

CAN THE DHT TRAIT SOLVE ALL OF OUR GLYPHOSATE RESISTANCE PROBLEMS? Mark M. Loux, Professor, Department of Horticulture and Crop Science, The Ohio State University, Columbus, OH 43221.

Dow AgroSciences is developing DHT, a trait that confers resistance to 2,4-D in corn and soybeans, and resistance to “fop” herbicides in corn. 2,4-D remains an extremely important herbicide in weed management programs for corn and soybeans. It is an inexpensive and widely used component of preplant herbicide treatments in no-tillage systems, to control or help control emerged broadleaf weeds. Another primary use has been in early POST treatments in corn to supplement atrazine and other herbicides. Lack of crop tolerance is the major limitation to more widespread use of 2,4-D in corn and soybeans. 2,4-D ester can be safely used in soybeans when it is applied at least 7 days before planting, because the combination of its relative immobility and rapid degradation in soil precludes phytotoxicity. Postemergence use in corn is limited to early growth stages, because the crop becomes susceptible to injury from 2,4-D with increasing size and advancing growth stage. Early postemergence application to small corn often fails to adequately control summer annual broadleaf weeds that have a tendency to emerge into June.

Although the current lack of crop tolerance limits its utility, 2,4-D has activity on all of the broadleaf weeds that have developed resistance to glyphosate. It is already an important component of the recommendations for management of certain resistant weeds, especially those that have emerged by the time of soybean planting. Application of 2,4-D prior to no-till soybean planting helps control emerged glyphosate-resistant horseweed, which accounts for much of the horseweed population that can infest the crop. Common and giant ragweed can also emerge early in the growing season, and are readily controlled by preplant application of 2,4-D.

Herbicide-tolerance technology that allows expanded use of 2,4-D, especially postemergence use in soybeans and a wider window of postemergence use in corn, would have substantial utility for reducing the risk of glyphosate resistance and managing resistant populations. Many populations of glyphosate-resistant broadleaf weeds have resistance to other herbicide sites of action also, resulting in a lack of effective alternatives to glyphosate. DHT technology could greatly improve growers' ability to manage problematic populations of horseweed, common and giant ragweed, and waterhemp, for which glyphosate and other current postemergence herbicides are becoming increasingly ineffective.