

DOW AGROSCIENCES HERBICIDE TOLERANCE TRAITS IN CORN AND SOYBEAN. David M. Simpson\*, T. R. Wright, R.S. Chambers, M. A. Peterson, C. Cui, A. E. Robinson, J. S. Richburg, D. C. Ruen, S. Ferguson, B. E. Maddy, E. F. Schreder; <sup>1</sup>Dow AgroSciences, Indianapolis, IN.

Dow AgroSciences is developing a family of herbicide tolerance traits that provide tolerance to certain broadleaf and grass herbicides, including the phenoxy auxins like 2,4-D, as well as the aryloxyphenoxypropionate grass herbicides. The mechanism for conferring herbicide tolerance is a rapid single-step metabolic detoxification process mediated by an  $\alpha$ -ketoglutarate-dependent dioxygenase enzyme. The genes coding for these enzymes were isolated from naturally occurring gram negative soil bacteria. The traits have shown broad utility in multiple broadleaf and grass crop species. Robust tolerance is observed from the early seedling stage to the reproductive stage at application rates four to eight times the current field use rates. These traits will enable 2,4-D to be applied from pre-emergence, without planting restrictions, to the reproductive stage of the crop, providing broad-spectrum broadleaf weed control including control of ALS, triazine or glyphosate resistant broadleaf weeds. Combining these traits with other current herbicide tolerance traits will allow growers maximum flexibility to use multiple modes of action to enhance broadleaf weed control.