



Ohio State HCS News

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Herbicide/Mulch Combo Offers Superior Weed Control



Luke Case explains the field evaluations of herbicide and mulch combinations for ornamental weed control.

The challenges of weed control in the nursery and landscape industries just got easier and less expensive.

According to Ohio State University Department of Horticulture and Crop Science field trials, a combination of mulch and pre-emergent herbicide treatments can provide weed control for nearly a year per single application. Consequently, that translates into anywhere from 88 percent to 93 percent in potential chemical and labor savings annually for nurseries and landscape professionals, says **Dr. Hannah Mathers**, an Ohio State nursery and landscape extension specialist.

"Weed control is the largest expense facing the nursery and landscape industries, and professionals are constantly looking for methods that provide the best efficacy with the least amount of money," said Mathers, who holds a research appointment with the Ohio Agricultural Research and Development Center. "This particular work shows that by combining two methods of control, you can produce a positive interaction that offers a superior control of weeds and a promising alternative to reducing herbicide use."

The field trials are an expansion of five years of Ohio State research involving efficacy and duration of herbicide-treated mulches on weed control in container

plants.



Ohio State nursery extension specialist Dr. Hannah Mathers.

Research assistant **Luke Case** took the 10 top herbicide-mulch combinations that excelled in the container trials and put them to the test in the field, analyzing efficacy after 30, 60, 90, 120 and 350 days. Researchers used a single application of various combinations (mulch under herbicide, mulch over herbicide, and pre-treated mulch) and compared their performances to direct chemical sprays and untreated mulches for a total of 38 treatments. Pine nuggets and hardwood bark were the tested mulches, and the liquid chemicals used in the study included oryzalin (Surflan), flumioxazin (SureGuard), acetochlor (Harness), dichlobenil (Casoron), and a combination of oryzalin and flumioxazin.

What they found was that herbicide-treated mulches excelled over untreated mulches and direct sprays, at least regarding duration of efficacy while reducing leaching of chemicals into the soil. Twenty of the 38 treatments provided commercially acceptable efficacy ratings of seven or higher after 120 days. All but one of those treatments involved a herbicide-mulch combination: three were pre-treated mulches, eight were herbicides applied under hardwood bark, and eight were herbicides applied over pine nuggets.

At 350 days, four treatments were still providing commercially acceptable weed control: Surflan/SureGuard pre-treated pine nuggets, Casoron applied over pine nuggets, Surflan/SureGuard applied over pine nuggets and Casoron applied under pine nuggets.

"Nursery industry and landscape professionals normally put on applications every five months or so for weed control. The 350-day treatments were providing three times more efficacy over the same time period," said Mathers. "We ended the trials at 350 days, but it's possible that efficacy extends beyond the 350-day time frame."

Researchers are still analyzing the interaction between herbicides and mulches that accounts for such high efficacy rates and little leaching. But for now Mathers said that the nursery and landscape industries can take comfort in the potential savings that are offered through such herbicide-mulch treatments.

"The industry uses granular applications at about \$315 per application. Put on three applications and it'll cost you \$945. Compare that to a single liquid application, like we used in our trials, for \$110, and industry professionals could potentially be saving themselves a lot of money," said Mathers. "Take away the extra labor expenses normally incurred for supplemental weeding, for example, and the savings gets even greater."

Funding for this two-year project comes from the U.S. Department of Agriculture's Agricultural Research Services, Ohio State Department of Horticulture and Crop Science and OSU Extension. Mathers is currently pursuing a grant to study the efficacy and duration of weed control using granular herbicides on mulch.

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