

RESPONSES OF EIGHT MARKET CLASSES OF DRY BEANS TO PREEMERGENCE APPLICATION OF LINURON. Peter H. Sikkema*, Christy Shropshire and Nader Soltani, Assistant Professor, Research Technician, and Research Associate, Ridgetown College, University of Guelph. Ridgetown, ON N0P 2C0.

There is little information on the sensitivity of dry beans to linuron. Tolerance of eight market classes of dry beans (black, brown, cranberry, kidney, otebo, pinto, white and yellow eye beans) to preemergence (PRE) applications of linuron at the rate of 2.25, and 4.5 kg a.i./ha were studied at two locations (Exeter and Ridgetown) in Ontario in 2003 and 2004.

The eight market classes differed in their responses to linuron. Black, brown, otebo, pinto, and white beans were more sensitive to the PRE application of linuron than cranberry, kidney, and yellow eye beans. The PRE application of linuron at 2.25 kg/ha caused 25, 33, 10 and 28% visual injury 14 days after emergence in black, otebo, pinto, and white beans, respectively. There was less than 5% visual injury in brown, cranberry, kidney and yellow eye beans. The PRE application of linuron at 4.5 kg/ha caused 40, 54, 30, and 49% visual injury 14 days after emergence in black, otebo, pinto, and white beans, respectively.

Linuron applied PRE at 2.25 kg/ha reduced plant height 38% in otebo beans and 31% in white beans. Linuron applied at 4.5 kg/ha reduced plant height by 43, 24, 56, 36 and 56% in black, brown, otebo, pinto, and white beans, respectively. There was no decrease in height of cranberry, kidney and yellow eye beans.

Shoot dry weight was reduced in otebo beans by 56% and in white beans by 46% at the low rate. Shoot dry weight was decreased by 74, 92, 52, 87, and 26% in black, otebo, pinto, white, and yellow eye, respectively at the high rate. There were no significant differences in the shoot dry weight of other market classes.

Linuron applied PRE at the low rate reduced yield by 42% in otebo beans and at the high rate reduced yield by 56, 74, and 61% in black, otebo, and white beans, respectively. There were no significant effects on the yield of other market classes.

This initial research indicates that there is not an adequate margin of crop safety for PRE application of linuron in black, otebo, and white beans. Additional research is needed to determine if there is an adequate margin of crop safety in brown and pinto beans. However, there is potential for the use of linuron PRE for weed management in cranberry, kidney and yellow eye beans.