

## Herbicide Options for Daylily Production and Landscape Care

By: Drs. Darren K. Robinson<sup>1</sup>, Stephen Garton<sup>2</sup>, William Klingeman<sup>3</sup> and Gary McDaniel<sup>4</sup>  
Department of Plant Sciences, The University of Tennessee

<sup>1</sup>Horticultural Weed Management Specialist and Assistant Professor, <sup>2</sup>Nursery Specialist and Assistant Professor; <sup>3</sup>Assistant Professor focusing on Integrated Pest Management in Ornamental Plants; <sup>4</sup> Professor focusing on Nursery and Ornamental Plant Performance.

**Directions:** The following tables are intended to assist you in herbicide options available for use in daylily production and care. Weeds in daylily production can be anticipated. Herbicide use is one of several options that can be used to minimize weed development in daylily plantings. The following tables are specific for just herbicides available for use in daylilies. These tables are developed in support of 'Weeds in Daylily Production and Care: A Planned Approach to Weed Management', a document which focuses on all available weed management options in regards to daylilies.

**Key To Tables:**

Table 1. Home Gardener Herbicide Options, Rates, Application Method and Use Directions and Precautions.  
Table 2. Professional Preemergence Herbicides for Daylilies: Use Directions and Precautions  
Table 3. Professional Postemergence Herbicides for Daylilies: Use Directions and Precautions.

**Table 1. Home Gardener Herbicide Options, Rates, Application Method and Use Directions and Precautions.**

Product	Rate	Application Method	Use Directions and Precautions
<p>Directions: The following table provides a list of herbicides available for use in daylily production and care. This list may not be complete, but, is intended to serve as a beginning guide to herbicide options, strengths and use (always refer to the actual herbicide product label before applying any herbicide).  <b>Note:</b> The symbol ♦ next to a herbicide product name indicates the product is available for homeowner use. However, it is not sold at most common retail garden centers and may require special order from a professional landscape or nursery supplier. In addition, these products may be sold in large quantities that may be impractical for homeowners.</p>			
<b>Preemergence</b>			
<b>PREEN</b> (trifluralin)	<b>10 oz.</b> per 100 sq. ft.	<b>Granular</b>	<ul style="list-style-type: none"> <li>-PREEN and Miracle-Gro GARDEN WEED PREVENTER are similar products carrying the same herbicidal active ingredient (trifluralin).</li> <li>- Provides preemergence control of many annual grasses and certain broadleaf weeds.</li> <li>- Apply prior to weed seed germination or after removal of established weeds.</li> <li>- Apply to soil surface or over-the-top of plant foliage (established or after planting).</li> <li>- Irrigate to move granules from plant foliage and dissolve the herbicide moving it into the growing media.</li> <li>- Irrigate immediately after application (ideally ½ inch of overhead irrigation should be applied).</li> <li>- Provides 30 to 60 days of residual preemergence activity.</li> <li>- Repeat applications at 30 and 60 days to extend control throughout the growing season.</li> </ul>
<b>Miracle-Gro GARDEN WEED PREVENTER</b> (trifluralin)	<b>10 oz.</b> per 100 sq. ft.		
<b>Spectracide Weed Stop GARDEN WEED PREVENTER</b> (dithopyr)	<b>7 oz.</b> per 100 sq. ft.	<b>Granular</b>	<ul style="list-style-type: none"> <li>- Provides preemergence control of many annual grasses and certain broadleaf weeds.</li> <li>- Apply prior to weed seed germination or after removal of established weeds.</li> <li>- Apply to soil media surface or over-the-top of plant foliage (established or after planting).</li> <li>- Irrigate to move granules from plant foliage and dissolve the herbicide moving it into the growing media.</li> <li>- Irrigate immediately after application (ideally ½ inch of overhead irrigation should be applied).</li> <li>- Provides 90 to 120 days of residual control. Re-treat 90 to 120 days later to extend residual control throughout the growing season.</li> </ul>
<b>Green Light PORTRAIT</b> (isoxaben)	<b>8 oz.</b> per 100 sq. ft.	<b>Granular</b>	<ul style="list-style-type: none"> <li>- Provides broadspectrum control of broadleaf weeds.</li> <li>- Do not apply to bedding plants or area where bedding plants will be planted within one year.</li> <li>- Apply prior to weed seed germination or after removal of established weeds.</li> <li>- Apply to soil media surface or over-the-top of plant foliage (established or after planting).</li> <li>- Provides 90 to 120 days of residual control.</li> <li>- Requires ½ inch rainfall or irrigation within 21 days after application.</li> </ul>
<b>TREFLAN 5G ♦</b> (trifluralin)	<b>3 oz.</b> per 100 sq. ft.	<b>Granular</b>	<ul style="list-style-type: none"> <li>- Provides preemergence control of many annual grasses and certain broadleaf weeds (Table 5).</li> <li>- Apply prior to weed seed germination or after removal of established weeds.</li> <li>- Apply to soil surface or over-the-top of plant foliage (established or after planting).</li> <li>- Irrigate to move granules from plant foliage and dissolve the herbicide, moving it into the growing media.</li> <li>- Irrigate immediately after application (ideally ½ inch of overhead irrigation should be applied).</li> <li>- Provides 30 to 60 days of residual preemergence activity.</li> <li>- Repeat applications at 30 and 60 days to extend control throughout the growing season.</li> </ul>

Product	Rate	Application Method	Use Directions and Precautions
SNAPSHOT ♦ (isoxaben plus trifluralin)	4 to 7 oz. per 100 sq. ft.	Granular	<ul style="list-style-type: none"> <li>- Provides broadspectrum control of both grass and broadleaf weeds.</li> <li>- Do not apply to bedding plants or area where bedding plants will be planted within one year.</li> <li>- Apply prior to weed seed germination or after removal of established weeds.</li> <li>- Apply to soil media surface or over-the-top of plant foliage (established or after planting).</li> <li>- Provides 60 to 90 days of residual control.</li> <li>- Requires ½ inch rainfall or irrigation within 3 days after application (immediately after application is ideal).</li> </ul>
Postemergence - Spot-treatment or Shielded application			
FINALE (glufosinate)	2 to 4 fl. oz. per gallon of water	Directed- Foliar Spray	<ul style="list-style-type: none"> <li>- Can be used as a directed spray under most woody ornamental trees and shrubs and as spot treatment, where possible in other plantings (<u>Injury Note</u>: FINALE is nonselective and will cause injury to desired ornamentals when contacted by a misapplication).</li> <li>- Can be used for edging or trimming of landscape beds.</li> <li>- Provides broadspectrum control of emerged grass and broadleaf weeds.</li> </ul>
ROUNDUP (glyphosate)	Product Dependent Several formulations (refer to label)	Directed- Foliar Spray	<ul style="list-style-type: none"> <li>- Can be used as a directed spray under most woody ornamental trees and shrubs and as spot treatment, where possible in other plantings (<u>Injury Note</u>: ROUNDUP is nonselective and will cause injury to desired ornamentals when contacted by a misapplication).</li> <li>- Provides non-selective activity, controlling both grass and broadleaf weeds (annuals and perennials). Perennial broadleaf weeds, bermudagrass and yellow nutsedge may require repeat application.</li> <li>- Provides systemic activity, as herbicide applied to the foliage moves within the plant to control both above and below ground growth. Control may take 7 to 14 days.</li> <li>- Ideal for control of annual and perennial weeds prior to establishing an ornamental planting.</li> </ul>
Postemergence - Over Top Application			
VANTAGE (sethoxydim)	1. 4 fl. oz. per gallon of water	Foliar Spray	<ul style="list-style-type: none"> <li>- Can be used over-the-top of most ornamental plantings. Except ornamental grasses.</li> <li>- Provides control of emerged annual and some perennial grasses.</li> <li>- Perennial grasses may require repeat application.</li> <li>- For bermudagrass, make repeat applications when 3 to 8 inches of new growth has developed (may require more than one repeat application to gain control).</li> </ul>

**Table 2. Professional Preemergence Herbicides for Daylilies: Use Directions and Precautions**

**How To Use This Table:** This table provides directions and precautions for using preemergence herbicides labeled for use in daylilies. In this table, preemergence herbicides are listed alphabetically by herbicide trade name. Herbicide rate provides the amount of material to be applied based on amount of active ingredient per acre, rate of product per acre or product per 1,000 sq. ft. This will aid in purchasing the amount of material needed. These DIRECTIONS AND PRECAUTIONS provide a summary of what each product will or will not do, tips to optimize product performance and necessary precautions to prevent injury to daylily plantings. This table may not be complete in all products available, but provides a starting point for further study.

**Preemergence Herbicides:** Preemergence herbicides act by preventing weeds from emerging or establishing. Preemergence herbicides generally do not control established weeds. Thus, preemergence herbicides need to be applied after removal of existing weeds and prior to new weed emergence. The two peak periods of weed emergence are spring to early summer and early fall. Retreatment within the growing season may be required, depending on the product and length of residual control. Through the season, weeds escaping preemergence herbicides will need to be removed. Re-treat to re-establish a uniform herbicide barrier.

**Note of Caution:** Information provided in this table is not meant to replace reading of the actual herbicide product label. This table is meant to assist selecting the herbicide(s) product that best suits the need. **Prior to herbicide application, read and understand the directions and precautions provided in the actual herbicide product label.**

**Key to Abbreviations:** ♦ = indicates non-professional product or product sold at common retail garden centers - all other products are for professionals and may need to be ordered from suppliers of professional products. A = acre (43,560 sq. ft.); fl. oz. = fluid ounces; gal. = gallons; lbs. = pounds; pts. = pints; sq. ft. = square feet.

HERBICIDE TRADE NAME(S)	Active ingredient	HERBICIDE RATE			DIRECTIONS AND PRECAUTIONS
		Active ingredient per Acre	PRODUCT per Acre	PRODUCT per 1,000 sq. ft.	
BARRICADE 65WG	prodiamine	0.65 to 1.5 lb.	1.0 to 2.3 lb.	0.36 to 0.83 oz.	Provides preemergence control of annual grasses (crabgrasses, foxtails, goosegrass and others) and several broadleaf weeds (carpetweed, chickweed, yellow woodsorrel and others). Do not apply more than 2.3 lb. product /A in a growing season.
BARRICADE FL		8.4 to 19.5 oz.	21 to 48 oz.	0.5 to 1.1 oz.	
DIMENSION ULTRA WSP	dithiopyr	0.5 lb.	1.25 lb. or (4 water soluble packets)	1.46 oz.	For landscape use only, not production. Provides preemergence control of annual grasses (like crabgrass, goosegrass, foxtails and annual bluegrass) and several broadleaf weeds (like bittercress, yellow woodsorrel, chickweed, henbit, Carolina geranium, mustards, knotweeds, spurges and others). Apply as a directed spray, not over-the-top or broadcast. If ornamental foliage receives spray drift, the injury is typically cosmetic and plants will outgrow it.
GALLERY 75DF	Isoxaben	0.5 to 1.0 lb.	0.66 to 1.33 lb.	0.25 to 0.5 oz.	Do not apply to containers until media has settled. Apply to weed-free media. Landscape: Do not apply to bedding plants or areas where bedding plants will be planted within one year. Do not apply to ground covers until they are well-established. Provides broad spectrum, preemergence activity towards annual broadleaf weeds. Weak on annual grasses. May be tank- mixed with PENDULUM or SURFLAN to provide broad-spectrum control of annual grasses and broadleaf weeds where both are labeled.

HERBICIDE TRADE NAME(S)	Active ingredient	HERBICIDE RATE			DIRECTIONS AND PRECAUTIONS
		Active ingredient per Acre	PRODUCT per Acre	PRODUCT per 1,000 sq. ft.	
<b>PENDULUM 2G</b> (granular)  <b>PENDULUM 3.3EC</b>  <b>PENDULUM 60WDG</b>	pendimethalin	2 to 4 lb.	100 to 200 lb.  2.4 to 4.8 qt.  3.3 to 6.6 lb.	2.3 to 4.6 lb.  1.8 to 3.3 fl. oz.  1.2 to 2.4 oz.	<p>Provides preemergence control of annual grasses (like crabgrass, goosegrass, foxtails, panicums, barnyard grass, etc.) and certain broadleaf weeds (like bittercress, yellow woodsorrel, spurge, knotweed, chickweed, henbit, etc).</p> <p>May be tank-mixed with GALLERY to improve broadleaf weed control spectrum, but plants sprayed must appear on both labels. Apply to weed- free media. Apply the G formulation to dry foliage and then irrigate to move herbicide from the foliage. May cause temporary discoloration of sprayed surfaces. Rinse immediately to avoid staining wood, stone, concrete, etc.</p>
<b>PENNANT MAGNUM</b>	metolachlor	1.23 to 1.90 lb.	1.3 to 2.0 pt.  Do not exceed 4.2 pints per year.	14 to 21 ml  Do not exceed 46 ml per 1000 sq. ft. per year.	<p>Provides preemergence control of yellow nutsedge (not purple) in addition to preemergence control of annual grasses and certain broadleaf weeds. Does not control bittercress, yellow woodsorrel, mustards.</p> <p>Apply to weed- free soil or media and follow with ½ inch of irrigation to move herbicide from foliage onto underlying media. Use rate is dependent upon soil texture. Typical Tennessee soils are medium- to coarse- textured, requiring 1.3 to 2.0 pts. per acre.</p>
<b>REGALKADE 0.5G</b> (granular)	prodiamine	0.75 to 1.5 lb.	132 to 300 lb.	3.0 to 7 lb.	<p>Granular REGALKADE can be applied over-the-top of container, field grown daylilies and established daylily plantings.</p> <p>Provides preemergence control of annual grasses (crabgrasses, foxtails, goosegrass, etc.) and certain broadleaf weeds (carpetweed, chickweed, yellow woodsorrel, etc.). Weak on bittercress, morningglories and ragweed. May be applied to new transplants after soil settles from a thorough watering. Apply to dry foliage.</p>
<b>SNAPSHOT 2.5TG</b> (granular)	isoxaben plus trifluralin	0.5 to 1.0 lb. plus 2 to 4 lb.	100 to 200 lb.	2.3 to 4.6 lb.	<p>Provides preemergence control of broadleaf weeds and most annual grass weeds.</p> <p>Apply to weed-free growing media. Requires ½ inch rainfall or irrigation within three days after application.</p> <p>This product contains Gallery; do not apply to bedding plants or areas where bedding plants will be grown.</p>
<b>SURFLAN AS</b>	oryzalin	2 to 4 lb.	2 to 4 qt.	1.5 to 3.0 fl. oz	<p>Provides preemergence control of annual grasses and certain annual broadleaf weeds (like chickweed and bittercress).</p> <p>May be tank-mixed with GALLERY to improve broadleaf weed control spectrum; but plants sprayed must appear on both labels. Apply to weed-free soil or media surface or prior to weed seed germination.</p> <p>Requires ½ inch rain or irrigation within 21 days after application to activate.</p> <p>Apply to plants that have been planted long enough for the soil/media to settle from packing and rainfall or irrigation.</p> <p>Landscape: May cause temporary discoloration of sprayed surfaces. Injury to begonia and coleus has been observed.</p>
<b>TREFLAN 5G</b> (granular)	trifluralin	4	80 lb.	1.8 lb.	<p>Provides preemergence control of predominantly annual grasses and some broadleaf weeds.</p> <p>Apply to weed-free soil or media or prior to weed seed germination. Requires ½ inch rainfall or irrigation within three days of application (ideally, immediately after application). Repeat application no sooner than 60 days after the initial application [do not apply more than 240 lb. per acre (or three applications) in a 12- month period].</p>



**Table 3. Professional Postemergence Herbicides for Daylilies: Use Directions and Precautions**

**How To Use This Table:** This table provides directions and precautions for postemergence herbicides labeled in daylily production and care. In this table, postemergence herbicides are listed alphabetically by the herbicide trade name. Herbicide rate provides the amount of material to be applied based on amount of active ingredient per acre, rate of product per acre or product per 1,000 sq. ft. These DIRECTIONS AND PRECAUTIONS provide a summary of what each product will or will not do, tips to optimize product performance and necessary precautions to prevent injury to daylilies. This will aid in purchasing the amount of material needed. This table may not be complete on all options available but will serve as a starting point for further study.

**Postemergence Herbicides:** Postemergence herbicides control weeds after they have emerged or become established. Unfortunately, selective postemergence herbicides for use in ornamentals are limited. Herbicide options are available for selective control of emerged grass weeds in many ornamentals. However, control of emerged broadleaf weeds is limited to physical removal or careful spot spraying of a non-selective postemergence herbicide. To prevent re-infestation, a preemergence herbicide can be applied to the soil, mulch or media surface.

**Note of Caution:** Information provided in this table is not meant to replace reading of the actual herbicide product label. This table is meant to assist in selecting the herbicide(s) product that best suits the need. **Prior to herbicide application, read and understand the use directions and precautions provided in the actual herbicide product label.**

**Key to abbreviations:** A = acre (43,560 sq. ft); fl oz. = fluid ounces; gal. = gallons; lbs. = pounds; pts. = pints; sq. ft. = square feet.

HERBICIDE TRADE NAME(S)	Herbicide Active Ingredient	Herbicide Rate				DIRECTIONS AND PRECAUTIONS
		Active per Acre	PRODUCT per Acre	PRODUCT per 1,000 sq. ft.	Spot Treatment Rate	
ENVOY 1L (selective for grasses)	clethodim	0.13 to 0.26 lb.	17 to 34 fl. oz.	0.4 to 0.8 fl. oz.	0.65 to 1.3 fl. oz. plus 0.33 fl. oz. non-ionic surfactant per gallon	Provides postemergence control of annual grasses and several perennial grasses. Perennial grasses controlled include bermudagrass and johnsongrass. Apply at low rate to young, actively growing annual and perennial grasses. Use this rate when annuals are 2 to 6 in. tall or bermudagrass has less than 8 in. new growth. Use the highest rate for very mature grasses (may only result in suppression). Requires addition of non-ionic surfactant (at 0.25% v/v or ½ pt. in 25 gallons of water carrier). Do not add crop oil concentrate as ornamental injury can result. Optimum control obtained when grasses are actively growing, or not stressed (due to drought or extreme temperature).
FINALE 1L (non-selective)	glufosinate	0.75 to 1.5 lb.	3 to 6 qt.	2.2 to 4.4 fl. oz.	1.5 to 4 fl. oz. per gallon	Provides non-selective control of emerged grass and broadleaf weeds (annuals and perennials). Control symptoms should be evident in two to four days. Avoid contact with desired foliage; apply as directed or shielded spray. Do not use in container nursery stock as root uptake can occur in soilless media. In landscape maintenance, can be used for edging. However, it does not provide residual control of later-emerging weeds. Can be tank-mixed with GALLERY, PENDULUM, SURFLAN, BARRICADE or FACTOR to provide residual control.

HERBICIDE TRADE NAME(S)	Herbicide Active Ingredient	Herbicide Rate				DIRECTIONS AND PRECAUTIONS
		Active per Acre	PRODUCT per Acre	PRODUCT per 1,000 sq. ft.	Spot Treatment Rate	
<b>ROUNDUP PRO 4L (non-selective)</b>	glyphosate	1 to 5 lb.	1 to 5 qt.	2 to 4 fl. oz.	0.7 to 2.7 fl. oz.	Provides non-selective control of annual and perennial broadleaf weeds. Control symptoms should be expressed in seven to 10 days. Avoid contact with desired foliage; apply as a directed or shielded spray. Avoid spray drift. Provides systemic activity; avoid contact with foliage and succulent stems of desired ornamentals. Does not provide residual control towards later-germinating annuals or regrowth of perennials. For rope or sponge wick applications, use a 33 to 75 percent concentration in water.
Generic formulations are available	glyphosate	see label	see label	see label	see label	
<b>VANTAGE 1EC (selective for grasses)</b>	sethoxydim	0.3 to 0.5 lb.	36 to 60 fl. oz	0.8 to 1.4 fl. oz.	2 to 3 fl. oz. per gallon	Provides control of annual and perennial grasses. Apply low rate when grasses are 2 to 8 inches tall prior to tillering. For more mature grasses, use the high rate (may result in suppression only). VANTAGE already contains spray additive ( do not add crop oil concentrate).