

1  **Nursery Weed Management: Current Research and Difficult Weeds**

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2  **Additional information  
- Weed identification**

- Weeds of the Northeast
- Weeds of Container Nurseries in the US  
<https://projects.ncsu.edu/cals/plantbiology/ncsc/containerWeeds/index.html>
- Virginia Tech Weed ID websites  
<https://weedid.cals.vt.edu/>

3  **IPM Books for Southeastern Nursery Growers**

4  **IPM for Shrubs in Southeastern US Nursery Production: Volume I**

5  **IPM for Shrubs in Southeastern US Nursery Production: Volume II**

6  **2017 Southeastern US Pest Control Guide for Nursery Crops and Landscape Plantings**

7  **2017 Southeastern U.S. Pest Control Guide for Nursery Crops and Landscape Plantings**

8  **Additional information**

- Pest Management Guides  
Horticultural and Forest Crops  
<http://pubs.ext.vt.edu/456/456-017/456-017.html>
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- Herbicide labels
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- 9  **Herbicide Update for Nursery Crops**
  
- 10  **Fuerte**
- 11  **Fortress**
- 12  **Gemini 3.7 SC**
- 13  **Gemini Granular**
- 14  **Gemini Granular**
- 15  **Key Container Weeds**
- 16  **Doveweed – a summer annual weed**
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  - member of the spiderwort family
  - prefers hot weather, moist soil
  
- 17  **Doveweed Control in Nursery Crops**
- 18
- 19  **Tassel-flower (*Emilia* spp.)**
- 20  **American burnweed, Fireweed**  
**(*Erechtites hieracifolia*)**
- 21
- 22  **Eclipta Control in Nursery Crops**
- 23  **Spotted spurge**  
**(*Chamaesyce maculata*)**
- 24  **Prostrate spurge in Nursery Crops**
- 25  **Longstalked phyllanthus**  
**(*Phyllanthus tenellus*)**
- 26  **Chamberbitter, leafflower**  
**(*Phyllanthus urinaria*)**
  
- 27  **Phyllanthus Control in Nursery Crops**

- 28  **Mulberry weed (*Fatoua villosa*)**
- 29
- 30  **Perennial weeds – Oxalis species (creeping woodsorrel, yellow woodsorrel)**
- 31  **Perennial weed - Yellow nutsedge**
- 32  **Green and False Green Kyllinga – perennial sedges**
- 33  **Weed Control in Container Production**
- 34  **Where do weeds in containers come from?**
- 35  **Start with Clean Mix**
- Bark free of weeds
  - Clean pots and flats
  - Inspect liners for weeds
  - Major source for weeds in outdoor pots is from propagation, especially oxalis (woodsorrel), bittercress
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- 36  **Cultural control – container weeds**
- 37
- 38  **Steam/Hot Water**
- 39  **Control in outdoor containers**
- 40  **Hand weeding**
- 41  **Handweeding trial**
- 42  **Cultural control**
- 43  **Control in propagation and outdoor containers**
- 44
- 45
- 46  **Grow our Own Mulch in Containers**
- 47  **Grow Your Own Mulch in Containers**

48  **Container Weed Control**

Chemical - Preemergence herbicides

- Treat after uncovering in spring
- Repeat every 6-12 weeks
- Treat 2 weeks before covering in fall
- Avoid applications during active growth if possible

49  **Granular versus Sprayed Formulations**

- Greater safety with granules for certain herbicides (Ronstar, Goal, Marengo, BroadStar/SureGuard)
- Can have reduced flowering in some annuals with sprays
- Often better control with sprays – coverage issue
- Granular formulations more expensive, more expensive to apply
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50 51  **Preemergence herbicides - herbaceous and woody ornamentals**

Dinitroanilines

- prodiamine - Barricade/Regalkade
- pendimethalin - Pendulum/Corral
- oryzalin – Surflan, Oryzalin
- trifluralin – Preen for Gardens, others
- oryzalin + benefin - XL

Good on crabgrass, annual bluegrass, spurge, chickweed, pearlwort

Poor on groundsel, other composite weeds, bittercress, sedges

52  **Preemergence herbicides – herbaceous and woody ornamentals**

metolachlor - Pennant Magnum, dimethenamid - Tower

- Good on crabgrass, yellow nutsedge, annual sedges
- Poor on many broadleaves, purple nutsedge
- Are EC's – avoid overtop sprays during active growth
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dimethenamid + pendimethalin (FreeHand G)

napropamide - Devrinol

- Good on annual grasses, suppression of yellow nutsedge, groundsel, chickweed
- Poor on spurge, oxalis, other broadleaves

53  **Preemergence herbicides – Certain perennials + many woody ornamentals**

isoxaben - Gallery

- Good on chickweed, oxalis from seed, bittercress
- Fair on groundsel, spurge
- Poor on annual grasses, sedges
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- Avoid applications to dwarf burning bush, hydrangea, veronica, sedum, danes rocket, ajuga, ox-eye daisy, lilac, the mustard family

54  **Preemergence herbicides – Certain herbaceous perennials + many woody ornamentals**

Snapshot (isoxaben + trifluralin) – similar restrictions as Gallery

Fortress (isoxaben + dithiopyr)

Gemini (spray and granular forms), Gallery + Barricade – isoxaben + prodiamine

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- Good control of spotted spurge, bittercress, Oxalis (woodsorrel), sowthistle, crabgrass, annual bluegrass, common chickweed
- Fair on common groundsel, eclipta
- No control of yellow nutsedge
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55  **Preemergence herbicides – woody ornamentals**

- Previous herbicides plus:
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- Goal (oxyfluorfen) or SureGuard (flumioxazin) for conifers
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- Marengo (nursery) Specticle (landscape) - (indaziflam)
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- BroadStar, Ronstar
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- Combination granular products

#### 56 **Combination granular herbicides – woody ornamentals**

- isoxaben + trifluralin (Snapshot, Preen Plus)
- isoxaben + prodiamine (Gemini)
- Isoxaben + dithiopyr (Fortress)
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- oxyfluorfen + oryzalin (Rout)
- oxyfluorfen + pendimethalin (OH2)
- oxyfluorfen + prodiamine (Biathlon)
- oxyfluorfen + oxadiazon (Regal O-O)
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- flumioxazin + prodiamine (Fuerte)
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- oxadiazon + prodiamine (RegalStar)
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#### 57 **Postemergence Herbicides - Container Ornamentals**

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#### 59 **Glyphosate – the active ingredient in Roundup**

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#### 61 **Glyphosate Mode of Action**

#### 62 **Glyphosate and Human Health**

- Has been suggested that glyphosate causes non-Hodgkin lymphoma, other diseases
- Theory glyphosate may affect bacteria in the gut microbiome
- Adjuvants used by Monsanto in certain glyphosate formulations can be toxic to certain aquatic organisms so these products are labeled only for upland use.
- Glyphosate levels found in food but below the level EPA considers a significant risk

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63  **Glyphosate**

64  **Chemical Alternatives to Glyphosate – Nonselective Postemergence**

65  **Glufosinate (Finale, Cheetah Pro, others)**

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