

DEFINING OPTIMUM HERBICIDE RATE AND TIMING FOR WILD OAT CONTROL IN SPRING WHEAT.

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Abstract. Field trials were conducted at Scott and Saskatoon, SK from 1994 through 1997 to determine the optimum rate and timing for five post-emergent herbicides used to control wild oat in spring wheat. The herbicides tested were clodinafop-propargyl, fenoxaprop-P, flumiprop, imazamethabenz and tralkoxydim. Herbicides were applied at the recommended label rate, 0.67 times or 0.33 times the recommended rate at the 2-, 4- or 6-leaf stages of wild oat. Wild oat infestation was moderate to heavy at Saskatoon and light to moderate at Scott.

The highest level of wild oat control was achieved with clodinafop-propargyl applications at all stages and rates at both locations. At Saskatoon, wild oat control with fenoxaprop-P was intermediate to that provided by clodinafop-propargyl and the other graminicides at all stages and rates. Wheat seed yield was highest with clodinafop-propargyl applications at all stages. A clear distinction was not evident between the influence of the other graminicides, relative to that of clodinafop-propargyl, on crop yield at both locations. Except in the case of imazamethabenz, wild oat biomass and wheat seed yield decreased or were unaffected as herbicide application was delayed. Delayed application of imazamethabenz increased wild oat biomass and resulted in the largest decreases in wheat seed yield. These time of application effects on seed yield resulted in similar declines in net economic returns.

At Saskatoon, where wild oat pressure was relatively high, wild oat biomass increased and wheat yield declined rapidly as herbicide rate was reduced. At Scott, where wild oat populations were relatively light, wild oat biomass increased marginally and wheat seed yield was decreased slightly or unaffected when herbicide rates were reduced. Treatment at the label or 0.67 X label rates were necessary to maximize net economic returns, although this trend was most apparent with the relatively heavy wild oat infestations at Saskatoon.