University of California Cooperative Extension
Central Coast & South Region
Center for Landscape and Urban Horticulture

Tolerance of Hardy Ferns to Selected Preemergence Herbicides

Glenn B. Fain, Charles H. Gilliam, and Gary J. Keever *

ADDITIONAL INDEX WORDS. *Arachniodes simplicior* 'Variegata,' *Cyrtomium falcatum* 'Rochfordianum,' *Dryopteris erythrosora, Dryopteris ludoviciana*, isoxaben, oryzalin, oxadiazon, oxyfluorfen, pendimethalin, prodiamine, trifluralin

SUMMARY. Hardy ferns are widely grown for use in the landscape. The 1998 National Agricultural Statistics Services census of horticulture reported production of hardy/garden ferns at 3,107,000 containers from over 1200 nurseries. There is little research on herbicide use in hardy ferns, and herbicides that are labeled for container production are not labeled for use on hardy ferns. Studies were conducted to evaluate the tolerance of variegated east indian holly fern (*Arachniodes simplicior* 'Variegata'), tassel fern (*Polystichum polyblepharum*), autumn fern (*Dryopteris erythrosora*), rochford's japanese holly fern (*Cyrtomium falcatum* 'Rochfordianum'), and southern wood fern (*Dryopteris ludoviciana*), to applications of selected preemergence applied herbicides. Herbicides evaluated included selected granular or liquid applied preemergence herbicides. Spray-applied herbicides were pendimethalin at 3.0 or 6.0 lb/acre, prodiamine at 1.0 or 2.0 lb/acre, isoxaben at 1.0 or 2.0 lb/acre, and prodiamine + isoxaben at 1.0 + 1.0 lb/acre. Granular-applied herbicides were pendimethalin at 3.0 or 6.0 lb/acre, prodiamine at 1.0 or 2.0 lb/acre, oxadiazon + prodiamine at 1.0 + 0.2 or 2.0 + 0.4 lb/acre, oxyfluorfen + oryzalin at 2.0 + 1.0 or 4.0 + 2.0 lb/acre, trifluralin + isoxaben at 2.0 + 0.5 or 4.0 + 1.0 lb/acre, oxadiazon at 4.0 or 8.0 lb/acre, and oxadiazon + pendimethalin at 2.0 + 1.25 or 4.0 + 2.5 lb/acre. The greatest reduction in growth of autumn fern was observed with the high rates of oxadiazon, oxadiazon + pendimethalin, and oxadiazon + prodiamine. Reductions in rochford's japanese holly fern growth were most severe when plants were treated with the high rate of trifluralin + isoxaben resulting in a 66% and 72% decrease in frond length and frond number, respectively. There were also reductions in frond length and number of fronds when treated with the high rate of oxadiazon + pendimethalin. There were no reductions in frond numbers on tassel fern with any herbicides tested. However, there were reductions in frond length from four of the 10 herbicides evaluated. The most sensitive fern to herbicides evaluated in 2004 was variegated east indian holly fern with reductions in frond length and number of fronds with four of the 10 herbicides tested. Southern wood fern appeared to be quite tolerant of the herbicides tested with the exception of the high rate of oxadiazon. Granular prodiamine proved to be a safe herbicide for all species tested in both 2004 and 2005. In 2005 all plants from all treatments were considered marketable by the end of the study. The durations of both studies were over 120 days giving adequate time for any visual injury to be masked by new growth. However, there was significant visual injury observed on the rochford's japanese holly fern treated with isoxaben at 60 and 90 days after treatment, which might reduce their early marketability.

[1]USDA-ARS, Southern Horticultural Laboratory, P.O. Box 287, Poplarville, MS 39470. Mention of trade names or commercial products in this article is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture.

[2]Department of Horticulture, 101 Funchess Hall, Auburn University, AL 36849.

To view this publication go to:

http://www.electronicipc.com/JournalEZ/detail.cfm?code=04200030160411&CFID=452286&CFTOKEN=57221A8B-E0E9-46C5-953A7A14FE730CF0