# Reducing Weed Control Costs in Container Nursery Crops
# Field Day Handout -- 2016

Weed management in container nursery crops can be costly! Some research estimates overall costs, including herbicides, labor for application, and hand weeding, can be over $4000 per acre. Growers in the Southeastern U.S. utilize multiple (up to 6) applications of PRE herbicides each year, yet labor to hand weed pots continues to be a significant expense. Several strategies have been investigated to try to reduce overall weed control costs.

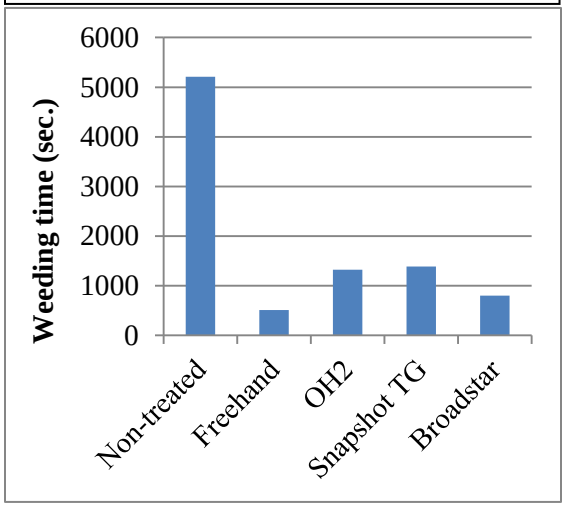
- Select the most effective herbicide
- Apply herbicides at the right time
- Apply herbicides uniformly and accurately
- Sanitation -- keep the weeds from spreading to your crops
- Can't use herbicides? Mulches can be effective and cost-effective.
- Hand-weed frequently to reduce seed production and spread

An overview is provided below. For more detailed information about each section, visit Dr. Neal's website: https://weeds.ces.ncsu.edu/

## Choosing Effective Herbicides

Using a preemergence herbicide will reduce overall weed control costs by dramatically reducing the time required for hand weeding. Herbicides should be selected first based on crop safety. Several resources are available to assist in selecting herbicides that are labeled for use on your crops. Selecting the most effective herbicide (or herbicides) for the weeds present at your particular site and in each season will maximize weed control and minimize overall weed control costs (Figure A).

**Figure A.** Preemergence herbicides control weeds and reduce time spent hand weeding. Average time spent weeding in a nursery experiment in 2007.




Guidelines for selecting the best herbicide for weeds in your crops can be found at Dr. Neal's website under the Weed Management Resources and Herbicides tabs, including:

- IPM for Tree production
- IPM for Shrub production
- PRE & POST herbicide efficacy
- PRE & POST herbicide safety on crops

## Herbicide Application Timing

Preemergence herbicides control germinating weed seedlings. Since they do not control emerged weeds, they should be applied to containers that have just been weeded or are already clean. Our research has shown that common nursery weeds may germinate in less than a week; therefore, newly potted plants should be treated as soon as the substrate has settled.

Residual herbicides do not last as long as you might think. Residual weed control may average 8 to 10 weeks in the spring but may be less than 6 weeks in the summer months. The length of residual control differs between herbicides and weed species. Re-application intervals need to be about every 8 weeks. Rotate herbicide modes of action to improve weed control and crop safety.

**Accurate & Uniform Herbicide Application**
Accurate and uniform herbicide coverage is crucial to achieving high levels of weed control. Some basic tips for achieving better coverage with hand-carried, hand-cranked "belly-grinders":

- Maintain consistent walking speed. Use a metronome.
- Maintain consistent cranking speeds. Use a metronome.
- Size of the beds matters! Keep nursery beds between 6 and 8 feet wide (for an 8 to 10 ft swath width).
- Center rudder position only. Do not use the spreader held at an angle.
- Refill the hopper when the level drops to about 25% full. Don't wait until it runs out.
- Start walking and cranking before opening the hopper.
- If the wind is 5 mph or more, don't make the application. Wait for a calmer day.
- When using lower spreader settings, spread granules in one direction using single direction, parallel passes.
- Calibrate your spreader!

**Alternatives to Preemergence Herbicides – Mulches**
Mulches can be as effective as PRE herbicides but are more expensive than herbicides. The actual material costs are generally less than $0.20 per 3-gallon pot – significantly less expensive than relying exclusively on hand weeding alone. Mulch depth matters. To control weeds emerging "below" the mulch layer – you will need at least a 1-inch layer (1.5 inches is better).

**Sanitation**
Sanitation is a key factor in improving nursery weed control. This involves identifying sources of weeds on site and making changes to reduce the amount of seeds being spread to crops. Some on-site sources include substrate, pot storage areas, reused containers, area immediately around crops, roadways, and liners.

- Keep substrate piles weed free.
- Use new or clean containers.
- Keep propagation areas weed free.
- Clean beds between crops.
- Treat non-crop areas for weeds.
- Start with clean liners.
- Get rid of old, weedy stock or keep them clean.

**Frequent Hand-Weeding Saves Money**
An important component of sanitation is removing weeds before they set seed. In our research, when pots were hand-weeded every two weeks the cumulative amount of weeds removed was reduced by an average of 74% compared to when pots were weeded just before herbicides were re-applied at 8-week intervals. More importantly, hand weeding every 2 weeks instead of waiting until pots became "weedy", reduced overall labor costs by an average of 36%. Results from 6 experiments are summarized in this chart.