

COMMERCIAL NURSERY AND LANDSCAPES WEED MANAGEMENT

COMMERCIAL NURSERY and LANDSCAPES			
Active Ingredient and Rate	Formulated Product and Rate	Weeds Controlled	Remarks and Precautions
PREEMERGENCE:			
benefin + oryzalin @ 4.0-6.0 lbs./A	XL 2 G @200-300 lbs./A or 4.5-7 lbs./1,000 sq. ft.	Annual grasses, some small seeded broadleaves	May be used in commercial nursery production and landscape beds. Several annual and perennial landscape plants are tolerant. Consult product label.
bensulide @ 7.5-12.5 lbs./A	Betasan 4E @ 15-25 pts/A or 5.6-7.3 oz/1000 sq. ft.	Annual grasses, some small seeded broadleaves	Several tolerant annual and perennial ornamentals. Check label for tolerant species and susceptible weeds. Irrigate to move product into weed seed germination zone. Do not use peat moss prior to application. May be used in landscape beds.
DCPA @ 10-15 lbs./A	DCPA 5 G @ 218 lbs./A or 5 lbs./1000 sq. ft.	Annual grasses, some small-seeded broadleaves	Several tolerant ornamentals. Commercial ornamental production and landscape bed use allowed. Consult label. Do not apply to pansies or phlox in landscape beds.
dithiopyr @ 0.5 lbs/A	Dimension 2 EW or Dithiopyr 2 L @ 2 pt/A or 0.73 or 0.73 oz/1,000 sq. ft.	Annual grasses, some small-seeded broadleaves. Early post control of crabgrass	May be used in commercial nursery production and landscape beds. Several annual and perennial landscape plants are tolerant to over the top or directed sprays. Consult product label.
dimethenamid + pendimethalin @ 1.75 – 3.5 lbs./A	FreeHand 1.75G @ 100 – 200 lbs./A or 2.3 – 4.6 lbs./1000 sq.ft	Annual grasses, spurge, chickweed, oxalis, groundsel, bittercress, eclipta. Suppression of <i>Phyllanthus</i> , doveweed, yellow nutsedge, annual sedges	Labeled for commercial nursery and landscapes. Broad spectrum herbicide with several weeds listed on the product label. Controls yellow nutsedge and annual sedges. May be applied to annual bedding plants. Consult product label.
isoxaben @ 0.5-1.0 lb./A	Gallery 75DF @0.66-1.33 lbs/A or 0.24 –0.48 oz/1000 sq. ft.	Several broadleaves, such as spurge, common purslane, pigweed, chickweed, oxalis	Several perennial groundcovers and woody ornamentals are tolerant in landscape plantings. Safe on several container trees and shrubs. Consult label for tolerant ornamental species and susceptible weeds. Application rates based on weed and ornamental species. One of the better broadleaf weed herbicides but does not control annual grasses and should be tank-mixed with another herbicide for broad spectrum weed control. Do not apply to annual beds.
prodiamine @ 0.65-0.75 lb./A	Barricade 65WG and Regalkade 65 WG @ 1.0-1.15 lbs./A or 0.36–0.42oz/1000 sq. ft.	Grasses and small-seeded broadleaves like pigweed, spurge and purslane	Labeled for commercial nursery production as well as landscape beds. Can be used in perennial and wildflower plantings. Use higher rate of application for longer control. Do not exceed 2.3 lbs./A annually. Useful in landscape beds and safe on several annual and perennial bedding plants. Similar weed control spectrum as Surflan and Pendulum.

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oxyfluorfen + pendimethalin @ 2 lbs./A	OH II 2 G @ 100 lbs./A or 2.3 lbs./1000 sq. ft.	Annual grasses, Spurge, chickweed, oxalis, groundsel, bittercress, eclipta	For container and field-grown ornamentals. Check label for tolerant ornamental species and susceptible weeds. Can be used for container or field-grown ornamentals. Excellent control of several hard to manage weeds. Some suppression of <i>Phyllanthus</i> species. Do not use on bedding plants.
indaziflam @ 0.03-0.05 lbs/A	Specticle Flo @ 6 to 12 oz/A or 0.14 to 0.28 oz./ 1,000 sq. ft.	Highly effective on crabgrass and other annual grasses. Good control of several small-seeded broadleaves	Apply as directed spray in landscapes established for at least 4 months. For best results, apply before mulching. Do not use in or around bedding plants or herbaceous perennials. Herbicide is useful for hardscapes such as graveled areas. Do not exceed 18.5 oz/A/12-month period.
napropamide @ 4-6 lbs./A	Devrinol 50WP @ 8-12 lbs./A 3-4.4 oz/1000 sq. ft. Devrinol 5G @ 43 – 87 lbs./A or 1 - 2 lbs./1000 sq. ft.	Annual grasses, broadleaves	Several species of deciduous and evergreen trees and shrubs. Container grown <i>Juniperus</i> , <i>Rhododendron</i> , <i>Pittosporum</i> , <i>Euonymus</i> are common tolerant ornamentals. Check label for tolerant ornamental species and list of susceptible weeds. Mechanically incorporate or apply irrigation immediately to activate. Also labeled for highways, industrial and foundation plantings.
oxadiazon @ 2-4 lbs./A	Ronstar 2 G @ 100-200 lbs./A or 2.25-4.5 lbs./1000 sq. ft.	Annual grasses, broadleaves; weak on chickweed	Check label for tolerant ornamental species and susceptible weeds. Injury has been observed on ajuga, liriopie and mondograss. Wash granules off foliage. Not labeled for residential areas.
oxyfluorfen + oryzalin @ 2.0 lbs./A	Rout 2 G @ 100 lbs./A or 2.3 lbs./1000 sq. ft.	Annual grasses, spurge, chickweed, oxalis, groundsel, bittercress, eclipta	For container and field grown ornamentals. Several perennial and woody ornamentals are tolerant. Do not apply to wet foliage. Water in to activate. Do not apply to plants that are breaking dormancy or making a flush of growth. Excellent broadleaf and grass control. Do not wait longer than 3 months before reapplying. Apply 2 weeks prior to greenhouse enclosure. Do not use on bedding plants.
isoxaben + oxyfluorfen + trifluralin @ 1.25 – 2 lbs./A	Showcase @ 100 – 200 lbs./A or 2.3 – 4.6 lbs./1000 sq. ft.	Annual grasses, several hard-to-control broadleaves including eclipta	Many container and field grown ornamentals are tolerant. Consult product label for tolerant ornamental species and susceptible weeds. Can be used for landscapes, field and container production. Excellent broad spectrum weed control. Improved control of <i>Phyllanthus</i> . Do not apply to bedding plants.
trifluralin + isoxaben @ 2.5-5.0 lbs./A	Snapshot 2.5 TG and generics @ 100-200 lbs./A or 2.3 - 4.6 lbs./1000 sq. ft.	Annual grasses, broadleaves	Several perennial groundcovers and woody ornamentals are tolerant. Consult product label for tolerant ornamental species and susceptible weeds. Several

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			herbaceous species listed. Can be used for landscapes, field and container production. Excellent broad spectrum weed control; however, poor to fair on <i>Phyllanthus</i> . Do not apply to bedding plants.
PREEMERGENCE continued:			
oryzalin @ 2.0-4.0 lb /A	Surflan 4 AS @ 2-4 qt/A or 1.5-3.0 oz/1000 sq. ft.	Annual grasses, some small seeded broadleaves	Can be used for landscapes, field and container production. Check label for tolerant ornamental species and list of susceptible weeds. Similar weed spectrum as Pendulum and Barricade or Regalkade.
norflurazon @ 2.4 lb /A	Predict 80DF @ 3 lbs./A or 1.1 oz/1000 sq. ft.	Annual grasses, broadleaves	Check label for tolerant ornamental species and susceptible weeds. Apply as broadcast or as a band treatment in fall and spring.
flumioxazin @ 0.38 lb./A	Broadstar 0.25 G @ 150 lbs./A 3.44 oz/1000 sq. ft.	Doveweed, liverwort, bittercress, sparges, other broadleaf weeds	Apply at preemergence. Provides 8-12 weeks of control. Several trees, shrubs and groundcovers are listed as tolerant. Container and field-grown plants only. Some potential for injury so consult product label for tolerant plant species. Has some preemergence activity on <i>Phyllanthus</i> (chamberbitter).
flumioxazin @ 0.25 – 0.38 lb./A	Sureguard 51 WG @ 8 – 12 oz/A or 0.18–0.28 oz/1000 sq. ft.	Doveweed, liverwort, bittercress, sparges, other broadleaf weeds	Provides preemergence and some postemergence control. Container and field production of several woody ornamentals. For commercial ornamental production: good fit for field production as a directed spray. Useful in container nurseries to maintain weed free production areas. Same active ingredient that is found in the granular herbicide Broadstar. (Broadstar is a better fit for container use). Excellent pre- and post- control of doveweed. Can be used as directed sprays in commercial or residential landscapes around woody ornamentals. Apply at least 30 days after planting new woody transplants. Consult supplemental label.
oxyfluorfen @ 0.25-1.0 lb./A	Goal T/O 1.6E @ 1.25-5 pts/A or 0.46-1.84 z/1000 ft2	A few annual grasses, several broadleaves, including bittercress	Apply at preemergence in conifers and several field grown trees. Herbicide has some postemergence activity. Good activity on several broadleaf weeds including winter annuals.
pronamide @ 1.0-2.0 lbs./A	Kerb 50 WSP @ 2.0-4.0 lbs./A Kerb SC @ 0.9-1.8 oz/1000 sq. ft.	Grasses, some broadleaves	Apply at preemergence and has some postemergence activity on annual bluegrass. Check label for tolerant ornamental species and susceptible weeds. RESTRICTED USE.

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pendimethalin @ 1.7 – 3.0 lbs./A	Pendulum 3.3 EC @ 3.6–4.8 pt/A or 1.3–1.8 oz/ 1000 sq. ft. Pendulum AquaCap 3.8 @ 3.1 – 6.2 pt/A or 1.15 oz – 2.3 oz/1000 sq. ft. Pendulum 2G @ 75–150 lbs./A or 1.7 – 3.4 lbs./1000 sq. ft.	Annual grasses, broadleaves	Most annual and perennial ornamentals are tolerant. Can be used in landscape beds due to good ornamental tolerance. Consult label for list of tolerant plants.
simazine @ 2.0-4.0 lbs./A	Princep 4L @ 2-4 qt/A or 0.73-2.20 oz/1000 sq. ft.	Annual grasses, winter broadleaves	Several field grown conifer including Christmas trees and deciduous trees. Apply in at least 25 GPA in fall or spring. Do not apply to plantings less than 1 year old. Do not apply to landscape beds.
metolachlor @ 1.2 – 2.45 lbs/A	Pennant Magnum 7.62 EC @1.3 - 2.6 pt/A or 0.48-0.96 oz/1000 sq. ft	Annual grasses, yellow nutsedge, some annual sedges small seeded broadleaves	Registered for commercial ornamental production and landscape areas. Several tolerant ornamentals including many annual and perennial landscape plants. Check label for tolerant ornamental species and susceptible weeds. Rates vary for different soil types and control time desired. Similar weed control spectrum as Pendulum but additionally controls yellow nutsedge. Does not control purple nutsedge.
oxadiazon @ 2.0-4.0 lbs./A	Ronstar 2G @ 100-200 lbs./A 2.30 – 4.60 lbs./1000 sq. ft.	Annual grasses and broadleaves	May be used in container and field commercial nursery production. Check label for tolerant ornamentals and list of susceptible weeds. Do not apply to annuals. Weak on chickweed. Cannot be used in residential landscape beds.
trifluralin (2.0%) + isoxaben (0.5%) @ 2.5-5.0 lb	Snapshot 2.5G, T/I 2.5 G@ 2.3 – 4.6 oz/1000 ft ² 100-200 lbs./A	Annual grasses and broadleaves	Check label for tolerant ornamental species and list of susceptible weeds. Application rate determined by weed species desiring to control.
oryzalin @ 2.0-4.0 lb ai/A	Surflan 4 AS @ 2.0 – 4.0 qt/A or 1.5–3.0 oz/1000 sq. ft.	Annual grasses, broadleaves	Labeled for commercial nursery production and landscape beds. Several tolerant annual and perennial ornamentals. Slightly more injury potential with this herbicide than similar herbicides (Pendulum, Barricade etc.) because product is more water soluble. Consult product label. Rain or irrigation needed to activate. Low rate: 2-4 months control. High rate: 6-8 months control.
POSTEMERGENCE:			
clopyralid @ 0.09 – 0.50 lb./A	Lontrel 3 EC @ 0.25 – 1.33 pt/A or 0.125oz – 0.5 oz/1000 sq. ft.	Legumes, asters, thistles	Labeled for use in certain woody trees and shrubs as over-the-top or directed sprays in field nurseries and landscape plantings. May also be used in field-grown lilies.

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			Apply no more than 1.33 pt./A per season. Mimosa, redbud, locust will be injured or killed by Lontrel. Do not apply to residential landscape plantings or container ornamentals.
POSTEMERGENCE continued:			
oxyfluorfen @ 0.25-0.50 lb./A	Goal T/O 1.6E @ 0.46 – 0.92 oz/1000 ft ² or 1.25-2.5 pts/A	Annual grasses, broadleaves including bittercress, chickweed	Control of small actively growing weeds in conifers and several field-grown trees. Works by contact so good coverage is a must.
bentazon @ 0.75-1.0 lb./A	Basagran T/O 4L @ 1.5-2.0 pts/A or 0.5 -.75 oz/1000 sq. ft	Yellow nutsedge, annual sedges and green kyllinga with repeated applications.	Postemergence directed spray in many established ornamental beds. Not systemic so weed coverage is very important. Will not control purple nutsedge. Control optimized by a second application within 10 days. Check label for recommended uses. Crop oil will increase activity.
flumioxazin @ 0.25 – 0.38 lb./A	Sureguard 5I WG @8 – 12 oz/A or 0.18–0.28 oz/1000 sq. ft.	Doveweed, bittercress, spurges, other broadleaf weeds	Apply at preemergence and postemergence. Container and field production of several woody ornamentals. For commercial ornamental production: good fit for field production as a directed spray. Useful in container nurseries to maintain weed-free production areas. Same active ingredient that is found in Broadstar. Excellent pre- and post-control of doveweed. Can be used as directed sprays in commercial or residential landscapes around woody ornamentals. Apply at least 30 days before new woody transplants.
POSTEMERGENCE GRASS KILLING HERBICIDES:			
fenoxaprop @ 0.1-0.3 lb./A	Acclaim IEC @ 4-45 oz/A 0.34-1.0 oz/1000 sq. ft.	Annual grasses, suppression of perennial grasses	Apply postemergence. Apply herbicide to actively growing grasses. More active on annual than perennial grasses. Can be used over the top of many herbaceous and woody ornamentals. Ornamental grasses may be injured or killed. Check label for recommended uses.
sethoxydim @ 0.3-0.5 lb./A	Segment IEC @ 36-60 oz/A or 0.82–1.65 oz/1000 sq. ft.	Annual and perennial grasses	Herbicide only controls grasses. Several non-grass ornamentals are tolerant for over the top applications but consult product label for sensitive plants. Limited suppression of torpedograss with multiple applications.
clethodim @ 0.125-0.25 lb	Envoy 0.94EC @ 17-34 oz/A or 0.39 – 0.78/1000 sq. ft.	Annual and perennial grasses	Apply postemergence for actively growing grasses. Add 0.25% v/v non-ionic surfactant (1 pt./50 gal.). Crop oil concentrate not recommended. Better on perennial grasses than sethoxydim.

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fluazifop @ 0.25-0.40 lb./A	Fusilade II EC @ 17-26 oz/A Spot sprays 0.75 oz/gallon	Annual and perennial grasses. Good on vaseygrass. Some suppression of torpedograss with repeated applications.	Herbicide only controls grasses. Several non-grass ornamentals are tolerant for over the top applications but consult product label for sensitive plants. Restrictions on juniper and azalea cultivars. Somewhat more effective on torpedograss with multiple applications compared to sethoxydim. Add a NIS at 0.25% v/v.
SEDGE KILLING HERBICIDES FOR LANDSCAPE:			
sulfosulfuron @ 0.05 - .09 lb./A	Certainty 75 WG @ 1.25 – 2.0 oz/A or 0.03 – 0.04 oz/1000 sq. ft. Apply with non-ionic surfactant.	Yellow and purple nutsedge, green kyllinga, johnsongrass	Now labeled for sedge control in ornamentals. Apply as a directed spray around woody ornamentals. Several landscape and field nursery plants will tolerate over-the-top applications. Consult product label.
imazaquin @ 0.38 - 0.5 lb./A	Image 70 DG @ 8.6 – 11.4 oz or 0.2 – 0.26 oz/1000 sq. ft.	Suppresses green kyllinga, yellow and purple nutsedge; weaker on yellow nutsedge; good on purple nutsedge; broadleaves, suppression of dollarweed	Landscape use only. Check label for tolerant ornamental species and susceptible weeds. Limited number of ornamentals that will tolerate over-the-top applications on label. Liriope and mondograss will tolerate certain rates in over the top applications. Azaleas may be injured by this herbicide.
halosulfuron @ 0.03-0.06 lb./A	Sedgehammer 75 WDG @ 0.6 - 1.33 oz/A or 0.138 – 0.03 oz/1000 sq. ft. 0.25 teaspoon/gal spot spray	Nutsedges (purple & yellow); suppression of kyllinga species	Apply as a directed spray around woody ornamentals in landscape plantings. Very effective on yellow and purple nutsedge. Add a non-ionic surfactant.
NON-SELECTIVE:			
glyphosate @ 1.0-5.0 lbs./A	Roundup Pro 41% and generics @ 1-5 qt/A or 1.5-3.7 oz/1000 ft2 Use 2% solution for spot treatments. Use a 10% solution for dollarweed, torpedograss and other hard to control perennials infesting landscape beds.	Grasses, broadleaves	Check label for recommended uses. Nonselective so avoid all drift. Labeled for greenhouse use. Consider wiping or paint brushing a 10% v/v solution instead of spraying in landscape beds for weeds such as dollarweed, Florida betony and torpedograss.
potassium salt	Sharpshooter 18% @ 5.5-11 oz/qt/water	Grasses, broadleaves	Apply postemergence. Check label for recommended uses. Nonselective. Apply to young, succulent, actively growing weeds. Labeled for greenhouse use. Good activity on small annual weeds. Very poor control on perennial weeds.
paraquat @ 0.6-0.9 lb./A	Gramoxone Max @ 0.66 oz/1000 ft2 1.8 pt/A	Annual grasses, broadleaves	Directed postemergence application in field produced woody ornamentals. Check label for recommended uses.

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			Nonselective. Poor on perennial weeds. RESTRICTED USE.
NON-SELECTIVE continued:			
diquat @ 0.25 – 0.50 lb./A	Reward @ 1 – 2 pt/A or 0.36 – 0.72 oz	Most annual grasses and broadleaves	Contact herbicide labeled for use in commercial greenhouses and nurseries. Post-directed in field ornamentals. Good coverage is a must. Add a non-ionic surfactant at 0.25% v/v. Poor on perennial weeds.
glufosinate ammonium @ 0.75 – 1.5 lbs./A	Finale I SL @ 3-6 qt/A or spot treatment 1.5-4.0 oz/gal	Nonselective control of several grasses and broadleaves	Mostly contact herbicide. Less effective on perennial plants due to limited translocation. Very good herbicide on escaped jasmine.