



Spurge Control in Juniper (*Juniperus horizontalis* 'Blue Rug') Liners.

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Nature of Work:

To evaluate several pre and postemergence herbicides for the control of spurge (*Euphorbia maculata* and *esula*) in juniper liners. Growers of containerized nursery material have to primarily deal with 3 major weeds, and they include Woodsorrel (*Oxalis* spp.), Bittercress (*Cardamine* spp.), and Spurge (*Euphorbia* spp.). Other weeds are often encountered, but these 3 weeds by far encompass the major weed spectrum of a containerized nursery grower.

Euphorbia is difficult weed for several reasons. First, most containerized nursery's apply herbicides in early February, and do not apply a second application until late April / Early May. *Euphorbia* is very tolerant to many of the dinitroaniline (DNA) herbicides (Surflan, Treflan, Factor), and once these herbicides begin to breakdown, falling below the control threshold, *Euphorbia* is able to germinate and grow. Once germinated, a re-application of a preemergence herbicide is ineffective. Moreover, once *Euphorbia* is up and growing even the application of herbicides containing oxyfluorfen (XL, Rout, Regal OO), a postemergent knockdown herbicide, can fail to control established *Euphorbia* plants.

There are many other herbicide besides DNA herbicides that provide preemergent control of *Euphorbia*. If another post emergent herbicide could be used to control emerged *Euphorbia*, and this herbicide was followed by or combined with a preemergent herbicide, one would not have to be so concerned with getting a herbicide out before *Euphorbia* germinate.

Materials and Methods:

On September 21, 2001 at the Center for Applied Nursery Research, 24, 20" x 20" flats containing 64 rooted cutting of Blue rug junipers (*Juniperus horizontalis* 'Blue Rug') were assembled for the test. These flats were severally infested with spurge. The spurge had just been removed the day before receiving the flats. Three flats were placed in a 6 ft. x 6 ft. area. To assure that there was a viable population of spurge, 5 grams of *Euphorbia maculata* seed was uniformly distributed over these three flats. Herbicide treatments were then applied to the area containing these flats. After the herbicide application was complete, flats were carefully moved to a stone pad, and arranged in a randomized complete block (RCB) design containing three replications. The process was continued for each herbicide treatment. Granular herbicides were uniformly applied with a cheese shaker jar, and sprays were applied with a CO₂ backpack sprayer calibrated to deliver 20 gallons per acer (GPA). Watering occurred on an as needed basis, and this represented approximately ½ to 1 inch of water per day. The treatment list was as follows:

Treatment#	Treatment	Rate
1	Casoron 4.0 G	150 (Product / A)
2	Casoron 1.38 ME	5.0 (lb ai/A)
3	Roundup (Original Formula) 4L	0.25% solution
4	Roundup Ultra 4L	0.25% solution
5	Ronstar 2 G	200 (Product / A)
6	Predict 78.6 WG	3.0 (lb ai/A)
7	Barricade 65 WG	1.0 (lb ai/A)
8	Check	

Ratings (Juniper injury and *Euphorbia* control) were taken at 1, 2, 4, and 8 weeks after treatment (WAT). Plant injury was taken on a (0-10 scale) and numbers represented the following:

Value	Plant Symptoms
0	No visual injury present
1 to 3	Minimal injury to desirable plant. Less than 10% of the plant leaf service area showing chlorosis and necrosis.
4 to 6	More noticeable plant injury or stunting. Greater than 50% of the leaf area showing symptoms of chlorosis and/or necrosis.
7 to 9	Plants severally injured. Most of the leaves and leaf surface showing signs of chlorosis and necrosis.
10	Plant appears dead. No signs of regrowth.

Euphorbia control ratings were taken on a (0-100 scale) and numbers represented the following:

Value	Control
0	No control as compared to the check
10 to 30	Very poor weed control as compared to the check. Only a 10 to 30 % weed biomass reduction. Some chlorosis and necrosis evident in emerged weeds.
40 to 60	Poor weed control as compared to the check. 40 to 60 % weed biomass reduction. More noticeable injury or stunting to emerged weeds. More pronounced chlorosis and/or necrosis to the leaf area of emerged weeds.
70 to 90	Fair to good weed control. 70 to 90 % weed biomass reduction. Emerged weeds severally injured or dead. Greater than 50% of leaf surface showing signs of chlorosis and necrosis.
90 to 99	Excellent weed control. Greater than 90% weed biomass reduction. Emerged weeds mostly dead and/or severally injured (chlorotic and/or necrotic).
100	Emerged weeds dead, and no evidence of weed regrowth.

Results:

At the 8 WAT rating, no *Euphorbia* had germinated nor was an injury noted on the junipers. The test will be continued, and rated for 52 weeks. Starting in March, ratings will be taken monthly for *Euphorbia* control and juniper injury.

Significance To Industry:

The hope was to evaluate herbicide mixtures that would allow a larger application window to control *Euphorbia* species in juniper liners, thus eliminating the need for hand weeding. Check out next years results!