

ABSTRACT

The micro-rate of desmedipham (Betanex) or desmedipham + phenmedipham + ethofumesate (Progress) plus triflurosulfuron (UpBeet) plus clopyralid (Stinger) plus methylated seed oil at 0.08 plus 0.004 plus 0.03 lb/A plus 1.5% v/v has been used in experiments in North Dakota and Minnesota since 1996 and used commercially since 1998. A typical conventional rate of desmedipham or desmedipham + phenmedipham or desmedipham + phenmedipham + ethofumesate plus triflurosulfuron plus clopyralid is 0.25 to 0.5 plus 0.008 plus 0.06 lb/A without oil adjuvant. The objective of this paper was to compare weed control and sugarbeet injury from the micro-rate to weed control and sugarbeet injury from conventional rates using results from weed control experiments and responses to an annual survey of sugarbeet growers.

The micro-rate was applied an average of 2.6 times per field and all POST herbicide treatments totaled 3.4 applications per field in 2006. In the last 10 years, micro-rate use has varied from 2.4 to 3.0 applications per field. Annual survey respondents indicating good or excellent control from the micro-rate was lowest in 2002 at 62% and was highest in 1998 at 91%. Good or excellent weed control from the micro-rate was reported by 81% of survey respondents in 2006. The variability in weed control satisfaction was not related to rainfall or growing degree days in May and June. The responses to the survey indicate variability in weed control results across years but do not suggest a general decline in grower satisfaction with the micro-rate.

Weed control results in research plots from the micro-rate and conventional rates were summarized across locations from 1996 through 2006. The number of locations per year varied from three to nine with an average of six per year. Kochia control from the micro-rate was similar to control from the conventional rates from 1996 through 1998. However, kochia became increasingly resistant to triflurosulfuron and kochia is no longer controlled by triflurosulfuron. Kochia control now is less from the micro-rate than from conventional-rate treatments. A high rate of desmedipham + phenmedipham + ethofumesate is needed for adequate control of triflurosulfuron-resistant kochia. Common lambsquarters control averaged over years and locations was 99% from conventional rates and 96% from the micro-rate. The gap in control between the micro-rate and the conventional rate has not been increasing with time suggesting that increased tolerance of common lambsquarters to the micro-rate has not occurred at the locations where the experiments were conducted. The micro-rate and conventional rates gave similar control of pigweed species from 1996 through 2002. However, from 2003 through 2006, the conventional treatments gave 100% pigweed control and the micro-rate gave 93% control. This suggests that pigweed spp. control from the micro-rate may be declining with time.

Sugarbeet injury from the micro-rate averaged 7% over the past 11 years. Sugarbeet injury from the conventional rates averaged 9% from 1996 through 2003. However, sugarbeet injury from the conventional rates averaged 23% from 2004 through 2006 and in 2006, sugarbeet injury averaged 32% from the conventional rates and only 9% from the micro-rate. The reason for the large difference in sugarbeet injury between conventional-rate treatments and micro-rate treatments in 2006 is not known. Sugarbeet producers should consider starting application of conventional rates in late afternoon or early evening to reduce the risk of sugarbeet injury.