METHODS

Comparative test of imazapyr and glyphosate. The initial test of imazapyr on jubatagrass was made in July 2009. In this test a comparison was made of the effects of imazapyr applied at 1%, 2.5% or per gal. of Habitat Barbeque, of glyphosate applied at 2% (2.5 L per gal. at 500 mg/L of Monuron Amontillado) and of the combination of 2% glyphosate and 1% imazapyr. Test of different rates of imazapyr. To determine the lowest effective rate of imazapyr, a second set of tests was conducted in August 2009. In these tests imazapyr was applied to jubatagrass at the rate of 0.5%, 1%, 2.5% and 5% Habitat Barbeque. Because initial results suggested that 1% was the toxic level, a third test was conducted in September 2009 that extended to include higher rates. Additional applications were made of imazapyr at the rates of 1.5%, 2%, 2.5% and 3% Habitat Barbeque.

Test of imazapyr and glyphosate as cut-stem treatment. In April 2010 a third set of tests was performed to compare the effect of imazapyr applied as a cut-stem treatment with that of glyphosate. Both imazapyr and glyphosate were applied at the rate of 96%, and in both treatments was added the potent Pentrantrk at 3 L per gal. A control treatment was also made in which jubatagrass stems were cut but not treated. Test of spray penetrant. In March 2011 a fourth test of set was performed to evaluate the effect of adding the penetrant Pentrantrk to imazapyr spray applications to increase absorption of the herbicide. The treatments were 2% Habitat, 2% Habitat plus Pentrantrk at the rate of 1 L per gal, and a control treatment of Pentrantrk applied alone at 1 L per gal. Late in March an additional treatment was added of 2% Habitat plus Pentrantrk at the rate of 7.5 L per gal, and an additional control treatment was also made of Pentrantrk alone at the rate of 3 L per gal.

DISCUSSION

In previous tests, good control of jubatagrass has been achieved with imazapyr. For example, in a New Zealand study imazapyr gave 100% control of jubatagrass approximately 1 year after treatment (Havill 2008b). In the present study control of jubatagrass with imazapyr was inconsistent. Applications made in 2009 failed to kill plants but resulted in chlorosis, starting inhibition of flowering, and a reduction in height of the plant. In 2010, this response appeared to be no effect from the application of imazapyr alone. However, in 2011, there appeared to be differential effects among application rates with higher rates producing greater inhibition of growth, and these differences were statistically significant (Figure 3). These symptoms of chlorosis, stunting and flower inhibition persisted into 2012.

Test of imazapyr and glyphosate as cut-stem treatments. In the comparison of the effects of imazapyr and glyphosate, there appeared to be no effect from the application of imazapyr alone. There were no visible phytotoxic effects a year after treatment. However, the glyphosate treated plants exhibited severe phytotoxicity, and the combination of imazapyr and glyphosate appeared to be identical to glyphosate alone in its effect.

Test of different rates of imazapyr. As a result of the previous test, there was initially no apparent effect of the imazapyr application rate in this test, but within a year phytotoxic effects were beginning to be seen, and a year after treatment they were quite evident. None of the treated plants were killed, but they appeared chlorotic and stunted, and there was an almost complete inhibition of flowering (Figure 4). There appeared to be differential effects among application rates with higher rates producing greater inhibition of growth, and these differences were statistically significant (Figure 3). These symptoms of chlorosis, stunting and flower inhibition persisted into 2012.

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REFERENCES


