

EVALUATION OF QUINCLORAC FOR FIELD BINDWEED CONTROL AND TOLERANCE OF PERENNIAL GRASSES

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Introduction

Field bindweed infests many fields across Oregon. Although several herbicides are available to help manage field bindweed in grass seed fields, repeated applications are usually necessary to control the parent plant and seedlings that germinate later. Quinclorac (Paramount) was recently labeled for use in grass seed crops, but no research had been conducted on seed production nor on field bindweed control in grass seed fields.

Methods

We conducted trials in established stands of 'Charger' perennial ryegrass, 'Shortstop II' tall fescue, 'Potomac' orchardgrass, and 'Dawson' creeping red fescue to evaluate visible injury to the crop and seed production. We also compared quinclorac with 2,4-D ester for efficacy on established field bindweed in perennial ryegrass. Individual plots were 8 ft by 25 ft and treatments were replicated four times in each trial. Herbicides were applied in 20 gallons of water per acre with a bicycle-wheel plot sprayer. A crop oil concentrate was added to the spray solution at a rate of 1 qt/acre. The quinclorac was applied at the maximum labeled rate and at twice the maximum rate.

The orchardgrass, creeping red fescue, and perennial ryegrass tolerance trials were treated on October 18, 1999; the tall fescue was treated on November 10, 1999. The creeping red fescue site was irrigated and treatments at the tall fescue site were applied after fall rains had commenced. The other two sites were not irrigated and the soil was dry when treatments were applied. Treatments were applied in the field bindweed trial on September 20, 1999. The field bindweed had 12- to 18-inch long runners and was flowering when treated; the soil was dry.

Visual evaluations of crop injury and bindweed control were conducted periodically following application of the treatments. Seed yields of the tolerance trials were obtained by swath and threshing the crops with plot-scale equipment. The seed was cleaned prior to weighing.

Results

There was no visible injury on the fine fescue (Table 1), perennial ryegrass (Table 2), or tall fescue (Table 3); but there was some minor stunting of the orchardgrass (Table 4). None of the four species suffered seed yield loss from the treatments. Field bindweed control 7 months after treatment was 97% with quinclorac and 95% with 3 qt of 2,4-D ester (Table 5). By 8 months after treatment, control in the 2,4-D plots had fallen to 83%, while that in the quinclorac plots was 93%. The field was worked and replanted in the fall so no further observations were conducted.

Table 1. Visible injury ratings and seed yield of creeping red fescue following applications of quinclorac, Chambers Farm, Linn County.

Treatment	Rate (lb a.e./a)	Crop injury ratings			Seed yield (lb/a)
		11/24/99	12/30/99	1/27/00	
Quinclorac	0.375	0	0	0	978
Quinclorac	0.75	0	0	0	920
Check	0	0	0	0	871
					LSD _{0.05} n.s.

Table 2. Visible injury ratings and seed yield of perennial ryegrass following applications of quinclorac, Cook Farm, Linn County.

Treatment	Rate (lb a.e./a)	Crop injury ratings			Seed yield (lb/a)
		11/24/99	12/30/99	1/27/00	
Quinclorac	0.375	0	0	0	1165
Quinclorac	0.75	0	0	0	1007
Check	0	0	0	0	1049
					LSD _{0.05} n.s.

Table 3. Visible injury ratings and seed yield of tall fescue following applications of quinclorac, Stellmacher Farm, Linn County.

Treatment	Rate (lb a.e./a)	Crop injury ratings			Seed yield (lb/a)
		11/24/99	12/30/99	1/27/00	
Quinclorac	0.375	0	0	0	1348
Quinclorac	0.75	0	0	0	1335
Check	0	0	0	0	1263
					LSD _{0.05} n.s.

Table 4. Visible injury ratings and seed yield of orchardgrass following applications of quinclorac, Lindsey Farm, Linn County.

Treatment	Rate (lb a.e./a)	Crop injury ratings			Seed yield (lb/a)
		11/24/99	12/30/99	1/27/00	
Quinclorac	0.375	0	1	1	527
Quinclorac	0.75	0	6	8	515
Check	0	0	0	0	483
					LSD _{0.05} n.s.

Table 5. Field bindweed control in perennial ryegrass, Conrad Farm, Linn County.

Treatment	Rate (lb a.e./a)	Field bindweed control		Perennial ryegrass injury	
		4/20/00	5/18/00	4/20/00	5/18/00
Quinclorac	0.375	97	93	0	0
2,4-D ester	2.8	95	83	0	0
Check	0	0	0	0	0