

CONTROL OF OLDFIELD CINQUEFOIL

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Oldfield cinquefoil (*Potentilla simplex* variety *calvescens*) is a perennial weed native to Wisconsin which in recent years has increased in severity in cranberry production fields. It is a prevalent ground layer species of Wisconsin southern dry forest and is believed to have been introduced to cranberry marshes by seeds in sand used for top sanding. Cinquefoil has become a problem since sprinkler irrigation has been practiced in cranberry production. It has the potential of becoming a more troublesome weed in the future due to its growth habit. It spreads by runners in the field and develops a thick plant mass on top of cranberry vines, therefore interfering with cranberry growth and with mechanical harvester operation.

Flooding as a means of weed control was derived from the culture of rice. This method works by keeping oxygen from the roots and leaves. Flooding was used for insect control in cranberries during the early 1900's.

Greenhouse and field studies showed that soil saturation, 2 inch and 3 inches of flooding for 12, 24, 36, and 72 hours did not affect cinquefoil growth significantly. Formation of adventitious roots as a flooding stress response was not observed in these studies. In a growth chamber experiment, four weeks of soil saturation induced the formation of cinquefoil adventitious roots, both at 55° and 72°F day temperatures. At 55° day temperature, soil saturation did not affect cinquefoil growth. However, growth was reduced compared to the plants grown at 72°F. At 72°F day temperature, soil saturation reduced growth in terms of runner development and fresh and dry weight.

Greenhouse herbicide studies showed that GOAL caused injury to cinquefoil during the first week after treatment but the injury decreased with time. Dichlobenill and CLASSIC caused first injury symptoms at two weeks after treatment and the effects increased with time. Small weeds were more susceptible to herbicides as was shown by the greater percentage of injured leaves and higher injury ratings, compared to larger weeds. CLASSIC, dichlobenil and SINBAR significantly reduced the number of leaves, leaf area, and shoot, root, and total fresh and dry weight of cinquefoil at 12 weeks after treatment.

GOAL phytotoxic effect on cranberry decreased with time, and cranberry recovered completely at 9 weeks after treatment. SINBAR effects increased with time, while 2,4-D amine effect was relatively constant until 12 weeks after treatment. CLASSIC at all levels evaluated caused no reduction in cranberry vine growth in terms of the number of branches per plant, height, and fresh and dry weight. Dichlobenil at a high rate did not reduce the number of branches per cranberry plant, but significantly decreased cranberry height and fresh and dry weight.

1. *Dichlobenil is sold under the trade names of CASORON and NOROSAC.*

The rates of dichlobenil evaluated in these studies were; 1(low) and 4(high) pounds of active ingredient per acre. Control of cinquefoil was greater as the rate increased from 1 to 4 pounds per acre of active ingredient.

Herbicide application in a cranberry marsh at cinquefoil bud break did not provide adequate cinquefoil control. Postemergence herbicide application in a cranberry marsh, however, gave significant positive control results. Dichlobenil, CLASSIC or SINBAR significantly reduced the number of weed leaves and weed fresh and dry weight per plot at 12 weeks after treatment. SINBAR reduced cranberry shoot fresh and dry weight significantly. Cranberry fruit fresh and dry weight were not significantly different in Dichlobenil and CLASSIC treated plots compared to the control. However, CLASSIC and SINBAR treated plots had significantly lower cranberry fruit fresh and dry weight compared to Dichlobenil treated plots.

CONCLUSIONS

Soil saturation and flooding studies have shown that Oldfield Cinquefoil growth was not affected by the treatments up to 72 hours in length suggesting that using flooding as a cinquefoil control in cranberry is limited.

Herbicide studies indicated that dichlobenil and CLASSIC are the two promising herbicides to be used for cinquefoil control in cranberry.

Dichlobenil is labeled for use in cranberry and CLASSIC is being investigated as a IR-4 (minor crop) clearance. Dichlobenil is labeled for use in cranberries at a rate of up to 100 pounds of 4% granular material per acre.

Appreciation is expressed to the Wisconsin Cranberry Board for financial assistance and the the Olson Brothers Cranberry Company of Warrens, WI for use of field research facilities.
