

<i>Herbicides</i> choosing between spray and granular products		
	Spray	Granular
Cost/Acre	Less \$	Cost more due to bulk
Ease of Use	Most growers already have sprayers and are well trained to calibrate and spray herbicides.	Requires a calibration pan to check rate. Most growers don't have a herbicide spreader attached to a tractor where speed can be controlled. Belly grinder rates vary due to walking and hand crank speed.
Flexibility	Ability to tank mix preemergents together and option to add post-emergents to control existing weeds	Cannot be mixed with other herbicides.
Weed Control-Shrubs, Large Trees	Stronger herbicides like Marengo SC and Sureguard SC can be applied as a directed spray near the stem. Also can add post-emergent herbicides to tank mix to kill existing weeds.	Effective, but costs more per acre and can't be combined with post-emergent herbicides
Weed Control-Shrubs, Small Trees	Over the top spray options are limited to softer herbicides that won't harm foliage but also don't control weeds as well	Over the top of shrubs and small trees, Granulars are the best way to deliver a stronger herbicide (ex: Broadstar, Marengo G) safely through the canopy to the soil surface
Weed Control - Perennials	Softer herbicides like Gallery SC + Barricade can be safely sprayed over the top of many varieties, particularly early before they leaf out and late in the season	Granulars (ex: Snapshot, Freehand) are a good choice mid-season when spraying herbicides onto foliage is a concern
Weed Control - Evergreens	Evergreens are generally tolerant of sprays of Sureguard SC or Marengo over the top. However, sprays can be blocked from making contact with soil by larger evergreens	Granulars can potentially give better coverage of soil surface in large canopied evergreens due to horizontal angle of entry

When to Apply & How Often

Many nurseries delay applying herbicides to new plantings until they're rooted. This is not necessary for most crops and leads to unnecessary weediness. The goal is to apply as soon as possible after planting.

Growers in the South make as many as 6 herbicide applications per year. Nurseries in the Northern states often get by with 2-3 applications due to the shorter growing season and cold weather killing annual weeds.

Key application windows:

- After planting
- Summer: One or several summer mid-season applications depending on weed pressure.
- Fall: Early Fall to prevent fall germinating weeds. Late Fall applications will carry over for spring weed prevention.

Tips for Success

- For new plantings, the herbicide needs to be applied and activated as quickly after potting as possible to prevent an initial flush of weeds if seeds are present. The warmer the temperature, the faster weed seeds will germinate. Waiting several days can be too long.
- Irrigate at least a ½" prior to applying herbicides to new plantings. This will "seal" the soil surface and prevent it from washing down onto roots. Make the herbicide application (to dry foliage with granulars) as soon as possible after the initial watering.
- After applying pre-emergent herbicides, irrigate at least ½" to activate the herbicide.
- Some granular herbicides (Ex: Broadstar) take more water to wash off the carrier. 1" + of water is ideal to fully release and activate the active ingredient

Building a Rotation

- Weeds develop resistance to herbicides quickly, so be sure to rotate your herbicide mode of action groups regularly.
 - Sample Rotations
 - Small shrubs & perennials: Snapshot rotated with Freehand or Fortress
 - Trees & evergreens: Sureguard + Barricade rotated with Marengo
 - Large shrubs: Marengo G rotated with Broadstar or Fuerte. Add Freehand as third option.

Key Pre-Emergent Herbicides for Ornamentals

Spray Products

Group 14

Sureguard SC (flumioxazin)
Ronstar Flo (oxadiazon)
Goal (oxyfluorfen)

Group 29

Marengo SC (indaziflam)

Group 3

Barricade (prodiamine, aka Resolute)
Dimension (dithiopyr)
Pendulum Aquacap (pendimethalin)

Group 21

Gallery SC (Isoxaben)

Group 15

Pennant Magnum (metolachlor)
Tower (dimethenamid-P)

Group 3 + 21

Gemini (isoxaben + prodiamine)

Granular Products

Group 14

Broadstar

Group 3 + 14

Biathlon (oxyfluorfen + prodiamine)
OH2 (oxyfluorfen + pendimethalin)
Fuerte (flumioxazin + prodiamine)

Group 3 + 15

Freehand (dimethenamid-P + pendimethalin)

Group 3 + 21

Snapshot (isoxaben + trifluralin)
Gemini (isoxaben + prodiamine)
Fortress (isoxaben + dithiopyr)

Open Ground Weed Control Program for Container Nurseries

Apply to open ground prior to placing containers on ground. Suggested tank mix below offers pre- and post-emergent control of a broad variety of weeds. Apply in at least 30 gallons/acre. Best results if there are no large weeds present to block spray coverage of ground.

- Ranger Pro (glyphosate) at 1% concentration
- Choose either:
 - Sureguard SC at 8oz/Acre (12oz/A for heavy weed pressure)
 - Marengo SC at 7.5oz/Acre (15oz/A for heavy weed pressure)
- Prodiamine WDG (Barricade, Resolute) at 1lb/Acre
- Brandt Super 7 at 16oz/100gal. This acts as a spreader, deposition aid, and acidifies water to prevent hydrolysis of glyphosate in hard water

Herbicides for Greenhouse use

Pre-emergent: (Note: Apply to floors only)

- Marengo SC (may injure the foliage of ornamentals; prevent spray from contacting foliage)
- Sureguard SC (do not apply in enclosed greenhouse structures if plants are present)

Post-emergent:

- Ranger Pro
- Reward
- Finale
- Scythe
- Axxe
- Fireworxx