



# Great Lakes Fruit, Vegetable & Farm Market EXPO Michigan Greenhouse Growers EXPO

December 10-12, 2019

DeVos Place Convention Center, Grand Rapids, MI



## Cut Flowers

**Moderator:** Marissa Schuh, Michigan State University Extension

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|---------|---|
| 2:00 pm | Pushing the Easy Button: Cut Flower Varieties and Helpful Tips for Aspiring Flower Farmers <ul style="list-style-type: none"><li>• Kristiana Coutu, Farmer's Bloom Flower Company</li></ul> |
| 2:30 pm | Weed Control Options in Cut Flowers (OH 6D, 0.5 hrs) <ul style="list-style-type: none"><li>• Andrew Senesac, Cornell Cooperative Extension</li></ul>  |
| 3:00 pm | Pest Management in Transplant Houses (OH 6D, 0.5 hrs) <ul style="list-style-type: none"><li>• Dave Smitley, Michigan State University</li></ul>   |
| 3:30 pm | Postharvest Handling of Cut Flowers <ul style="list-style-type: none"><li>• John Dole, North Carolina State University</li></ul>  |

**Properties of Pre-emergence Herbicides for Some Cutflower Crops. \*\***

	Manufacturer	Syngenta	Everris	Amvac	UPI	Corteva/ Dow	Lebanon Seaboard	BASF	Corteva/ Dow	BASF	BASF	Syngenta	Bayer	Corteva/ Dow		Lebanon Seaboard	Lebanon Seaboard		
	Mode of Action (WSSA)	3-root tip inhibitors	3-root tip inhibitors	3-root tip inhibitors	15-inhibits very long-chain fatty acids	3-root tip inhibitors	3-root tip inhibitors	15+3	21-Cell wall synthesis site B	3-root tip inhibitors	3-root tip inhibitors	15-inhibits very long-chain fatty acids	14-PPO inhibitor	21 + 3	3-root tip inhibitors	3-root tip inhibitors	3-root tip inhibitors	3-root tip inhibitors	
	Herbicide common name	proflaminate	pendimethalin	DCPA*	napropamide		dithiopyr	dimethenamid-p+	isoxaben*	pendimethalin	pendimethalin	s-metalochlor*	oxadiazon	isoxaben + trifluralin*	oryzalin	trifluralin	trifluralin	oryzalin + benefin	
	Trade name	Barricade (4FL)	Corral (2.68 G)	Dacthal (6 FL)	Devrinol(50 DF-XT)	Dimension 1EC, 2EW, 40 W/dithiopyr	Preen Southern (0.27 G)	Freehand (1.75 G)	Gallery (75 DF)	Pendulum (3.3 EC, 3.8 AS)	Pendulum (2G)	Pennant Magnum (7.6 EC)	Ronstar (2G)	Snapshot(2.5 G, 2.5 DG)	Surflan	Preen Garden (1.47G)	Treflan (5G)	XL (2G)	
Genus	Common name																		
<i>Achillea</i>	Yarrow	y	y	y		d	e	y	y		e	y		e	e	y	e	e	
<i>Allium</i>	Ornamental Onion	y										y							
<i>Alstroemeria</i>	Peruvian Lily				y									e					
<i>Antirrhinum</i>	Snapdragon			y		d	e				e	y	e	e	e	y	e	e	
<i>Aster</i>	Aster	y	y	y	y		e		y		e	y		e	e	y	e		
<i>Callistephus</i>	Aster, China					d			y		e			e	e				
<i>Chasmanthium</i>	Sea Oats (Woodoats)															y			
<i>Chrysanthemum</i>	Chrysanthemum			y	y			y			e	y	e	e	e	y	e	e	
<i>Cosmos</i>	Cosmos			y												y	e		
<i>Dahlia</i>	Dahlia			y	y				y		e		e	e		y	e		
<i>Delphinium</i>	Delphinium (larkspur)	y				d	e					y							
<i>Echinacea</i>	Coneflower	y		y	y	y		y	x		e			x	e	y		e	
<i>Eustoma</i>	Lisianthus								y					e					
<i>Gerbera</i>	Gerbera Daisy																		
<i>Gladiolus</i>	Gladiolus	y		y	y			y	y		e	y	e		e	y	e	e	
<i>Helianthus</i>	Sunflower										e					y	e		
<i>Iris</i>	Iris, Bulbous	y		y	y	d	e	y	y			y		e	y	y	y	y	y
<i>Iris</i>	Iris, Rhizomatous	y		y	y	d	e	y	y			y		e	e		e	e	e

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	Herbicide common name	prodiamine	pendimethilin	DCPA*	napropamide	Widithiopyr	dithiopyr	dimethenamid-p+	isoxaben*	pendimethalin	pendimethilin	s-metalochlor*	oxadiazon	isoxaben + trifluralin*	oryzalin	trifluralin	trifluralin	
	Trade name	Barricade (4FL)	Corral (2.68 G)	Dacthal (6 FL)	Devrinol(50 DF-XT)	Dimension 1EC, 2EW, 40 W	Preen Southern (0.27 G)	Freehand (1.75 G)	Gallery (75 DF)	Pendulum (3.3 EC, 3.8 AS)	Pendulum (2G)	Pennant Magnum (7.6 EC)	Ronstar (2G)	Snapshot(2.5 G, 2.5 DG)	Surflan	Preen Garden (1.47G)	Treflan (5G)	XL (2G)
Genus	Common name																	
<i>Lilium</i>	Lily	y		y	y				y	e	e	y						
<i>Paeonia</i>	Peony	y		y						e	e		e					
<i>Penstemon</i>	Beardtongue		y		y				y		e		e		y			
<i>Phlox</i>	Phlox			x				y	y		e	y	e	x	y	e		
<i>Ranunculus</i>	Ranunculus														e			e
<i>Rosa</i>	Rose	y		y	y	d					e	y	e		e		e	e
<i>Rudbeckia</i>	Black-Eyed Susan	y				d	e	x	y		e			e	e	y	e	e
<i>Tagetes</i>	Marigold			y		d	e	y	y		e	y		e	e	y	e	e
<i>Tulipa</i>	Tulip	y			y	d	e		y		e	y			y	y	y	y
<i>Verbena</i>	Verbena (Vervain)		y			d	e	y	y		e			e	e	y	e	
<i>Zinnia</i>	Zinnia			y	y			y			e	y		e	e	y	e	e

**KEY:**  
y = registered for some species of this genus  
e = registered for some species of this genus, apply only after established  
d = registered for some species of this genus, directed application only

\*\*Adapted from: Cornell PMG: Weed Management: Perennials & greenhouse Crops & NCSU Weed Management in Annual Color Beds

## **Weed Management Options for Field-Grown Cutflowers.**

The first opportunity for weed management often occurs the season before the crop is planted. It is possible to avoid planting on land that is seriously infested with difficult-to-control weeds if the grower knows what to look for. Creeping perennial weeds such as yellow nutsedge, mugwort and hedge bindweed are very difficult to control once a flower crop is planted. If it is not possible to avoid such a site, then it is important to manage these weeds the season before planting. Repeated applications of a non-residual postemergence herbicide and/or repeated disking or harrowing will usually be very effective in bringing the perennial weed populations down to a more manageable level.

Sometimes chemical soil fumigation in the fall or spring prior to planting is one option that some growers consider. Fumigation should be considered if there are other serious soil-borne pests that can only be controlled in this manner or if no other chemical means of weed control are being considered. Fumigation is expensive and, while effective in controlling seed-propagated weed species, it is often poor in controlling creeping perennial weeds.

Pre-emergence herbicides are sometimes applied pre-plant, but usually applied post-plant or post-transplant and always preemergent to the weed. They are generally active on germinating weeds and usually need either incorporation by cultivation or water (irrigation or rain) to activate and move the chemical into the zone in the soil where the weed seeds are germinating. Some can be applied prior to transplanting, although usually cutflower safety is enhanced by having the transplant roots well below the herbicide layer. A few cutflower species are direct seeded. The larger seeded species such as zinnia and sunflower can usually tolerate registered herbicides. However, most of the smaller seeded cutflower species are very susceptible to injury if they are direct seeded and then immediately exposed to a preemergence herbicide. It is always essential to read the label before buying or applying any herbicide to be sure that the crop and weed are listed, as well as for information on proper dosage and timing. When considering the possibility of using a pre-emergent herbicide, in general, safety to the flower crop increases with:

- Larger transplants
- Applying the lowest labeled rate
- Delayed application after planting for better root establishment
- Granular formulations if a choice exists versus a spray
- Directed sprays to the base of the plants-not spraying the entire plant

Some post emergence herbicides are very selective in controlling only the grassy weeds that have emerged. Sethoxydim (Segment, Poast), and clethodim (Envoy & others) have now been labeled for over-top application in several cutflower species. Injury symptoms on the weeds usually take 7-10 days to be visible and they are effective in controlling grasses only (not sedges or broadleaves) but can be a valuable rescue tool if grassy weeds are a problem. For more information about which herbicides to use, consult the Cornell Pest Management Guidelines for Greenhouse Crops and Perennials.

<https://cropandpestguides.cce.cornell.edu/Guidelines/GCHO>

Another important component of an effective weed control strategy consists of nonchemical methods and practices which, either alone or in combination with herbicides, can help prevent weed infestations from becoming economically damaging. Among these are proper fertility and placement, irrigation, and pH management and selection of cutflower species or cultivars which are well adapted to the site. Weeds are great opportunists and will take advantage of any condition which tends to stress the crop. Mulches, either organic or plastic, can be a very effective and practical means of controlling weeds, particularly with transplants in a multi-crop, low acreage operation. Controlling harmful insects and diseases allows the crop to be a better competitor. Hand weeding or roguing escaped weeds before they disperse their seed will help alleviate next year's problem. Narrower in-row and between-row spacing allows the crop to cover the bare ground more quickly, thus shading out the weeds more effectively.

In summary, it is important that the grower develops a rational strategy well before the start of the growing season using all or some of these tools to economically manage weeds.

12-2019

*Andy Senesac, Ph.D.*

*Cornell University Cooperative Extension of Suffolk Co.*

*Long Island Horticultural Research and Extension Center*

*3059 Sound Avenue*

*Riverhead, NY 11901*