

POSSIBLE STRATEGIES TO MANAGE WEEDS WITHOUT PHENMEDIPHAM/DESMEDIPHAM IN SUGAR BEET. Darren E. Robinson and Allan S. Hamill, Assistant Professor, Ridgetown College, University of Guelph, Ridgetown, ON, N0P 2C0 and Research Scientist, Agriculture & Agri-Food Canada, Harrow, ON, N0R 1G0.

Growers currently rely strongly on phenmedipham/desmedipham to obtain acceptable weed control in sugar beet. In Ontario, this herbicide is registered as an emergency use, which must be annually reapplied for due to health concerns over isophorone in the current formulation. Since an isophorone-free formulation of this herbicide is not yet registered, growers are concerned over the potential deregistration of phenmedipham/desmedipham. Trials were initiated in 2004 at two locations in southwestern Ontario to evaluate other currently registered herbicides at different use patterns than are currently recommended, to determine whether weeds can be managed without this herbicide. Micro-rate applications of phenmedipham/desmedipham + triflurosulfuron + clopyralid ($125 + 4.5 + 35 \text{ g a.i. ha}^{-1}$) made four times during the growing season were compared to a number of treatments, including micro-rate applications of pyrazon + triflurosulfuron + clopyralid ($350 + 4.5 + 35 \text{ g a.i. ha}^{-1}$) alone or with low rates of ethofumesate ($70 \text{ g a.i. ha}^{-1}$) in each application, or with s-metolachlor ($1600 \text{ g a.i. ha}^{-1}$) in the second micro-rate application. The addition of ethofumesate did not cause visual injury to any treatments tested, however the addition of s-metolachlor did increase injury by 7-10%, and resulted in 3-12% stand loss. Micro-rates containing pyrazon gave 72% control of common lamb's-quarters (*Chenopodium album* L.) and redroot pigweed (*Amaranthus retroflexus* L.), compared to greater than 90% control in the phenmedipham/desmedipham micro-rate treatment. The addition of ethofumesate to the pyrazon micro-rates did not increase weed control consistently at both locations, however, the addition of s-metolachlor to the pyrazon micro-rates increased common lamb's-quarters and redroot pigweed control to greater than 90 and 85%, respectively, at 56 days after application. Weed management in sugar beet without phenmedipham/desmedipham may be possible using a micro-rate approach with pyrazon, if a safe and effective means to use them in conjunction with s-metolachlor can be determined.