

HOW LONG CAN VARIOUS HERBICIDES REMAIN IN THE SPRAY TANK PRIOR TO APPLICATION IN THE FIELD? Robert E. Nurse and Peter H. Sikkema, Research Scientist, Agriculture and Agri-Food Canada, Harrow, ON N0R 1G0 and Associate Professor, Ridgetown Campus, University of Guelph, Ridgetown, ON N0P 2C0.

Ten field trials were conducted at two locations in Southwestern Ontario between 2006 and 2008 to determine the length of time herbicides can remain in the spray tank prior to application in the field without impacting efficacy. Four preemergence and five postemergence herbicides were mixed at their labeled rates and then applied in field corn following label specifications. Herbicides were either applied immediately, or after being left for 1, 3 or 7 days in the spray tank. The most common weed species in the trials were *Abutilon theophrasti*, *Amaranthus retroflexus*, *Ambrosia artemisiifolia*, and *Chenopodium album*. Delaying herbicide application did not affect the efficacy of postemergence herbicides in this study. Similarly, control of *A. retroflexus* and *C. album* was not affected by a delay in the application of preemergence herbicides. However, control of *A. theophrasti* was decreased when isoxaflutole + atrazine, dimethenamid + dicamba/atrazine, or rimsulfuron + s-metolachlor + dicamba applications were delayed by more than 1 day. Nonetheless, there were no decreases in yield for any treatment combinations. These data provide valuable information which growers can use to make informed decisions on whether to apply herbicides in non-ideal weather or postpone application. The results of this study suggest that for most herbicides and weed species it is better to postpone application rather than make applications under non-ideal conditions.