table 3. Weeds, listed alphabetically by common name, and their susceptibilities to preemergence herbicides labeled for use on ornamental crops (N=no/poor control, S=suppression, C=good control).

Weed common name(s)	bensulide ¹	BroadStar™\SureGuard™	Dacthal [®]	Devrino [®]	dichlobenil ²	Dimension [®]	Eptam [®]	Gallery™	Image [®]	Kerb [®]	Lasso ^{® 3}	OH2 [®]	oxyfluorfen ⁴	oxyflourfen + oryzalin ⁵	pendimethalin ⁶	Pennant Magnum [®]	Predict [®]	PrePair [®]	prodiamine ⁷	RegalStar [®]	Ronstar [®]	Rout [®]	simazine ⁸	Showcase	Surflan [®] G/Surflan [®] AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL [®]	
sowthistle			S	C	C			C				C	C	C		S	C	N	C	C	C	S	C	S		C	C	C	S	
spurge, garden	N	C				C				N		C	C ¹²	C			C					C								
spurge, hairy																					C									
spurge, prostrate		C	S	N	C	C		C				C	C	C	C	S	C	C	C	S	S	C	S	C	C		C	C	S/C	
spurge, spotted		C	S	N	C	C		S/C				C	C	C		S		C	C	S	S	C	S	C	S		C		S	
ticktrefoil, Dixie		C									S																			
vetch, common															S				S			S					C			
woodsorrel, yellow		C		N	C	C		C	C			C	C	C	C	N/S	N	C	C	C	C	C	N	C	C		C	C	C	

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¹⁰ Check product labels for genera and/or species.

¹¹ – = weed not on the label of this formulation.

¹² Not all formulations of this active ingredient are labeled to control this weed(s).

Table 4. Ornamentals tolerant of some preemergence herbicides (Y = crop is on product label, N = do not use product on indicated genus, species or hybrid).

Scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrinol®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®		
TREES AND SHRUBS																															
<i>Abelia × grandiflora</i>	Y	Y/- ¹⁰	Y	Y		Y		Y	N			Y	Y	Y	Y			Y			Y	Y		Y/Y	Y	Y			Y		
<i>Acacia</i> spp.		Y/-						Y ¹¹				Y	Y	Y ¹¹					Y	Y		Y				Y ¹¹	Y ¹¹			Y ¹¹	
<i>Acalypha wilkesiana</i>								Y																		Y	Y				
<i>Acca sellowiana</i>					Y																					Y					
<i>Acer ginnala</i>		Y/-						Y														Y		Y/Y	Y	Y					
<i>Acer palmatum</i>		Y/-			Y									Y				Y	Y	Y		Y									
<i>Acer pensylvanicum</i>		Y/-																													
<i>Acer rubrum</i>		Y/-			Y	Y						Y	Y		Y					Y		Y		Y/Y	Y	Y					
<i>Acer saccharinum</i>					Y	Y														Y		Y		Y/Y	Y	Y					
<i>Acer saccharum</i>					Y							Y	Y													Y					
<i>Acer</i> spp.		-/Y	Y	Y	Y	Y ¹¹				Y		Y	Y ¹¹	Y	Y ¹¹	Y		Y	Y ¹¹		Y			Y	Y/Y	Y ¹¹				Y	
<i>Aesculus pavia</i>			Y												Y																
<i>Afrocarpus gracilior</i> (synonym <i>Podocarpus gracilior</i>)																						Y									Y
<i>Allamanda cathartica</i>																					Y										
<i>Araucaria heterophylla</i>								Y				Y	Y																		
<i>Astilbe</i> spp.																									Y/Y	Y ¹¹	Y ¹¹			Y ¹¹	
<i>Aucuba japonica</i>			Y										Y	Y				Y						Y							
<i>Bauhinia galpinii</i>								Y																							
<i>Berberis julianae</i>																Y			Y												
<i>Berberis thunbergii</i>			Y		Y	Y							Y	Y					Y			Y ¹¹		Y/Y	Y	Y			Y ¹¹		
<i>Berberis × gladwynensis</i>								Y											Y	Y					Y	Y					

Table 4. Ornamentals tolerant of some preemergence herbicides (Y = crop is on product label, N = do not use product on indicated genus, species or hybrid).

Scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrinol®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®
<i>Berberis</i> spp.		Y/-			Y	Y ¹¹	Y	Y ¹¹		Y		Y	Y	Y ¹¹	Y			Y ¹¹		Y		Y	Y		Y ¹¹	Y ¹¹			
<i>Betula nigra</i>			Y	Y	Y	Y		Y		Y		Y	Y	Y	Y										Y/Y	Y	Y		Y
<i>Betula</i> spp.		Y/Y																											
<i>Bougainvillea</i> spp.				Y				Y ¹¹							Y		Y	Y		Y ¹¹	Y	Y		Y/Y ¹¹	Y ¹¹	Y ¹¹			Y
<i>Buddleja davidii</i>																		Y											
<i>Buddleja</i> spp.		Y/-																											
<i>Buxus microphylla</i>								Y						Y			Y ¹¹	Y	Y	Y	Y	Y		Y/Y	Y	Y			Y
<i>Buxus</i> spp.	Y	Y/-	Y	Y	Y	Y ¹¹		Y ¹¹		Y		Y	Y	Y	Y ¹¹	Y ¹¹				Y ¹¹	Y ¹¹	Y		Y/Y ¹¹	Y ¹¹	Y ¹¹			Y ¹¹
<i>Callistemon citrinus</i>				Y		Y		Y				Y	Y	Y					Y		Y ¹¹		Y		Y/Y	Y	Y		Y
<i>Callistemon viminalis</i>				Y				Y				Y							Y	Y			Y			Y	Y		
<i>Callistemon</i> spp.		Y/-																											
<i>Camellia japonica</i>						Y ¹¹		Y						Y			Y		Y	Y		Y				Y	Y		
<i>Camellia sasanqua</i>						Y											Y			Y						Y			
<i>Camellia</i> spp.		Y/-	Y	Y	Y					Y		Y		Y		Y													
<i>Carissa macrocarpa</i> (synonym <i>C. grandiflora</i>)				Y										Y			Y			Y	Y								
<i>Carya</i> spp.		Y ¹¹ /Y										Y													-/Y				
<i>Caryota</i> spp.																	Y												
<i>Castanea</i> spp.		Y/Y	Y									Y														Y ¹¹			
<i>Cercis canadensis</i>		Y/Y	Y					Y		Y		Y	Y	Y			Y					Y	Y		Y/Y	Y	Y		Y
<i>Chamaecyparis lawsoniana</i>																									Y/Y				Y
<i>Chamaecyparis obtusa</i>						Y		Y														Y	Y		Y/Y	Y	Y		
<i>Chamaecyparis pisifera</i>						Y		Y						Y				Y	Y			Y			Y/Y	Y	Y		Y
<i>Chamaecyparis</i> spp.		Y/-	Y	Y								Y	Y				Y				Y ¹¹								

Table 4. Ornamentals tolerant of some preemergence herbicides (Y = crop is on product label, N = do not use product on indicated genus, species or hybrid).

Scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrinol®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®	
<i>Chamaedorea cataractarum</i>																						Y								
<i>Chamaedorea elegans</i>							Y					Y	Y				Y						Y	Y/Y	Y	Y			Y	
<i>Chamaedorea erumpens</i>																	Y													
<i>Chamaedorea</i> spp.	Y/-																													
<i>Chamaerops humilis</i>							Y																							
<i>Chrysalidocarpus lutescens</i>							Y																	Y/Y	Y	Y			Y	
<i>Citrus</i> spp.	Y/Y		Y													Y	Y	Y	Y		Y ¹¹			-/Y						
<i>Cleyera japonica</i>	N/-			Y			Y											Y		Y				Y/Y	Y	Y			Y	
<i>Codiaeum variegatum</i>																	Y				Y									
<i>Cornus florida</i>	Y/Y ¹¹	Y	Y	Y	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y/Y	Y	Y			Y	
<i>Cornus kousa</i>			Y	Y	Y				Y	Y	Y		Y	Y	Y	Y	Y			Y			Y	Y/Y	Y				Y	
<i>Cornus stolonifera</i>			Y	Y	Y	Y			Y	Y	Y		Y		Y	Y	Y	Y		Y		Y	Y	Y/Y	Y				Y	
<i>Cotoneaster apiculatus</i>						Y	Y											Y				Y		Y/Y	Y	Y			Y	
<i>Cotoneaster</i> spp.	Y/-	Y	Y	Y			Y ¹¹		Y	Y	Y		Y	Y	Y		Y ¹¹	Y ¹¹	Y	Y	Y ¹¹	Y	Y	Y/Y ¹¹	Y ¹¹	Y ¹¹			Y ¹¹	
× <i>Cupressocyparis leylandii</i>			Y	Y		Y	Y								Y					Y										
<i>Cupressus arizonica</i>							Y															Y		Y/Y	Y	Y			Y	
<i>Cupressus glabra</i> (see <i>C. arizonica</i>)																														
<i>Cupressus sempervirens</i>	Y/-					Y	Y											Y			Y	Y		Y/Y		Y				
<i>Cupressus</i> spp.	Y ¹¹		Y	Y	Y ¹¹		Y ¹¹				Y		Y				Y		Y	Y				Y/Y ¹¹	Y ¹¹	Y ¹¹				
<i>Cycas revoluta</i>						Y	Y																			Y	Y			
<i>Deutzia</i> spp.	N/-	Y		Y			Y ¹¹								Y ¹¹						Y ¹¹			Y/Y ¹¹	Y	Y ¹¹			Y ¹¹	
<i>Elaeagnus angustifolia</i>				Y			Y					Y			Y					Y			Y	Y/Y	Y	Y			Y	
<i>Elaeagnus pungens</i>			Y				Y							Y ¹¹	Y			Y			Y ¹¹	Y			Y	Y				

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Scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrinol®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®	
<i>Elaeagnus</i> spp.		Y/-																												
<i>Eriobotrya japonica</i>																						Y								
<i>Escallonia</i> spp.												Y																		
<i>Eucalyptus camaldulensis</i>		Y/-																							Y/Y					
<i>Eucalyptus cinerea</i>		Y/-					Y																Y	Y/Y	Y	Y			Y	
<i>Eucalyptus citriodora</i>					Y																									
<i>Eucalyptus</i> spp.		-/Y		Y			Y ¹¹					Y ¹¹					Y			Y			Y	Y/Y ¹¹	Y ¹¹	Y ¹¹	Y ¹¹		Y ¹¹	
<i>Euonymus fortunei</i>					Y ¹¹		Y ¹¹								Y			Y	Y	Y ¹¹	Y	Y ¹¹	Y	Y/Y ¹¹	Y ¹¹	Y ¹¹	Y ¹¹		Y ¹¹	
<i>Euonymus japonica</i>							Y ¹¹		Y	Y					Y				Y		N ¹¹	Y		Y/Y ¹¹	Y ¹¹	Y ¹¹	Y ¹¹		Y ¹¹	
<i>Euonymus kiautschovicus</i>							Y												Y		Y	Y ¹¹	Y	Y/Y	Y	Y		Y	Y	
<i>Euonymus</i> spp.		Y ¹¹ /-	Y	Y	Y		Y ¹¹					Y ¹¹	Y ¹¹	Y ¹¹	Y							Y ¹¹	Y	Y/Y ¹¹	Y ¹¹	Y ¹¹			Y ¹¹	
× <i>Fatshedera lizei</i>																									Y/Y				Y	
<i>Fatsia japonica</i>							Y																		-/Y		Y			
<i>Ficus benjamina</i>		Y/-					Y															Y	Y	Y/Y	Y				Y	
<i>Ficus lyrata</i>																						Y								
<i>Ficus</i> spp.				Y											Y							Y ¹¹								
<i>Forsythia</i> × <i>intermedia</i>						Y	Y								Y				Y	Y	Y	Y ¹¹	Y	Y/Y		Y		Y	Y	
<i>Forsythia suspensa</i>		Y/-																												
<i>Forsythia</i> spp.				Y	Y				Y		Y		Y		Y		Y	Y ¹¹								Y	Y ¹¹			
<i>Fraxinus</i> spp.		Y/Y	Y	Y	Y	Y	Y ¹¹		Y			Y ¹¹		Y	Y		Y				Y ¹¹				Y/Y	Y ¹¹	Y ¹¹		Y	
<i>Gardenia jasminoides</i>						Y	Y	Y						Y	Y				Y	Y	Y	Y			Y/Y	Y	Y		Y	
<i>Gardenia</i> spp.		Y/-		Y	Y					Y			Y		Y		Y													
<i>Ginkgo biloba</i>		Y/Y					Y		Y						Y	Y					Y				Y/Y	Y	Y		Y	
<i>Hibiscus rosa-sinensis</i>				Y		Y	Y									Y	Y	Y			Y	Y ¹¹	Y		Y/Y	Y	Y		Y	

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<i>Hibiscus syriacus</i>				Y		Y ¹¹		Y							Y			Y ¹¹	Y		Y ¹¹				Y/Y	Y	Y		Y			
<i>Hydrangea macrophylla</i>															Y ¹¹				Y													
<i>Hydrangea</i> spp.		N/-	Y					N				Y	Y		Y							N ¹¹						N				
<i>Ilex attenuata</i> 'Savannah'					Y	Y		Y ¹¹							Y		Y						Y	Y				Y				
<i>Ilex cornuta</i>					Y	Y		Y ¹¹	Y ¹¹						Y		Y ¹¹		Y			Y ¹¹	Y	Y	Y/Y ¹¹		Y ¹¹		Y ¹¹			
<i>Ilex crenata</i>		N ¹¹ /-			N	Y		Y ¹¹	Y ¹¹						Y		Y ¹¹		Y			Y ¹¹	Y	Y	Y/Y ¹¹		Y ¹¹		Y ¹¹			
<i>Ilex glabra</i>					Y			Y ¹¹															Y		Y/Y ¹¹		Y ¹¹					
<i>Ilex opaca</i>					Y											Y ¹¹		Y					Y									
<i>Ilex vomitoria</i>					N	Y		Y ¹¹	Y ¹¹						Y				Y			Y	Y	Y	Y/Y ¹¹		Y ¹¹		Y ¹¹			
<i>Ilex</i> × 'Nellie Stevens'					Y	Y									Y		Y		Y				Y									
<i>Ilex</i> spp.	Y	Y/-	Y	Y	Y ¹¹	Y ¹¹		Y ¹¹		Y	Y	Y		Y ¹¹		Y	Y ¹¹	Y ¹¹	Y				Y		Y/Y ¹¹	Y	Y ¹¹		Y ¹¹			
<i>Illicium anisatum</i>								Y								Y												Y				
<i>Illicium floridanum</i>		Y/-						Y								Y											Y	Y				
<i>Illicium parviflorum</i>															Y	Y																
<i>Itea ilicifolia</i>		Y ¹¹ /-						Y																			Y	Y				
<i>Ixora coccinea</i>								Y	Y																		Y	Y				
<i>Juniperus chinensis</i>		-/Y				Y ¹¹		Y ¹¹	Y ¹¹			Y		Y					Y			Y ¹¹	Y		Y/Y		Y ¹¹					
<i>Juniperus conferta</i>								Y ¹¹	Y ¹¹						Y							Y ¹¹	Y		Y/Y		Y ¹¹					
<i>Juniperus horizontalis</i>		-/Y				Y ¹¹		Y ¹¹	Y ¹¹			Y		Y		Y ¹¹						Y ¹¹	Y		Y/Y		Y ¹¹					
<i>Juniperus procumbens</i>								Y ¹¹				Y											Y		Y/Y		Y ¹¹					
<i>Juniperus sabina</i>						Y ¹¹		Y ¹¹				Y										Y ¹¹	Y		Y/Y		Y ¹¹					
<i>Juniperus silicicola</i>																																
<i>Juniperus squamata</i>								Y ¹¹	Y ¹¹													Y ¹¹	Y		Y/Y		Y ¹¹					
<i>Juniperus virginiana</i>	Y		Y	Y	Y			Y		Y	Y	Y	Y	Y	Y		Y		Y	Y		Y			Y/Y	Y	Y			Y		

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<i>Juniperus</i> spp.	Y	Y/-	Y	Y	Y	Y ¹¹		Y ¹¹		Y	Y	Y	Y ¹¹	Y	Y	Y	Y ¹¹	Y	Y ¹¹	Y	Y ¹¹	Y ¹¹	Y ¹¹	Y/Y ¹¹	Y	Y ¹¹		Y	
<i>Lagerstroemia indica</i>		N ¹¹ /Y		Y		Y ¹¹		Y	Y				Y		Y	Y	Y	Y ¹¹	Y		Y ¹¹				Y/Y		Y		Y
<i>Lagerstroemia</i> spp.		Y ¹¹ /-																											
<i>Leptospermum scoparium</i>								Y																					
<i>Leucophyllum frutescens</i>								Y																					
<i>Leucothoe axillaries</i>				Y	Y			Y							Y	Y		Y			Y			Y	Y/Y	Y	Y		Y
<i>Leucothoe fontanesiana</i>				Y	Y	Y		Y							Y	Y		Y			Y			Y	Y/Y	Y	Y		Y
<i>Ligustrum japonicum</i>						Y		Y							Y				Y			Y	Y		Y/Y		Y		Y
<i>Ligustrum lucidum</i>	Y		Y	Y	Y	Y		Y		Y			Y	Y	Y				Y		Y	Y	Y		Y/Y	Y	Y		Y
<i>L. sinense</i> 'Variegated'															Y				Y			Y							
<i>Ligustrum × vicaryi</i>								Y													Y	Y			Y/Y		Y		Y
<i>Ligustrum</i> spp.	Y	N/-	Y	Y	Y			Y ¹¹	N	Y		Y	Y	Y ¹¹	Y			Y ¹¹		Y		Y ¹¹			Y/Y ¹¹	Y	Y ¹¹		Y ¹¹
<i>Liquidambar styraciflua</i>		Y/Y				Y		Y	Y				Y		Y	Y									Y/Y	Y	Y		Y
<i>Liriodendron tulipifera</i>			Y						Y				Y		Y	Y	Y									Y			
<i>Livistona chinensis</i>								Y																	Y/Y	Y	Y		Y
<i>Loropetalum chinensis</i>																			Y ¹¹			Y ¹¹					Y		
<i>Magnolia grandiflora</i>		Y/-	Y		Y			Y		Y			Y	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y/Y	Y	Y		Y
<i>Magnolia × soulangiana</i>			Y		Y				Y				Y	Y	Y				Y	Y	Y								
<i>Magnolia</i> spp.			Y		Y		Y	Y ¹¹		Y			Y	Y ¹¹	Y				Y	Y	Y								
<i>Mahonia</i> spp.		Y/-						Y ¹¹					Y	Y ¹¹							Y ¹¹	Y ¹¹	Y ¹¹	Y	Y/Y ¹¹	Y ¹¹	Y		Y ¹¹
<i>Morus alba</i>		Y/-						Y																	Y/Y	Y	Y		Y
<i>Murraya paniculata</i>									Y	Y									Y			Y							
<i>Musa aluminata</i>								Y																		Y	Y		
<i>Myrica cerifera</i>						Y		Y	Y						Y	Y		Y								Y	Y		

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<i>Myrtus communis</i>														Y						Y					Y/Y				Y
<i>Nandina domestica</i>		N/-		Y	Y	Y		Y							Y	Y		Y	Y		Y	Y			Y/Y	Y	Y		Y
<i>Nerium oleander</i>				Y		Y		Y ¹¹				Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y		Y/Y	Y ¹¹	Y ¹¹		Y ¹¹
<i>Nerium</i> spp.		Y/-																											
<i>Nyssa sylvatica</i>															Y												Y		
<i>Osmanthus fragrans</i>		Y/-		Y				Y							Y	Y		Y				Y		Y					
<i>Osmanthus × fortunei</i>				Y				Y								Y		Y						Y		Y	Y		
<i>Osmanthus heterophyllus</i>				Y	Y											Y		Y	Y		Y	Y		Y	Y/Y				Y
<i>Phoenix roebelinii</i>								Y																	Y/Y	Y	Y		Y
<i>Photinia × fraseri</i>				Y	Y	Y		Y	Y			Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y		Y/Y	Y	Y		Y
<i>Photinia</i> spp.		Y/-																											
<i>Pinus banksiana</i>		Y/Y																											
<i>Pinus bungeana</i>		Y/-																											
<i>Pinus canariensis</i>					Y			Y											Y				Y		Y/Y	Y	Y		
<i>Pinus clausa</i>		Y/Y																											
<i>Pinus contorta</i>		Y/Y																					Y						
<i>Pinus echinata</i>		Y/Y																											
<i>Pinus elliotii</i>		Y/Y			Y	Y						Y							Y			Y							
<i>Pinus mugo</i>		Y/-																					Y						
<i>Pinus palustris</i>		Y/Y			Y	Y							Y						Y										
<i>Pinus ponderosa</i>		Y/Y																											
<i>Pinus strobus</i>		Y/Y																	Y				Y						
<i>Pinus sylvestris</i>		Y/Y																	Y				Y						
<i>Pinus taeda</i>		Y/Y			Y	Y							Y		Y				Y							Y	Y		

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<i>Pinus virginiana</i>		Y/Y																	Y											
<i>Pinus</i> spp.			Y	Y	Y	Y ¹¹		Y ¹¹		Y		Y	Y ¹¹	Y	Y ¹¹	Y		Y	Y ¹¹	Y	Y	Y ¹¹		Y ¹¹	Y/Y ¹¹	Y ¹¹	Y ¹¹		Y	
<i>Pittosporum tobira</i>				Y	Y	Y		Y							Y			Y	Y	Y	Y	Y ¹¹	Y		Y/Y ¹¹	Y ¹¹	Y ¹¹		Y	
<i>Pittosporum</i> spp.		Y/-		Y	Y							Y	Y						Y ¹¹	Y ¹¹		Y ¹¹			Y/Y					
<i>Platanus occidentalis</i>		Y/Y ¹¹	Y			Y		Y		Y			Y		Y										Y/Y	Y	Y		Y	
<i>Platanus racemosa</i>		Y/Y																												
<i>Platycladus orientalis</i> (synonym <i>Thuja orientalis</i>)		Y/Y	Y		Y	Y		Y		Y		Y	Y	Y		Y		Y		Y	Y	Y	Y	Y	Y/Y	Y	Y		Y	
<i>Paeonia</i> cultivars																				Y		Y								
<i>Plumbago auriculata</i>								Y																	Y/Y	Y	Y		Y	
<i>Podocarpus gracilior</i> (see <i>Afrocarpus gracilior</i>)																														
<i>Podocarpus macrophyllus</i>																			Y		Y				Y/Y	Y	Y		Y	
<i>Podocarpus</i> spp.		Y/-	Y	Y	Y			Y								Y		Y					Y		Y/Y	Y	Y		Y	
<i>Populus</i> spp.		Y/Y																												
<i>Prunus caroliniana</i>								Y																	Y/Y	Y			Y	
<i>Prunus laurocerasus</i>								Y											Y	Y	Y				Y/Y				Y	
<i>Prunus</i> spp.		Y/Y		Y				Y ¹¹		Y ¹¹		Y	Y	Y	Y ¹¹	Y			Y ¹¹		Y ¹¹	Y ¹¹	Y		Y/Y ¹¹	Y ¹¹	Y ¹¹		Y ¹¹	
<i>Psidium littorale</i> var. <i>lucidum</i> (synonym <i>P. cattleianum</i>)								Y																						
<i>Pyracantha coccinea</i>															Y				Y	Y	Y				Y/Y				Y	
<i>Pyracantha koidzumii</i>						Y ¹¹													Y						Y/Y					
<i>Pyracantha. crenatoserrata</i> (synonym <i>P. fortuneana</i>)														Y					Y			Y			Y/Y		Y			

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<i>Pyracantha</i> spp.	Y	Y/-		Y	Y	Y ¹¹		Y ¹¹		Y		Y	Y	Y		Y	Y ¹¹					Y ¹¹			Y						
<i>Pyrus calleryana</i> 'Bradford'										Y				Y	Y			Y													
<i>Pyrus</i> spp.		Y ¹¹ /Y																													
<i>Quercus ilicifolia</i>		Y/-																					Y								
<i>Quercus laurifolia</i>						Y																									
<i>Quercus nigra</i>													Y		Y																
<i>Quercus palustris</i>		Y/-		Y		Y		Y					Y		Y								Y		-/Y	Y	Y				
<i>Quercus phellos</i>		Y/-				Y		Y					Y		Y								Y		-/Y	Y	Y				
<i>Quercus prinus</i>										Y		Y	Y	Y	Y ¹¹	Y				Y	Y					Y ¹¹	Y ¹¹		Y		
<i>Quercus rubra</i>		Y/-				Y		Y					Y		Y				Y				Y	Y	-/Y	Y	Y				
<i>Quercus shumardii</i>																			Y												
<i>Quercus virginiana</i>		Y/-				Y		Y							Y								Y			Y	Y				
<i>Quercus</i> spp.		-/Y	Y		Y							Y	Y		Y			Y		Y	Y				Y/Y	Y ¹¹	Y ¹¹				
<i>Rhaphiolepis indica</i>		Y/-		Y				Y ¹¹	Y			Y	Y	Y	Y			Y	Y	Y		Y ¹¹	Y		Y/Y ¹¹	Y	Y ¹¹			Y ¹¹	
<i>Rhaphiolepis umbellata</i>				Y								Y	Y		Y			Y	Y		Y ¹¹										
<i>Rhapis excelsa</i>																					Y										
<i>Rhododendron</i> spp.	Y	Y/-	Y	Y	Y ¹¹	Y ¹¹	Y	Y ¹¹	Y ¹¹	Y		Y ¹¹	Y ¹¹	Y	Y			Y ¹¹	Y ¹¹	Y ¹¹	Y ¹¹	Y ¹¹	Y ¹¹	Y ¹¹	Y	Y/Y	Y	Y ¹¹		Y	
<i>Rosa</i> spp.		Y/-	Y	Y	Y			Y ¹¹							Y	Y		Y	Y ¹¹		Y				Y/Y	Y	Y ¹¹			Y	
<i>Rosmarinus officinalis</i>						Y		Y							Y										Y/Y	Y	Y			Y	
<i>Salix babylonica</i>								Y							Y										Y/Y		Y			Y	
<i>Salix</i> spp.			Y		Y					Y						Y										Y					
<i>Spiraea cantoniensis</i>		N/-	Y		Y	Y				Y		Y	Y		Y																
<i>Spiraea japonica</i>		N/-	Y		Y	Y		Y		Y		Y	Y	Y	Y				Y			Y	Y			Y	Y				
<i>Spiraea</i> × <i>vanhouttei</i>		N/-	Y		Y	Y		Y		Y		Y	Y	Y	Y										Y/Y	Y	Y			Y	

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<i>Swietenia mahogany</i>							Y						Y												Y/Y	Y	Y			
<i>Syagrus romanzoffianum</i>						Y	Y																		Y/Y	Y			Y	
<i>Tabebuia caraiba</i>							Y																		Y/Y	Y	Y		Y	
<i>Taxodium distichum</i>			Y	Y		Y									Y	Y	Y	Y			Y					Y				
<i>Ternstroemia gymnanthera</i>							Y									Y						Y	Y			Y	Y			
<i>Thuja occidentalis</i>		Y/Y	Y		Y	Y	Y			Y		Y	Y	Y	Y	Y			Y			Y	Y	Y	Y/Y ¹¹	Y	Y		Y ¹¹	
<i>Thuja orientalis</i> (see <i>Platyclusus orientalis</i>)																														
<i>Tibouchina urvilleana</i>							Y																							
<i>Trqchycarpus fortunei</i>						Y																								
<i>Ulmus parvifolia</i>		Y/-	Y			Y	Y																							
<i>Ulmus</i> spp.					Y					Y				Y ¹¹							Y									
<i>Veitchia merrillii</i>							Y											Y							Y/Y	Y	Y			
<i>Viburnum japonicum</i>							Y													Y			Y		Y/Y		Y		Y	
<i>Viburnum suspensum</i>			Y												Y			Y ¹¹							Y/Y				Y	
<i>Viburnum</i> spp.		Y/-		Y		Y ¹¹	Y	Y ¹¹	N	Y		Y	Y		Y		Y ¹¹	Y		Y ¹¹	Y ¹¹	Y ¹¹		Y/Y ¹¹	Y ¹¹	Y ¹¹			Y ¹¹	
<i>Washingtonia robusta</i>				Y		Y	Y								Y										Y/Y	Y	Y		Y	
<i>Weigela florida</i>		Y/-	Y		Y		Y					Y	Y	Y	Y				Y	Y		Y		Y	Y/Y	Y	Y		Y	
<i>Xylosma congestum</i>	Y			Y		Y	Y					Y	Y	Y				Y		Y	Y	Y	Y		Y/Y	Y	Y		Y	
GROUNDCOVERS AND VINING PLANTS																														
<i>Aquilegia</i> spp. & cultivars			Y			Y		Y ¹¹							Y ¹¹	Y			Y											
<i>Aspidistra elatior</i>							Y																							
<i>Calluna vulgaris</i>				Y			Y												Y		Y						Y	Y		
<i>Cortaderia selloana</i> .						Y	Y					Y		Y	Y				Y	Y					Y/Y	Y	Y		Y	

Table 4. Ornamentals tolerant of some preemergence herbicides (Y = crop is on product label, N = do not use product on indicated genus, species or hybrid).

Scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrinol®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®
<i>Dietes iridioides</i> (synonym <i>Dietes vegeta</i>)							Y																		-/Y				
<i>Gelsemium sempervirens</i>						Y	Y								Y							Y	Y			Y	Y		
<i>Hedera canariensis</i>	Y			Y			Y										Y			Y					Y/Y	Y	Y		Y
<i>Hedera helix</i>	Y	Y/-	Y	Y	Y	Y	Y							Y	Y		Y	Y		Y					Y/Y	Y	Y		Y
<i>Hemerocallis</i> spp.							Y							Y	Y			Y ¹¹							Y/Y	Y	Y		Y
<i>Hypericum</i> spp.	Y			Y			Y	Y				Y	Y	Y	Y					Y	Y				Y/Y	Y	Y		Y
<i>Jasminum</i> spp.							Y ¹¹					Y	Y	Y						Y ¹¹									
<i>Jasminum mesnyi</i>														Y			Y			Y									
<i>Jasminum nitidum</i>							Y														Y					Y	Y		
<i>Jasminum nudiflorum</i>																		Y	Y										
<i>Lantana camara</i>			Y	Y			Y																			Y	Y		
<i>Lantana sellowiana</i> or <i>L. montevidensis</i>			Y	Y			Y								Y		Y	Y		Y	Y					Y	Y		
<i>Lantana</i> spp.		Y/-																											
<i>Liriope muscari</i>				Y		Y	Y ¹¹	Y						Y	Y				Y ¹¹					Y ¹¹	Y/Y ¹¹	Y	Y		Y ¹¹
<i>Liriope spicata</i>				Y		Y	Y								Y	Y			Y							Y	Y		
<i>Lonicera japonica</i>						Y	Y																		Y/Y				Y
<i>Lonicera</i> spp.		Y/-	Y		Y		Y				Y	Y	Y	Y	Y			Y ¹¹		Y	Y ¹¹	Y ¹¹		Y/Y ¹¹	Y ¹¹	Y ¹¹		Y ¹¹	
<i>Ophiopogon japonicus</i>						Y	Y	Y						Y	Y				Y						Y/Y	Y	Y		Y
<i>Pachysandra terminalis</i>	Y	Y/-	Y	Y	Y	Y	Y	Y			Y	Y	Y	Y	Y				Y	Y					-/Y	Y	Y		Y
<i>Pennisetum</i> spp.						Y ¹¹	Y ¹¹							Y ¹¹					Y ¹¹						-/Y ¹¹	Y ¹¹	Y ¹¹		
<i>Rumohra adiantiformis</i>														Y	Y				Y										
<i>Ruscus hypophyllum</i>							Y																						

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<i>Trachelospermum jasminoides</i>	Y			Y													Y			Y	Y			Y/Y				Y			
<i>Trachelospermum asiaticum</i>	Y					Y	Y	Y							Y ¹¹				Y			Y ¹¹				Y	Y				
<i>Tulbaghia violacea</i>								Y																-/Y		Y					
<i>Wedelia trilobata</i>																					Y										
<i>Wisteria sinensis</i>															Y	Y					Y										
ANNUALS AND PERENNIALS																															
<i>Achillea</i> spp.			Y			Y									Y	Y			Y						Y/Y	Y	Y ¹¹		Y		
<i>Agapanthus africanus</i>				Y		Y ¹¹	Y									Y		Y	Y		Y				Y/Y	Y	Y		Y		
<i>Agapanthus orientalis</i>																			Y												
<i>Ageratum</i> spp.			Y	Y											Y	Y										Y ¹¹					
<i>Ajuga reptans</i>	Y			Y		Y	N								Y	Y		Y			Y				Y/Y		N		Y		
<i>Allamanda cathartica</i>																					Y										
<i>Allium</i> spp.																Y			Y ¹¹												
<i>Alstroemeria</i> cultivars																															
<i>Alyssum</i> spp.	Y		Y												Y	Y										Y					
<i>Amaranthus</i> cultivars		N/-				N																									
<i>Ammi majus</i>																															
<i>Anemone coronaria</i>															Y				Y ¹¹												
<i>Anthurium andraeanum</i>																						Y									
<i>Antirrhinum majus</i>			Y			Y									Y	Y									Y/Y	Y			Y		
<i>Aquilegia</i> spp. & cultivars			Y			Y	Y ¹¹								Y ¹¹	Y			Y												
<i>Asclepias tuberosa</i>															Y	Y															
<i>Asparagus</i> spp.				Y			Y ¹¹								Y										-/Y	Y ¹¹	Y ¹¹				

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Scientific name	bensulide ¹	BroadStar™/SureGuard™	Dacthal®	Devrinol®	dichlobenil ²	Dimension®	Eptam®	Gallery™	Image®	Kerb®	Lasso® ³	OH2®	oxyfluorfen ⁴	oxyfluorfen + oxadiazon ⁵	pendimethalin ⁶	Pennant Magnum®	Predict®	PrePair®	prodiamine ⁷	RegalStar®	Ronstar®	Rout®	Showcase	simazine ⁸	Surflan®G/Surflan®AS	Treflan™	trifluralin + isoxaben ⁹	Weedfree 75™	XL®			
<i>Asparagus virgatus</i>						Y		Y							Y														Y			
<i>Aspidistra elatior</i>															Y																	
<i>Aster</i> spp.	Y		Y	Y				Y ¹¹							Y ¹¹	Y			Y													
<i>Astilbe</i> cultivars																															Y ¹¹	
<i>Athyrium nipponicum</i>																																
<i>Banksia menziesii</i>																						Y										
<i>Begonia</i> spp.						Y									Y				Y												N	
<i>Bouvardia</i> hybrids																																
<i>Bracteantha bracteata</i> (see <i>Helichrysum bracteatum</i>)																																
<i>Buddleia davidii</i>		Y/-																	Y		Y											
bulbs, ornamental								Y							Y ¹¹	Y ¹¹			Y ¹¹												Y	
<i>Caladium bicolor</i>															Y																	Y
<i>Calendula officinalis</i>	Y																															
<i>Campanula</i> spp.	Y		Y												Y	Y ¹¹			Y ¹¹												Y ¹¹	
<i>Carthamus tinctorius</i>																																
<i>Caryopteris incana</i>																																
<i>Catharanthus roseus</i>	Y														Y																	
<i>Cattleya</i> cultivars																																
<i>Celosia cristata</i>						Y									Y																	
<i>Chrysanthemum</i> spp.			Y	Y				Y							Y ¹¹	Y			Y ¹¹		Y										Y ¹¹	
<i>Chrysanthemum superbum</i>	Y			Y				Y							Y	Y					Y											Y
<i>Cirsium japonicum</i>																																
<i>Coleus</i> spp.			Y			Y ¹¹																										N

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<i>Coreopsis</i> spp.			Y			Y		Y						Y ¹¹	Y				Y	Y					Y/Y ¹¹	Y	Y ¹¹		Y ¹¹
<i>Cosmos</i> spp.			Y																							Y			
<i>Costus</i> spp.																													
<i>Cuphea hyssopifolia</i>			Y					Y																	-/Y		Y		
<i>Cyathea australis</i>																													
<i>Cyclamen persicum</i>																													
<i>Cymbidium</i> cultivars																													
<i>Dahlia</i> spp.	Y		Y	Y										Y						Y							Y		
<i>Delphinium</i> spp.			Y			Y									Y			Y											
<i>Dendranthema</i> × <i>grandiflorum</i> (synonym <i>Chrysanthemum morifolium</i>)			Y	Y				Y						Y	Y					Y					Y/Y ¹¹	Y	Y		Y
<i>Dendrobium</i> cultivars																													
<i>Dianthus barbatus</i>			N					Y ¹¹						Y	Y			Y ¹¹							Y/Y ¹¹	Y			Y
<i>Dianthus caryophyllus</i>			N										¹¹		Y ¹¹					Y						Y			
<i>Dianthus plumarius</i>			N			Y		Y						Y ¹¹					Y ¹¹							Y			
<i>Digitalis</i> spp.			Y											Y												Y ¹¹			
<i>Dracaena</i> spp.																						Y ¹¹							
<i>Echinacea purpurea</i>								N						Y					Y						Y/Y	Y	Y		Y
<i>Erigeron</i> cultivars																													
<i>Eustoma grandiflorum</i>																													
<i>Freesia</i> spp.	Y																												
<i>Gaillardia</i> spp.			Y											Y	Y				Y								Y	Y ¹¹	
<i>Gerbera jamesonii</i>																													

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<i>Gladiolus</i> spp.	Y ¹¹		Y	Y										Y	Y			Y		Y					Y/Y ¹¹	Y			Y ¹¹		
<i>Gloriosa superba</i>																															
<i>Gomphrena</i> cultivars	Y																														
<i>Gypsophila paniculata</i>			Y					Y						Y					Y ¹¹		Y	Y			Y/Y	Y	N		Y		
<i>Helianthus</i> spp.			Y																							Y					
<i>Helichrysum bracteatum</i>			Y																												
<i>Heliconia</i> species			Y																												
<i>Hemerocallis</i> spp.							Y							Y	Y				Y						Y/Y	Y	Y		Y		
<i>Heuchera sanguinea</i>	Y		Y				Y												Y							Y					
<i>Hippeastrum</i> cultivars																															
<i>Hosta</i> spp.				Y		Y		Y ¹¹						Y	Y ¹¹				Y ¹¹						Y/Y	Y ¹¹	Y ¹¹		Y		
<i>Hyacinthus</i> spp.															Y																
<i>Iberis sempervirens</i>	Y		Y			Y ¹¹		N													Y	Y						N			
<i>Impatiens walleriana</i>						Y								Y	Y ¹¹										Y/Y	Y			Y		
<i>Iris</i> spp.			Y			Y		Y ¹¹						Y	Y				Y						Y/Y	Y			Y		
<i>Kalanchoe</i> cultivars																															
<i>Kniphofia uvaria</i>			Y																												
<i>Lathyrus odoratus</i>	Y		Y																												
<i>Liatris spicata</i>														Y											Y/Y	Y			Y		
<i>Lillium</i> spp.			Y											Y	Y				Y												
<i>Limonium perezii</i>							Y							Y							Y					Y	Y				
<i>Lobelia</i> spp.																			Y ¹¹							Y					
<i>Lunaria annua</i>																															
<i>Lupinus</i> spp.			Y											Y	Y											Y					

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<i>Lysimachia</i> spp.							Y																				Y		
<i>Mirabilis jalapa</i>			Y																							Y			
<i>Monarda didyma</i>					Y	Y																							
<i>Narcissus</i> spp.	Y			Y	Y	Y	Y							Y	Y				Y							Y			
<i>Nigella damascena</i>																													
<i>Paeonia</i> cultivars																		Y ¹¹	Y		Y								
<i>Pachysandra terminalis</i>	Y			Y	Y	Y	Y				Y		Y	Y	Y					Y					-/Y	Y	Y		
<i>Pelargonium hortorum</i>			Y	Y	Y									Y ¹¹	Y										Y/Y				Y
<i>Pentas lanceolata</i>							Y																						
<i>Petunia × hybrida</i>			Y	Y	Y	Y	Y								Y	Y									Y/Y	Y	Y		Y
<i>Phalaenopsis</i> cultivars																													
<i>Philodendron</i> spp.												Y	Y																
<i>Phlox</i> spp.			N				Y ¹¹								Y	Y										Y	N ¹²		
<i>Platycodon grandiflorus</i>																													
<i>Portulaca grandiflora</i>			Y		Y										Y										Y/Y	Y			Y
<i>Primula</i> spp.	Y																												
<i>Protea</i> spp. & cultivars																					Y	Y ¹¹			Y/Y ¹¹				
<i>Ranunculus asiaticus</i>	Y																												
<i>Rosmarinus officinalis</i>					Y	Y	Y																		Y/Y	Y	Y		Y
<i>Rudbeckia fulgida</i>					Y ¹¹	Y	Y								Y ¹¹				Y ¹¹						-/Y	Y ¹¹	Y ¹¹		Y
<i>Rudbeckia hirta</i>	Y			Y											Y										Y/Y	Y	Y		Y
<i>Saintpaulia ionantha</i>			Y																										
<i>Salvia farinacea</i>					Y										Y ¹¹							Y				Y			Y
<i>Salvia</i> spp.			Y																			Y			Y/Y	Y			Y

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<i>Scabiosa</i> cultivars																										Y			
<i>Schefflera arboricola</i>																						Y							
<i>Scilla siberica</i>																													
<i>Sedum</i> spp.	Y			Y		Y		N							Y	Y		Y	Y ¹¹		Y				Y/Y ¹¹	Y	N		Y ¹¹
<i>Senecio cineraria</i>						Y									Y	Y ¹¹													
<i>Solidago</i> cultivars																													
<i>Strelitzia reginae</i>				Y																					Y/Y				Y
<i>Tagetes</i> spp.	Y		Y			Y									Y ¹¹	Y									Y/Y	Y			Y
<i>Trachelium caeruleum</i>																													
<i>Tradescantia virginiana</i>			Y																										
<i>Tulbaghia violacea</i>								Y	Y																-/Y		Y		
<i>Tulipa</i> spp.	Y							Y							Y	Y			Y						Y/Y	Y			Y
<i>Verbena</i> spp.								Y							Y ¹¹						Y ¹¹				-/Y ¹¹	Y			
<i>Vinca</i> spp.	Y			Y		Y ¹¹		Y				Y	Y	Y ¹¹	Y ¹¹				Y	Y	Y				Y/Y ¹¹	Y	Y		Y
<i>Viola</i> spp.	Y		N			Y ¹¹									Y ¹¹	Y									Y/Y ¹¹				Y ¹¹
<i>Xerochrysum bracteatum</i> (see <i>Helichrysum bracteatum</i>)																													
<i>Yucca filamentosa</i>								Y				N			Y	Y ¹¹			Y								Y	Y	
<i>Zantedeschia</i> cultivars																													
<i>Zinnia elegans</i>	Y		Y												Y	Y ¹¹									Y/Y	Y			Y

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¹ Bensumec™, Pre-San®

² Barrier®, Casoron® – dichlobenil is highly volatile and, therefore, has the potential to be phytotoxic. Use with caution, avoid situations where gaseous concentrations can build up, apply when temperatures are low (volatility increases with increasing temperature), and incorporate immediately after application.

³ Lasso is not labeled for use in certain locations; for example, Florida and Nassau and Suffolk counties in New York. Before using Lasso, check to make sure it is registered for use in your area.

⁴ Goal®, Galigan®, OxiFlo, Weedfree 63™

⁵ O-O Herbicide™, Lasar™

⁶ Corral™, Hurdle®, Pendulum®, Pre-M®

⁷ Barricade®, Cavalcade™, ProClipse™, ProdiaGuard, RegalKade®

⁸ Princep®, Simazine, Sim-Trol®

⁹ Preen®, Snapshot™ TG

¹⁰ – = crop not on the label of this formulation.

¹¹ Check product labels for species and/or varieties.

¹² Do not use on *Phlox drummondii*.

Common name	Scientific name
abelia, glossy	<i>Abelia × grandiflora</i>
acacia	<i>Acacia</i> spp.
Adam’s needle, yucca	<i>Yucca filamentosa</i>
African iris	<i>Dietes iridoides</i> (synonym <i>Dietes vejeta</i>)
African violet	<i>Saintpaulia ionantha</i>
agapanthus	<i>Agapanthus africanus</i>
ageratum	<i>Ageratum</i> spp.
ajuga	<i>Ajuga reptans</i>
Algerian ivy	<i>Hedera canariensis</i>
allamanda	<i>Allamanda cathartica</i>
allium	<i>Allium</i> spp.
alyssum	<i>Alyssum</i> spp.
amaryllis	<i>Hippeastrum</i> cultivars
American arborvitae	<i>Thuja occidentalis</i>
American dogwood	<i>Cornus stolonifera</i>
American holly	<i>Ilex opaca</i>
American plane tree	<i>Platanus occidentalis</i>
angelwing jasmine	<i>Jasminum nitidum</i>
anise, Chinese	<i>Illicium anisatum</i>
anise, Florida	<i>Illicium floridanum</i>
anise, purple	<i>Illicium floridanum</i>
anise, star	<i>Illicium parviflorum</i>
anthurium	<i>Anthurium andraeanum</i>
aralia, Japanese	<i>Fatsia japonica</i>
arborvitae, American	<i>Thuja occidentalis</i>
arborvitae, Oriental	<i>Platyclusus orientalis</i> (synonym <i>Thuja orientalis</i>)
areca palm	<i>Chrysalidocarpus lutescens</i>
Arizona cypress	<i>Cupressus arizonica</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
arum lily	<i>Zantedeschia cutlivars</i>
ash	<i>Fraxinus</i> spp.
asparagus “fern”	<i>Asparagus</i> spp
aster	<i>Aster</i> spp.
astilbe	<i>Astilbe</i> spp
aucuba, gold-dust plant	<i>Aucuba japonica</i>
Australian tree fern	<i>Cyathea australis</i>
azalea species	<i>Rhododendron</i> spp.
baby’s breath	<i>Gypsophila paniculata</i>
bachelor’s button	<i>Gomphrena</i> cultivars
bald cypress	<i>Taxodium distichum</i>
balloon flower	<i>Platycodon grandiflorus</i>
bamboo, heavenly	<i>Nandina domestica</i>
bamboo palm	<i>Chamaedorea erumpens</i>
bamboo palm	<i>Rhapis excelsa</i>
banana	<i>Musa aluminata</i>
banana shrub	<i>Michelia figo</i>
barberry	<i>Berberis</i> spp.
barberry	<i>Berberis × gladwynensis</i>
barberry, Japanese	<i>Berberis thunbergii</i>
bee balm	<i>Monarda didyma</i>
begonia	<i>Begonia</i> spp.
bellflower	<i>Campanula</i> spp.
bergamot	<i>Monarda didyma</i>
birch, river	<i>Betula nigra</i>
bird-of-paradise	<i>Strelitzia reginae</i>
bishop’s flower	<i>Ammi majus</i>
black gum	<i>Nyssa sylvatica</i>
black-eyed Susan	<i>Rudbeckia fulgida</i> , <i>R. hirta</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
blanket flower	<i>Gaillardia</i> spp.
blazing star	<i>Liatris spicata</i>
blue lace flower	<i>Trachelium caeruleum</i>
blue Pacific juniper	<i>Juniperus conferta</i>
blue star juniper	<i>Juniperus squamata</i>
blue throatwort	<i>Trachelium caeruleum</i>
bluebeard	<i>Caryopteris incana</i>
bottlebrush, lemon	<i>Callistemon citrinus</i>
bottlebrush, weeping	<i>Callistemon viminalis</i>
bougainvillea	<i>Bougainvillea</i> spp.
boxwood	<i>Buxus</i> spp.
boxwood, littleleaf	<i>Buxus microphylla</i>
Bradford pear	<i>Pyrus calleryana</i> 'Bradford'
buckeye, red	<i>Aesculus pavia</i>
bush, butterfly	<i>Buddleja davidii</i> , (synonym <i>Buddleia davidii</i>)
bush lantana	<i>Lantana camara</i>
butcher's broom	<i>Ruscus hypophyllum</i>
buttercup	<i>Ranunculus asiaticus</i>
butterfly bush	<i>Buddleja davidii</i> , (synonym <i>Buddleia davidii</i>)
butterfly weed	<i>Asclepias tuberosa</i>
caladium	<i>Caladium bicolor</i>
calla lily	<i>Zantedeschia cutlivars</i>
camellia	<i>Camellia</i> spp.
camellia, Japanese	<i>Camellia japonica</i>
camellia, sasanqua	<i>Camellia sasanqua</i>
Canary Island pine	<i>Pinus canariensis</i>
candytuft, evergreen	<i>Iberis sempervirens</i>

Common name	Scientific name
cape jasmine or jessamine	<i>Gardenia augusta</i> (synonym <i>G. jasminoides</i>)
carnation	<i>Dianthus caryophyllus</i>
Carolina jessamine	<i>Gelsemium sempervirens</i>
cast iron plant	<i>Aspidistra elatior</i>
cedar, Eastern red	<i>Juniperus virginiana</i>
cedar, Southern red	<i>Juniperus silicicola</i>
chalcus	<i>Murraya paniculata</i>
cherry	<i>Prunus</i> spp.
cherry laurel, American	<i>Prunus caroliniana</i>
cherry laurel, English	<i>Prunus laurocerasus</i>
chestnut	<i>Castanea</i> spp.
chestnut oak	<i>Quercus prinus</i>
Chinese anise	<i>Illicium anisatum</i>
Chinese elm	<i>Ulmus parvifolia</i>
Chinese fan palm	<i>Livistona chinensis</i>
Chinese holly	<i>Ilex cornuta</i>
Chinese juniper	<i>Juniperus chinensis</i>
Chinese privet, variegated	<i>Ligustrum sinense</i> 'Variegated'
Christmas palm	<i>Veitchia merrillii</i>
chrysanthemum	<i>Chrysanthemum</i> spp.
chrysanthemum	<i>Dendranthema</i> × <i>grandiflorum</i>
citrus, ornamental	<i>Citrus</i> spp.
cleyera	<i>Cleyera japonica</i> , see also <i>Ternstroemia gymnanthera</i>
climbing lily	<i>Gloriosa rothschildiana</i> , see <i>G. superba</i> 'Rothschildiana'
coastal leucothoe	<i>Leucothoe axillaris</i>
cockscomb, cock's comb	<i>Celosia cristata</i>
coleus	<i>Coleus</i> spp.

Common name	Scientific name
columbine	<i>Aquilegia cultivars</i>
coneflower	<i>Echinacea purpurea</i>
Confederate jasmine	<i>Trachelospermum jasminoides</i>
copperleaf	<i>Acalypha wilkesiana</i>
coral bells	<i>Heuchera sanguinea</i>
coreopsis	<i>Coreopsis</i> spp.
cosmos	<i>Cosmos</i> spp.
cotoneaster	<i>Cotoneaster</i> spp.
cotoneaster, cranberry	<i>Cotoneaster apiculatus</i>
cottonwood, Eastern	<i>Populus deltoides</i>
crape myrtle	<i>Lagerstroemia indica</i>
creeping juniper	<i>Juniperus horizontalis</i>
croton	<i>Codiaeum variegatum</i>
cypress, Arizona	<i>Cupressus arizonica</i>
cypress, bald	<i>Taxodium distichum</i>
cypress, false	<i>Chamaecyparis</i> spp.
cypress, Hinoki	<i>Chamaecyparis obtusa</i>
cypress, Italian	<i>C. sempervirens</i>
cypress, Lawson's	<i>Chamaecyparis lawsoniana</i>
cypress, Leyland	× <i>Cupressocyparis leylandii</i>
cypress, Sawara	<i>Chamaecyparis pisifera</i>
cypress spp.	<i>Cupressus</i> spp.
daffodil	bulbs, ornamental
daffodil	<i>Narcissus</i> spp.
dahlia	<i>Dahlia</i> spp.
daisy, gloriosa	<i>Rudbeckia hirta</i>
daisy, shasta	<i>Chrysanthemum superbum</i>
date palm, pigmy	<i>Phoenix roebelinii</i>
daylily	<i>Hemerocallis</i> spp.

Common name	Scientific name
delphinium	<i>Delphinium</i> spp.
deutzia	<i>Deutzia</i> spp.
dianthus	<i>Dianthus plumarius</i>
dogwood, American	<i>Cornus stolonifera</i>
dogwood, flowering	<i>Cornus florida</i>
dogwood, kousa	<i>Cornus kousa</i>
dracaena	<i>Dracaena</i> spp.
drake elm	<i>Ulmus parvifolia</i>
drooping leucothoe	<i>Leucothoe fontanesiana</i>
dusty miller	<i>Senecio cineraria</i>
Eastern cottonwood	<i>Populus deltoides</i>
Eastern red cedar	<i>Juniperus virginiana</i>
Eastern white pine	<i>Pinus strobus</i>
elaeanthus, thorny	<i>Elaeagnus pungens</i>
elm	<i>Ulmus</i> spp.
elm, Chinese	<i>Ulmus parvifolia</i>
elm, drake	<i>Ulmus parvifolia</i>
English ivy	<i>Hedera helix</i>
escallonia	<i>Escallonia</i> spp.
eucalyptus	<i>Eucalyptus</i> spp.
eucalyptus, silver dollar	<i>Eucalyptus cinerea</i>
euonymous	<i>Euonymous</i> spp.
euonymous, creeping	<i>Euonymous fortunei</i>
euonymous, evergreen	<i>Euonymous japonica</i>
euonymous, spreading	<i>Euonymous kiautshovicus</i>
European fan palm	<i>Chamaerops humilis</i>
false bird of Paradise	<i>Heliconia</i> species
false cypress	<i>Chamaecyparis</i> spp.
false holly	<i>Osmanthus heterophyllus</i>

Common name	Scientific name
false saffron	<i>Carthamus tinctorius</i>
false spiraea	<i>Astilbe</i> spp.
false spiraea	<i>Astilbe</i> cultivars
fan palm, Chinese	<i>Livistona chinensis</i>
fan palm, European	<i>Chamaerops humilis</i>
fan palm, Mexican	<i>Washingtonia robusta</i>
fan palm, Washington	<i>Washingtonia robusta</i>
fatshedera	× <i>Fatshedera lizei</i>
“fern”, asparagus	<i>Asparagus</i> spp.
fern, Australian tree	<i>Cyathea australis</i>
fern, Japanese painted	<i>Athyrium nipponicum</i>
fern, leatherleaf	<i>Rumohra adiantiformis</i>
“fern”, tree	<i>Asparagus virgatus</i>
figus	<i>Ficus</i> spp.
figus, mini	<i>Ficus benjamina</i>
fiddleleaf fig	<i>Ficus lyrata</i>
fig, fiddleleaf	<i>Ficus lyrata</i>
fig, weeping	<i>Ficus benjamina</i>
firethorn	<i>Pyracantha</i> spp.
firethorn, Formosa	<i>Pyracantha koidzumii</i>
firethorn, scarlet	<i>Pyracantha coccinea</i>
fishtail palm	<i>Caryota</i> spp.
flame lily	<i>Gloriosa superba</i>
flame maple	<i>Acer ginnala</i>
fleabane	<i>Erigeron</i> cultivars
Florida anise	<i>Illicium floridanum</i>
florists chrysanthemum	<i>Dendranthema</i> × <i>grandiflorum</i>
florists’ cyclamen	<i>Cyclamen persicum</i>
flowering dogwood	<i>Cornus florida</i>

Common name	Scientific name
forsythia	<i>Forsythia</i> spp.
forsythia, border	<i>Forsythia</i> × <i>intermedia</i>
Fortune’s osmanthus	<i>Osmanthus</i> × <i>fortunei</i>
fountain grass	<i>Pennisetum</i> spp.
four o’clock	<i>Mirabilis jalapa</i>
foxtail	<i>Digitalis</i> spp.
Fraser’s photinia	<i>Photinia</i> × <i>fraseri</i>
freesia	<i>Freesia</i> spp.
gaillardia	<i>Gaillardia</i> spp.
gallberry	<i>Ilex glabra</i>
gardenia	<i>Gardenia jasminoides</i>
garlic, society	<i>Tulbaghia violacea</i>
gazania	<i>Gazania</i> spp.
geranium	<i>Pelargonium hortorum</i>
gerbera daisy	<i>Gerbera jamesonii</i>
ginkgo	<i>Ginkgo biloba</i>
gladiolus	<i>Gladiolus</i> spp.
globe amaranth	<i>Gomphrena</i> cultivars
gloriosa daisy	<i>Rudbeckia hirta</i>
gloriosa lily	<i>Gloriosa rothschildiana</i> , see <i>G. superba</i> 'Rothschildiana
glory lily	<i>Gloriosa superba</i>
glossy abelia	<i>Abelia</i> × <i>grandiflora</i>
glossy privet	<i>Ligustrum lucidum</i>
gold-dust plant	<i>Aucuba japonica</i>
golden everlasting	<i>Helichrysum bracteatum</i>
goldenrod	<i>Solidago</i> species & cultivars
grass, fountain	<i>Pennisetum</i> spp.
grass, mondo	<i>Ophiopogon japonicus</i>

Common name	Scientific name
grass, pampas	<i>Cortaderia selloana</i> .
guava, pineapple	<i>Acca sellowiana</i>
guava, strawberry	<i>Psidium littorale</i> var. <i>lucidum</i>
gum, black	<i>Nyssa sylvatica</i>
gum, lemon scented	<i>Eucalyptus citriodora</i>
gum, sweet	<i>Liquidambar styraciflua</i>
hawthorn, Indian	<i>Raphiolepis umbellata</i>
hawthorn, Indian	<i>Raphiolepis indica</i>
heather, Mexican	<i>Cuphea hyssopifolia</i>
heather, Scotch	<i>Calluna vulgaris</i>
heavenly bamboo	<i>Nandina domestica</i>
hibiscus	<i>Hibiscus rosa-sinensis</i>
hickory	<i>Carya</i> spp.
Hinoki cypress	<i>Chamaecyparis obtusa</i>
holly	<i>Ilex</i> spp.
holly, American	<i>Ilex opaca</i>
holly, Chinese	<i>Ilex cornuta</i>
holly, false	<i>Osmanthus heterophyllus</i>
holly, Japanese	<i>Ilex crenata</i>
holly, Nellie Stevens	<i>Ilex</i> × ‘Nellie Stevens’
holly, Savannah	<i>Ilex attenuata</i> ‘Savannah’
holly, yaupon	<i>Ilex vomitoria</i>
honesty	<i>Lunaria annua</i>
honeysuckle	<i>Lonicera</i> spp.
honeysuckle, Japanese	<i>Lonicera japonica</i>
hosta	<i>Hosta</i> spp.
hyacinth	bulbs, ornamental
hyacinth	<i>Hyacinthus</i> spp.
hydrangea	<i>Hydrangea</i> spp.

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
impatiens	<i>Impatiens walleriana</i>
Indian hawthorn	<i>Raphiolepis indica</i>
inkberry	<i>Ilex glabra</i>
iris	<i>Iris</i> spp.
iris, African	<i>Dietes iridioides</i> (synonym <i>Dietes vegeta</i>)
iris, bulbous	bulbs, ornamental
Italian cypress	<i>Cupressus sempervirens</i>
ivy, Algerian	<i>Hedera canariensis</i>
ivy, English	<i>Hedera helix</i>
ixora	<i>Ixora coccinea</i>
Jack pine	<i>Pinus banksiana</i>
Japanese aralia	<i>Fatsia japonica</i>
Japanese barberry	<i>Berberis thunbergii</i>
Japanese camellia	<i>Camellia japonica</i>
Japanese holly	<i>Ilex crenata</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Japanese maple	<i>Acer palmatum</i>
Japanese painted fern	<i>Athyrium nipponicum</i>
Japanese privet	<i>Ligustrum japonicum</i>
Japanese spiraea	<i>Spiraea japonica</i>
Japanese star jasmine	<i>Trachelospermum asiaticum</i>
Japanese thistle	<i>Cirsium japonicum</i>
Japanese viburnum	<i>Viburnum japonicum</i>
jasmine	<i>Jasminum</i> spp.
jasmine, angelwing	<i>Jasminum nitidum</i>
jasmine, Confederate	<i>Trachelospermum jasminoides</i>
jasmine, Japanese star	<i>Trachelospermum asiaticum</i>
jasmine, orange	<i>Murraya paniculata</i>
jasmine, pinwheel	<i>Jasminum nitidum</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
jasmine, primrose	<i>Jasminum mesnyi</i>
jasmine, shining	<i>Jasminum nitidum</i>
jasmine, small-leaf	<i>Trachelospermum asiaticum</i>
jasmine, star	<i>Trachelospermum jasminoides</i>
jasmine, winter	<i>Jasminum nudiflorum</i>
jessamine, Carolina	<i>Gelsemium sempervirens</i>
juniper	<i>Juniperus</i> spp.
juniper, blue Pacific	<i>Juniperus conferta</i>
juniper, blue star	<i>Juniperus squamata</i>
juniper, Chinese	<i>Juniperus chinensis</i>
juniper, creeping	<i>Juniperus horizontalis</i>
juniper, Japanese garden	<i>Juniperus chinensis</i>
juniper, nana-dwarf	<i>Juniperus procumbens</i>
juniper, Parson's,	<i>Juniperus squamata</i>
juniper, savin	<i>Juniperus sabina</i>
juniper, shore	<i>Juniperus conferta</i>
kousa dogwood	<i>Cornus kousa</i>
lady palm	<i>Rhapis excelsa</i>
lantana, bush	<i>Lantana camara</i>
lantana, trailing	<i>Lantana sellowiana</i>
laurel, American cherry	<i>Prunus caroliniana</i>
laurel, English cherry	<i>Prunus laurocerasus</i>
laurel oak	<i>Quercus laurifolia</i>
Lawson's cypress	<i>Chamaecyparis lawsoniana</i>
leatherleaf fern	<i>Rumohra adiantiformis</i>
lemon bottlebrush	<i>Callistemon citrinus</i>
lemon scented gum	<i>Eucalyptus citriodora</i>
leucothoe, coastal	<i>Leucothoe axillaries</i>
leucothoe, drooping	<i>Leucothoe fontanesiana</i>
Leyland cypress	× <i>Cupressocyparis leylandii</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
liatris	<i>Liatris spicata</i>
ligustrum	<i>Ligustrum</i> spp.
lily	<i>Lillium</i> spp.
lily of the Incas	<i>Alstroemeria</i> cultivars
lily turf	<i>Liriope muscari</i>
lily turf, creeping	<i>Liriope spicata</i>
liroipec	<i>Liriope muscari</i>
lisianthus	<i>Eustoma grandiflorum</i>
littleleaf boxwood	<i>Buxus microphylla</i>
live oak	<i>Quercus virginiana</i>
lobelia	<i>Lobelia</i> spp.
loblolly pine	<i>Pinus taeda</i>
lobster claw	<i>Heliconia</i> species
lodgepole pine	<i>Pinus contorta</i>
longleaf pine	<i>Pinus palustris</i>
loquat	<i>Eriobotrya japonica</i>
love-in-a-mist	<i>Nigella damascena</i>
love-lies-bleeding	<i>Amaranthus caudatus</i>
lupine	<i>Lupinus</i> spp.
magnolia	<i>Magnolia</i> spp.
magnolia, saucer	<i>Magnolia</i> × <i>soulangiana</i>
magnolia, Southern	<i>Magnolia grandiflora</i>
mahogany	<i>Swietenia mahogany</i>
mahonia	<i>Mahonia</i> spp.
Manila palm	<i>Veitchia merrillii</i>
maple	<i>Acer</i> spp.
maple, flame	<i>Acer ginnala</i>
maple, Japanese	<i>Acer palmatum</i>
maple, red	<i>Acer rubrum</i>
maple, silver	<i>Acer saccharinum</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
maple, sugar	<i>Acer saccharum</i>
marigold	<i>Tagetes</i> spp.
Mexican fan palm	<i>Washingtonia robusta</i>
Mexican heather	<i>Cuphea hyssopifolia</i>
mondo grass	<i>Ophiopogon japonicus</i>
money plant	<i>Lunaria annua</i>
moneywort	<i>Lysimachia nummularia</i>
moss rose	<i>Portulaca grandiflora</i>
moth orchid	<i>Phalaenopsis</i> cultivars
mulberry, white	<i>Morus alba</i>
myrtle	<i>Myrtus communis</i>
myrtle, crape	<i>Lagerstroemia indica</i>
myrtle, wax	<i>Myrica cerifera</i>
nana-dwarf juniper	<i>Juniperus procumbens</i>
nandina	<i>Nandina domestica</i>
narcissus	<i>Narcissus</i> spp.
natal plum	<i>Carissa macrocarpa</i> (synonym <i>C. grandiflora</i>)
Nellie Stevens holly	<i>Ilex</i> × 'Nellie Stevens'
no-azami	<i>Cirsium japonicum</i>
Norfolk Island pine	<i>Araucaria heterophylla</i>
oak	<i>Quercus</i> spp.
oak, chestnut	<i>Quercus prinus</i>
oak, laurel	<i>Quercus laurifolia</i>
oak, live	<i>Quercus virginiana</i>
oak, pin	<i>Quercus palustris</i>
oak, red	<i>Quercus rubra</i>
oak, Shumard	<i>Quercus shumardii</i>
oak, water	<i>Quercus nigra</i>
oak, willow	<i>Quercus phellos</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
oak-leaf hydrangea	<i>Hydrangea quercifolia</i>
old-fashioned weigela	<i>Weigela florida</i>
oleander	<i>Nerium oleander</i>
olive, Russian	<i>Elaeagnus angustifolia</i>
orange jasmine	<i>Murraya paniculata</i>
orchid tree	<i>Bauhinia galpinii</i>
Oriental arborvitae	<i>Platycladus orientalis</i> (synonym <i>Thuja orientalis</i>)
osmanthus	<i>Osmanthus fragrans</i>
osmanthus, Fortune's	<i>Osmanthus</i> × <i>fortunei</i>
pachysandra	<i>Pachysandra terminalis</i>
painted fern, Japanese	<i>Athyrium nipponicum</i>
palm, areca	<i>Chrysalidocarpus lutescens</i>
palm, bamboo	<i>Rhapis excelsa</i>
palm, cat	<i>Chamaedorea cataractarum</i>
palm, Chinese fan	<i>Livistona chinensis</i>
palm, Christmas	<i>Veitchia merrillii</i>
palm, European fan	<i>Chamaerops humilis</i>
palm, fishtail	<i>Caryota</i> spp.
palm, lady	<i>Rhapis excelsa</i>
palm, Manila	<i>Veitchia merrillii</i>
palm, Mexican fan	<i>Washingtonia robusta</i>
palm, parlor	<i>Chamaedorea elegans</i>
palm, pigmy date	<i>Phoenix roebelinii</i>
palm, queen	<i>Syagrus romanzoffianum</i>
palm, sago	<i>Cycas revoluta</i>
palm, windmill	<i>Trachycarpus fortunei</i>
palm, Washington fan	<i>Washingtonia robusta</i>
pampas grass	<i>Cortaderia selloana</i> .
pansy	<i>Viola</i> spp.

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
parlor palm	<i>Chamaedorea elegans</i>
Parson's juniper	<i>Juniperus squamata</i>
pear, Bradford	<i>Pyrus calleryana</i> 'Bradford'
pentas	<i>Pentas lanceolata</i>
peony	<i>Paeonia</i> cultivars
periwinkle, common	<i>Vinca</i> spp.
periwinkle, Madagascar	<i>Catharanthus roseus</i>
Persian buttercup	<i>Ranunculus asiaticus</i>
Persian violet	<i>Cyclamen persicum</i>
Peruvian lily	<i>Alstroemeria</i> cultivars
petunia	<i>Petunia</i> × <i>hybrida</i>
philodendron	<i>Philodendron</i> spp.
phlox	<i>Phlox</i> spp.
photinia, Fraser's	<i>Photinia</i> × <i>fraseri</i>
pigmy date palm	<i>Phoenix roebelinii</i>
pin oak	<i>Quercus palustris</i>
pincushion flower	<i>Scabiosa</i> cultivars
pine	<i>Pinus</i> spp
pine, Canary Island	<i>Pinus canariensis</i>
pine, Eastern white	<i>Pinus strobus</i>
pine, Jack	<i>Pinus banksiana</i>
pine, loblolly	<i>Pinus taeda</i>
pine, lodgepole	<i>Pinus contorta</i>
pine, longleaf	<i>Pinus palustris</i>
pine, Norfolk Island	<i>Araucaria heterophylla</i>
pine, sand	<i>Pinus clausa</i>
pine, slash	<i>Pinus elliotii</i>
pineapple guava	<i>Acca sellowiana</i>
pinks	<i>Dianthus plumarius</i>
pinwheel jasmine	<i>Jasminum nitidum</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
pittosporum	<i>Pittosporum</i> spp.
pittosporum	<i>Pittosporum tobira</i>
plane tree, American	<i>Platanus occidentalis</i>
plum, natal	<i>Carissa macrocarpa</i> (synonym <i>C. grandiflora</i>)
plumbago	<i>Plumbago auriculata</i>
podocarpus	<i>Podocarpus macrophyllus</i>
podocarpus	<i>Podocarpus</i> spp.
podocarpus, weeping	<i>Podocarpus gracilior</i>
portulaca	<i>Portulaca grandiflora</i>
pot marigold	<i>Calendula officinalis</i>
prairie gentian	<i>Eustoma grandiflorum</i>
primrose	<i>Primula</i> spp.
primrose jasmine	<i>Jasminum mesnyi</i>
princes flower	<i>Tibouchina urvilleana</i>
privet	<i>Ligustrum</i> spp.
privet, glossy	<i>Ligustrum lucidum</i>
privet, Japanese	<i>Ligustrum japonicum</i>
privet, variegated Chinese	<i>L. sinense</i> 'Variegated'
privet, Vicaryi	<i>Ligustrum</i> × <i>vicaryi</i>
purple anise	<i>Illicium floridanum</i>
pyracantha	<i>Pyracantha</i> spp.
pyracantha	<i>Pyracantha. crenatoserrata</i> (synonym <i>P. fortuneana</i>)
queen palm	<i>Syagrus romanzoffianum</i>
Queen Anne's lace	<i>Ammi majus</i>
red buckeye	<i>Aesculus pavia</i>
red cedar, Eastern	<i>Juniperus virginiana</i>
red cedar, Southern	<i>Juniperus silicicola</i>
red maple	<i>Acer rubrum</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
red oak	<i>Quercus rubra</i>
red-hot poker	<i>Kniphofia uvaria</i>
redbud	<i>Cercis canadensis</i>
rhapsiolepis	<i>Rhapsiolepis umbellata</i>
river birch	<i>Betula nigra</i>
rose	<i>Rosa</i> spp.
rose, moss	<i>Portulaca grandiflora</i>
rose of China	<i>Hibiscus rosa-sinensis</i>
rose of Sharon	<i>Hibiscus syriacus</i>
rosemary	<i>Rosmarinus officinalis</i>
ruscus	<i>Ruscus hypophyllum</i>
Russian olive	<i>Elaeagnus angustifolia</i>
safflower	<i>Carthamus tinctorius</i>
sage	<i>Salvia</i> spp.
sage, Texas	<i>Leucophyllum frutescens</i>
sago palm	<i>Cycas revoluta</i>
salvia	<i>Salvia farinacea</i>
sandankwa viburnum	<i>Viburnum suspensum</i>
sasanqua camellia	<i>Camellia sasanqua</i>
saucer magnolia	<i>Magnolia × soulangiana</i>
Savannah holly	<i>Ilex attenuata</i> 'Savannah'
savin juniper	<i>Juniperus sabina</i>
Sawara cypress	<i>Chamaecyparis pisifera</i>
schefflera	<i>Schefflera arboricola</i>
Scotch heather	<i>Calluna vulgaris</i>
sea lavender	<i>Limonium perezii</i>
sedum	<i>Sedum</i> spp.
shasta daisy	<i>Chrysanthemum superbum</i>
shining jasmine	<i>Jasminum nitidum</i>
shore juniper	<i>Juniperus conferta</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
shrub, banana	<i>Michelia figo</i>
Shumard oak	<i>Quercus shumardii</i>
Siberian squill	<i>Scilla siberica</i>
silver dollar	<i>Lunaria annua</i>
silver dollar tree	<i>Eucalyptus cinerea</i>
silver maple	<i>Acer saccharinum</i>
slash pine	<i>Pinus elliotii</i>
small-leaf jasmine	<i>Trachelospermum asiaticum</i>
snapdragon	<i>Antirrhinum majus</i>
society garlic	<i>Tulbaghia violacea</i>
Southern magnolia	<i>Magnolia grandiflora</i>
Southern red cedar	<i>Juniperus silicicola</i>
spiderwort	<i>Tradescantia virginiana</i>
spiraea, false	<i>Astilbe</i> spp.
spiral flag	<i>Costus</i> species
spiraea	<i>Spiraea cantoniensis</i>
spiraea, Japanese	<i>Spiraea japonica</i>
spiraea, Van Houtte	<i>Spiraea × vanhouttei</i>
St. John's wort	<i>Hypericum</i> spp.
star anise	<i>Illicium parviflorum</i>
star jasmine	<i>Trachelospermum jasminoides</i>
statice	<i>Limonium perezii</i>
strawberry guava	<i>Psidium littorale</i> var. <i>lucidum</i>
strawflower	<i>Xerochrysum bracteatum</i> (see <i>Helichrysum bracteatum</i>)
strawflower	<i>Bracteantha bracteata</i> (see <i>Helichrysum bracteatum</i>)
strawflower	<i>Helichrysum bracteatum</i>
sugar maple	<i>Acer saccharum</i>
summer lilac	<i>Buddleja davidii</i> , <i>Buddleia davidii</i>

Preemergence Herbicides for Use in Ornamentals

Common name	Scientific name
sunflower	<i>Helianthus</i> spp.
sweet gum	<i>Liquidambar styraciflua</i>
sweet tea	<i>Osmanthus fragrans</i>
sweet William	<i>Dianthus barbatus</i>
sweetpea	<i>Lathyrus odoratus</i>
sweetspire	<i>Itea ilicifolia</i>
sycamore	<i>Platanus occidentalis</i>
tabebuia	<i>Tabebuia caraiba</i>
tea, sweet	<i>Osmanthus fragrans</i>
tea tree	<i>Leptospermum scoparium</i>
ternstroemia	<i>Ternstroemia gymnanthera</i>
Texas sage	<i>Leucophyllum frutescens</i>
trailing lantana	<i>Lantana sellowiana</i>
tree "fern"	<i>Asparagus virgatus</i>
tree fern, Australian	<i>Cyathea australis</i>
tree, orchid	<i>Bauhinia galpinii</i>
tree, tea	<i>Leptospermum scoparium</i>
tree, tulip	<i>Liriodendron tulipifera</i>
tulip	bulbs, ornamental
tulip	<i>Tulipa</i> spp.
tulip tree	<i>Liriodendron tulipifera</i>
Van Houtte spiraea	<i>Spiraea</i> × <i>vanhouttei</i>
variegated Chinese privet	<i>Ligustrum sinense</i> 'Variegated'
verbena	<i>Verbena</i> spp.
viburnum	<i>Viburnum</i> spp.
viburnum, Japanese	<i>Viburnum japonicum</i>
viburnum, sandankwa	<i>Viburnum suspensum</i>
Vicaryi privet	<i>Ligustrum</i> × <i>vicaryi</i>
vinca	<i>Vinca</i> spp.
voilet, African	<i>Saintpaulia ionantha</i>

Common name	Scientific name
Washington fan palm	<i>Washingtonia robusta</i>
water oak	<i>Quercus nigra</i>
wax myrtle	<i>Myrica cerifera</i>
wedelia	<i>Wedelia trilobata</i>
weeping bottlebrush	<i>Callistemon viminalis</i>
weeping fig	<i>Ficus benjamina</i>
weeping podocarpus	<i>Podocarpus gracilior</i>
weeping willow	<i>Salix babylonica</i>
weigela, old-fashioned	<i>Weigela florida</i>
willow	<i>Salix</i> spp.
willow oak	<i>Quercus phellos</i>
willow, weeping	<i>Salix babylonica</i>
wind flower	<i>Anemone coronaria</i>
windmill palm	<i>Trachycarpus fortunei</i>
winter jasmine	<i>Jasminum nudiflorum</i>
wintercreeper	<i>Euonymus fortunei</i>
wintergreen barberry	<i>Berberis julianae</i>
wisteria	<i>Wisteria sinensis</i>
wort, St. John's	<i>Hypericum</i> spp.
xylosma	<i>Xylosma congestum</i>
yarrow	<i>Achillea</i> spp.
yaupon holly	<i>Ilex vomitoria</i>
yucca, Adam's needle	<i>Yucca filamentosa</i>
zinnia	<i>Zinnia elegans</i>