

## Landscape Weed Management



## Landscape Weed Management

- ✧ Sanitation & Exclusion
- ✧ Site Preparation
- ✧ Mulches
- ✧ Preemergence Herbicides
- ✧ Postemergence Herbicides
- ✧ Hand weeding

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## A typical Landscape Calendar

- ✧ Winter – Mulch & PRE herbicides for spring germinating weeds
- ✧ E. Spring – control winter annual weeds
- ✧ L. Spring / E summer
  - ◆ 2<sup>nd</sup> PRE for late germinating summer annuals and nutsedge
  - ◆ POST control – grasses, sedges and broadleaves
- ✧ L. Summer / E. Fall
  - ◆ PRE for winter annual weeds
  - ◆ POST control of perennial weeds

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## What about mid-summer?

- ✧ Lets keep summer annuals from going to seed



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## Postemergence Weed Control

- ✧ Labor
- ✧ POST
- ✧ Cultivation



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## POST grass control – best started in early summer





## POST grass control



- ✦ Selective control of most grasses in most ornamental beds
- ✦ “Over the top” applications



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## Crabgrass Control

- Any of the POST graminicides will work.
  - Segment > Fusilade = Envoy > Acclaim
- Early applications work better



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## Perennial grass control: Fusilade = Envoy > Segment



bermudagrass



johnsongrass

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## Japanese Stiltgrass



- ✦ Improved turf management will exclude it.
- ✦ Mulches will not.
- ✦ PRE and POST herbicides for crabgrass are generally equally or more effective on Japanese stiltgrass.
- ✦ Start early with PRE.



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## What about nutsedges?



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## POST Yellow Nutsedge Control – selective herbicides



- ✦ Basagran TO: directed applications to most woody ornamentals (except taxus, sycamore & rhododendron)
- ✦ Dismiss – directed application around woody ornamentals. Avoid areas with bulbs or other herbaceous plants are present
- ✦ Sedgehammer (halosulfuron): directed applications around woody ornamentals

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## Purple Nutsedge Control

- ✦ NOT Basagran
- ✦ Dismiss: partial control.
- ✦ Sedgehammer will require 3 applic. at ~4 to 6 week intervals
- ✦ Start treatments in the spring. Later treatments do not work as well

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## Other Options – Non-selective:

- ✦ Roundup & Finale -- Repeat applications when new growth is observed
- ✦ Start in the spring and continue as needed
- ✦ Combine with Sedgehammer or Dismiss to extend control

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## Non-Selective Herbicides

- ✦ Kills most any plant it contacts
- ✦ Contact (not systemic)
  - ◆ Scythe
  - ◆ Reward (diquat)
- ✦ Systemic (translocated in plants)
  - ◆ Finale (glufosinate)
  - ◆ Glyphosate – many formulations

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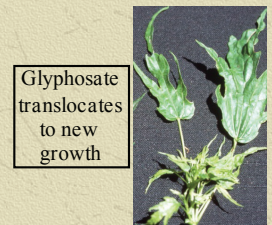
## Contact vs Systemic

- ✦ Contact herbicides – Do not translocate



Paraquat spray drift

- ✦ Systemic herbicides translocate from the site of application to the “target site” (roots, shoots, etc.)



Glyphosate translocates to new growth

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## Glyphosate

- ✦ Non-selective
- ✦ No soil residual
- ✦ Systemic – apply to foliage
- ✦ Many formulations...
- ✦ Many concentrations...



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## Over 50 glyphosate products on the market

- ✦ Roundup, Roundup-Pro, Quick-Pro, etc
- ✦ Generics: Glyfos, Glyflo, Glyfomax, Target, Razor, assorted “weed and grass control” products
- ✦ Differences?
  - ◆ Rapid action formulations
  - ◆ Residual formulations

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## Rapid Action Formulations?

- ✖ Quick-Pro – glyphosate + diquat
- ✖ Roundup “rapid action” – glyphosate + pelargonic acid
- ✖ Both have:
  - ◆ Rapid action, plus systemic kill of annual weeds
  - ◆ ??? Will this reduce activity on creeping perennials??? Yes.
  - ◆ Popular with many landscapers and consumers

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## Postemergence Broadleaf Weed Control



- ✖ Selective: Few Options
  - ◆ Generally not very useful in landscapes except....
  - ◆ Lontrel, Casoron, triclopyr for poison ivy

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## Do not use synthetic auxins for weed control in ornamental beds



In this bed of liriope the maintenance staff used glyphosate mixed with a synthetic auxin to kill tree seedlings

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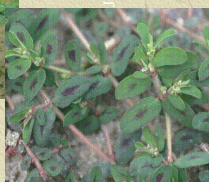
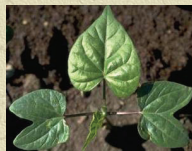
## Do not use synthetic auxins for weed control in ornamental beds



Synthetic auxin herbicide vapors damaged nearby grape vines (as well as the liriope)

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## Many summer annual weeds will continue to emerge



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## Extended Control

- ✖ Roundup Extended
  - ◆ Glyphosate + imazapic
- ✖ Durazone
  - ◆ Glyphosate + diquat + indaziflam
- ✖ RTU or Concentrate



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Good for hardscapes but watch out for runoff



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Roundup Extended damage to loropetalum from root-uptake



Durazone-treated

Roundup Xtnd 20 oz

Roundup Xtnd 40 oz

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Don't use the residual materials for site preparation before planting



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Don't use the residual materials for site preparation before planting



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Cool-Season weeds will be emerging



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## A typical Landscape Calendar

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## Stop winter annuals before they emerge



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## Winter annual weeds are best controlled PRE

- ✖ Apply herbicides in late August
- ✖ Bedding plants – Preen actually works
  - ♦ Henbit, chickweed, annual bluegrass
  - ♦ Not: Carolina geranium, vetch, others
- ✖ Woody beds: broader spectrum herbicides are preferred
  - ♦ Snapshot, Specticle, Sureguard, Broadstar, Freehand, etc....

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## PRE Herbicides in Landscapes

- ✖ Many choices – over 20 products registered
- ✖ Dinitroanilines are the most common
- ✖ Gallery (isoxaben) for broadleaf weed control
- ✖ Combinations for broad spectrum control
- ✖ Granules are preferred for plant safety and convenience

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## Dinitroaniline herbicides control many common annual weeds



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## Dinitroaniline Herbicides

- ✖ PRE grass control, some broadleaf weeds – spurge, chickweed, henbit and oxalis
- ✖ Several similar herbicides
  - ♦ Surflan (oryzalin)
  - ♦ Pendulum (pendimethalin)
  - ♦ Barricade (prodiamine)
  - ♦ Treflan / Preen (trifluralin)
- ✖ GR formulations are safer
- ✖ But, are weak on a number broadleaf weeds

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## Gallery (isoxaben)

- ✖ Preemergence broadleaf weed control
- ✖ Spray formulation generally tank mixed with PRE grass herbicide
- ✖ Safe on most woody ornamentals
- ✖ Injures many herbaceous ornamentals
- ✖ Do not use on bedding plants



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## Snapshot TG

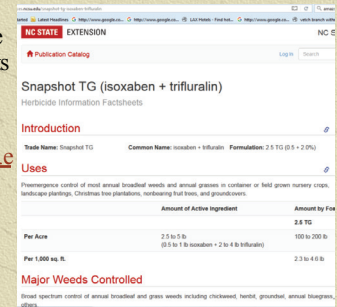
- ✖ A combination of Gallery + Treflan
- ✖ preemergence control of annual grasses and broadleaves
- ✖ Broad spectrum preemergence weed control
- ✖ Good plant safety – does not burn foliage like some broad spectrum herbicides
- ✖ Weak on bittercress & phyllanthus
- ✖ Safe on 'blue-collar' perennials but injures most bedding plants

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## Want to know more about herbicides labeled for use in ornamentals?

- ✖ Browse the herbicide information fact sheets in the Extension Resource Catalogue

<https://content.ces.ncsu.edu/catalog/series/92/>



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## Choosing the right product

- ✖ Safety to the ornamentals in the bed – this is complicated by diversity of plants
- ✖ Efficacy on the weeds
- ✖ Formulation
- ✖ Cost

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## Woody Ornamentals



- ✖ Many choices
- ✖ Tolerant of broad spectrum herbicides such as Broadstar, Sureguard, Specticle, Snapshot, Surflan, Regal OO, Gallery...
- ✖ Can also sometimes use Casoron (diclobenil) in the winter for perennial weed control

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## How to select the best herbicide

Table 3. Preemergence Herbicides Registered for Use on Woody Ornamentals

Genus and species	Common Name	Barbicide	Broadstar	Casoron	Dechlorol	Dimension	Fendland	Gallery	Goal	HGH75	Image	Kerb	Marengo	OH2	Pendulum (EC)	Pendulum (granule)	Pennant Magnum
Abelia spp.	Abelia				fc												F
Abelia x grandiflora	Abelia glossy	fc*	fc		fc	F*	fc	fc*	fc*					fc	fc	fc	fc
Abies spp.	fir species	F			fc							F					F
Abies faser	fir faser	F	fc		fc	F	fc		F			F			fc	fc	F
Acer spp.	maple species			F	F							F					F

<https://weeds.ces.ncsu.edu/weeds-herbicides/>

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## What does that mean?

- ✖ A species is listed on the label – it is “Registered or Labeled”
- ✖ The company warrants the herbicide safety on this ornamental species
- ✖ If it's not listed on the label – it may or may not be safe. No guarantees.

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## Herbaceous Plants

- ✦ More sensitive to herbicide injury than woody plants.
- ✦ Tolerance to herbicides varies among species
- ✦ Few herbicides labeled
- ✦ Check reference charts and labels carefully



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## How to select the best herbicide for herbaceous perennials – excerpt from table

Genus	Common Name	Key:									
		Barricade	Corral	Daethal	Devrinol	Dimension	Preen Southern	Freehand	Gallery	Jewel	
Achillea	Yarrow	y	y	y		d	e	y	y	e	
Acorus	Sweet Flag		y			d	e				
Agapanthus	Lily-of-the-Nile (African Lily)	y	y		y	d	e	y	y	e	
Agastache	Hyssop							y			
Ageratum	Blue Flossflower			y	y					e	
Ajuga	Bugleweed		y	x	y	d	e		x	e	
Alcea	Hollyhock										
Allium	Ornamental Onion	y									
Astroemeria	Peruvian Lily				y						

<https://weeds.ces.ncsu.edu/weeds-herbicides/>

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These tables are available on my portal or in the new Southeastern US Pest Control Guide

**NC STATE EXTENSION**

**Weed Management in Nurseries, Landscapes & Christmas Trees**

**Most for Staff**

**Herbicides**  
Newer Products, PE Others, Past Years

**Herbicide Injury**  
Causes & Treatments, Diagnosis, What to Do

**Weed ID**  
Identification Resources, Common Weeds, Weeds of Southern Regions

**Weed Management Resources**  
Weed Management Basics, Weeds of Nurseries, Landscapes, Christmas Trees, Weeds of Christmas Trees

**Herbicide**  
Herbicide Basics, Herbicide Basics 2017

**Recent Projects**

**Departments**  
Weed Management, Plant Pathology

**Publications & Fact sheets**

**Points**

**Weed Management After the Flood**  
Immediately after a flood, most farmers, nursery, crop producers and grounds maintenance staff have much more urgent matters to...

**Keep Weeds From Taking Over Your Pansy Beds**  
In the face of year after landscape and home owners are preparing to plant winter color beds. The most...

**2017 Southeastern U.S. Pest Control Guide for Nursery Crops and Landscape Plantings**

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## Winter color beds



- ✦ Pansy –
  - ♦ injured by Surflan, Pendulum, Barricade, Regalkade, Snapshot TG (Preen Pro)
  - ♦ little or no injury from Preen (trifluralin) or XL (low rate), Pennant Magnum
- ✦ Heuchera –
  - ♦ Injured by Surflan, Pendulum (spray), & XL,
  - ♦ Not injured by Preen, Barricade, Regalkade, Pendulum GR, Pennant Magnum

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## Do not use these in winter color beds:

- ✦ Broadstar
- ✦ Freehand
- ✦ Snapshot
- ✦ Specticle
- ✦ Sureguard
- ✦ Surflan
- ✦ Gallery
- ✦ Tower



Non-Treated



Tower3 DAT

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## Efficacy – Generally....

- ✦ Grasses are easy to control
- ✦ Variable control of broadleaf weeds
- ✦ In color beds – you will sacrifice some efficacy to have safety on your plants

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## Comparison of Preemergence Herbicides on Winter Annual Weeds

Herbicide	Annual Grass	Bitter-cress	Chick weed	Henbit	Horse weed	Vetch
Surflan	G	G	G	G	F	P
Barricade	G	F	G	F	F	P
Pendulum	G	F	G	F	G	P
Preen	G	F	F-G	G	F	P
Specticle	G	G	G	F	G	?
Snapshot	G	G	G	G	G	F
Pennant	G	P	F	P	P	P

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## How to select the best herbicide for herbaceous annuals – excerpt from table

Genus	Common Name	Key									
		Barricade	Desha	Devrinol	Pendulum 2G	Pennant/Magnum	Snapshot	Surflan	Y-PREEN	Garden	Southern
Agrostis	Blue Grass		y	y	e	y					
Begonia	Begonia, Fibrous (Wax)	y			e				y	e	
Bassica	Cabbage (Kale) Ornamental				e		x	e			
Carthamus	Periwinkle (bedding pl)				e		e		y		
Cecilia	Cockscomb				e		x				e
Chrysanthemum	Chrysanthemum		y	y	e	y	e	e	y		
Coleus	Coleus		y				x		y		e
Cosmos	Cosmos		y						y		
Dianthus	Sweet William		x		e	y		e	y	e	
Gomphrena	Globe Amaranth						x				
Helianthus	Sunflower				e				y		
Impatiens	Impatiens (Balsam)				e	y	e	e	y	e	

<https://weeds.ces.ncsu.edu/weeds-herbicides/>

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Early Autumn is often the best time of year to control perennial and woody weeds

✳ Glyphosate translocates to the roots

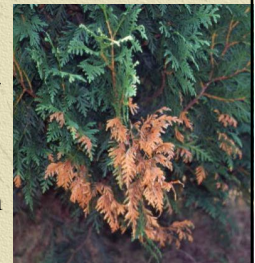


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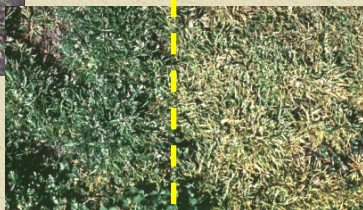
Roundup injury – severity depends on species and season of application

Deciduous plants – greater damage in late summer / Fall

Conifers more sensitive in spring



Annual bluegrass can be selectively controlled with Envoy



Un-Treated

Treated

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Management in Landscapes & Trees

### Posts

#### Weed Management After the Flood

Immediately after a flood, most farmers, nursery crops producers and grounds maintenance staff have much more urgent matters to ...

— 4 weeks ago



#### Keep Weeds From Taking Over Your Pansy Beds

It is the time of year when landscapers and homeowners are preparing to plant winter color beds. The most ...

— 1 month ago

#### Glyphosate review

Recently, concerns about the safety of glyphosate have been raised. A non-governmental organization has suggested ...

— 2 months ago

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