

Weed Control

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Section Editor

Comparing the Economics of Two Weed Removal Strategies in Container Nurseries

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Significance to the Industry Despite the availability of many broad spectrum herbicides for weed control in container nurseries, supplemental hand weeding remains a costly component of nursery crop production. Recent economic pressures have forced many growers to reduce the number of staff, resulting in less frequent hand weeding. In this research we demonstrate that more frequent hand weeding may reduce overall weed control costs.

Nature of Work To minimize weed competition in container-grown woody nursery crops Southeastern growers utilize three to six applications of preemergence herbicides each year. Despite frequent use of broad-spectrum preemergence herbicides, weeds continue to emerge and must be removed by hand at a cost of \$500 and \$4,000 per acre per year (1,3). Weed management practices that reduce the man-hours required for hand weeding have the greatest potential to reduce overall weed control costs. Anecdotal reports and our preliminary data (2) suggest that sanitation practices, such as frequent hand-weeding, may reduce overall weed control costs by preventing or slowing weed reproduction and spread. To test this observation, the cost-effectiveness of frequent vs infrequent hand weeding was compared in experiments conducted at the NC State Castle Hayne Horticultural Crops research station and three cooperating container nurseries. All containers in the experiment were treated with a preemergence herbicide, Snapshot TG, about every eight weeks. Two hand-weeding strategies were compared: hand-weeded every two weeks versus hand-weeded just prior to herbicide application (about every eight weeks). Time required for hand-weeding and fresh weights of weeds removed were recorded, and cumulative weeding time and weed biomass were calculated.

Results and Discussion Within the first eight weeks of the experiment, pots hand-weeded every two weeks had far less weed biomass than pots weeded every eight weeks. However, in the first eight weeks few differences were observed in the total time required to hand weed pots (data not shown). However, weed biomass and the time required to remove weeds increased over time, and significant differences were observed in the cumulative labor-time required. Compared to hand-weeding every eight weeks, frequent hand-weeding (every two weeks) resulted in a 50% to 92% reduction in weed biomass and 9% to 60% reduction in man-hours required to remove weeds (Figure 1). In experiments conducted at the Castle Hayne research station where crop and weed populations were more consistent across the replicates, frequent hand weeding provided 40% to 56% reductions in cumulative hand weeding costs. Results from on-farm experiments were more variable. At one site, the man-hours required for hand weeding every two weeks versus every eight weeks was not different. Yet in all test sites, the biomass of weeds

removed was consistently less when pots were weeded frequently. Little or no difference in growth of woody nursery crop species was observed between the two weeding regimens, raising the question of how much weed control is actually necessary for crop growth. This experiment demonstrates that increased weeding frequency, with an emphasis on preventing weed reproduction, has the potential to reduce production costs in container nursery crop production.

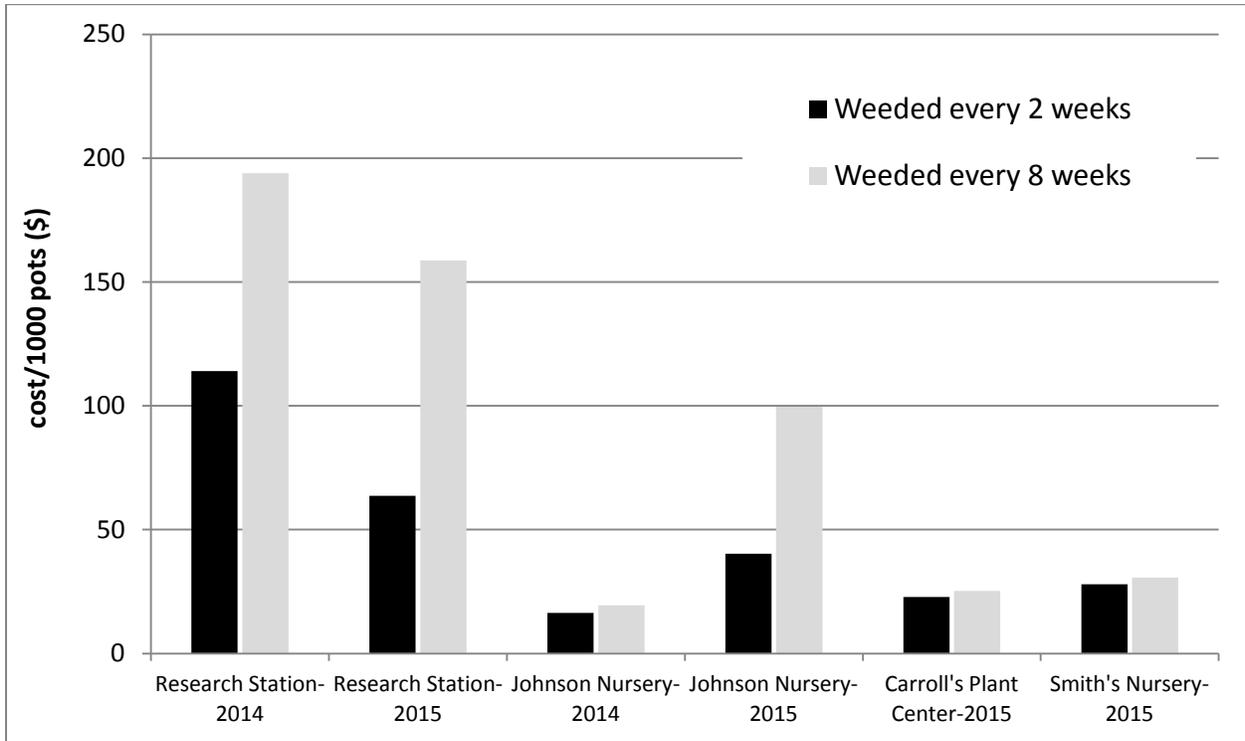


Figure 1. Comparison of cumulative costs for supplemental hand-weeding 1000 pots every two weeks vs. every eight weeks. Cost estimates assume labor costs of \$15 per hour; for 16 weeks.

Literature Cited

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