

CHRISTMAS TREE AND WEED RESPONSE TO HERBICIDE APPLICATION IN FIRST AND SECOND YEAR FRASER FIR. Linglong Wei, Bernard H. Zandstra, Rodney V. Tocco and Chad M. Herrmann. Graduate Research Assistant, Professor, Research Assistant and Graduate Research Assistant. Department of Horticulture, Michigan State University, East Lansing, MI 48824-1325.

Recently established Christmas trees are very susceptible to weed competition and herbicide injury. Traditional herbicide programs for transplants, as well as established trees, have included atrazine, simazine and oryzalin. These herbicides in combinations provide moderate to good weed control for 6-8 weeks, and relatively good crop safety. However, continued use of PS II inhibitors has resulted in several herbicide-resistant species and a preponderance of weeds which are naturally herbicide tolerant. On very light soils, where many of the Christmas trees are grown, these herbicides may stunt new transplants.

Experiments were conducted in 2008 and 2009 to test and compare new and old herbicides for post-transplant application in Fraser Fir (FF). Experiments were established in 2008 at Horton, MI on 1 year old FF, and at Gobles MI on new transplants. Westar, a premix containing 68.6% hexazinone and 6.5% sulfometuron-methyl, was applied at 4, 6, 8, 10 or 12 oz/acre in spring 2008 and 2009. Other treatments included flumioxazin at 0.255 lb/a, simazine at 4 lb/a plus oryzalin at 3 lb/a plus paraquat dichloride at 1 lb/a, and pronamide at 2 lb/a plus oxyfluorfen at 1 lb/a. The plots were rated for weed control and crop tolerance during the growing seasons, and leader length (LL), total height, and stem diameter were measured in the fall of 2008 and 2009.

In the Gobles trial in fall 2008, there were no differences in LL or total height between treatments. FF treated with Westar at 12 oz/a had reduced stem diameter. In fall of 2009, FF treated with flumioxazin had the longest LL, and that treatment was not different from simazine + oryzalin + paraquat dichloride, pronamide + oxyfluorfen, or the untreated control.

In the Horton trial in fall 2008, there was no difference in total height between treatments. FF treated with Westar at 10 oz/a had reduced LL. All other treatments were not different from the untreated control. There was no difference in stem diameter. In fall 2009, Westar treatments had reduced LL compared to flumioxazin and the untreated control. Only trees treated with simazine + oryzalin + paraquat dichloride had reduced diameter. Westar (all rates) and flumioxazin provided good to excellent weed control through the season, except that horseweed emerged in mid season in flumioxazin plots. The treatments other than Westar and flumioxazin were not as effective in overall weed control. It appears that Westar at low rates and flumioxazin are good alternatives to traditional herbicides for Christmas tree weed control.