**Large-Scale Evaluation of 2,4-D Off-Target Movement in Wisconsin Soybeans**

Enlist E3 technology allows for over-the-top applications of labeled glyphosate, glufosinate and 2,4-D herbicides. Growers’ adoption of Enlist E3 soybean is expected to be high across the Midwest due to widespread occurrence of herbicide-resistant weeds. Large-scale applications of 2,4-D raise concerns and warrants investigations regarding its potential off-target movement (OTM) . A large-scale drift research project was established near Sun Prairie, Wisconsin in 2019, whereas Enlist soybeans were planted in a 3-ha block, surrounded by 11-ha of non-Enlist soybeans. Enlist Duo (2,4-D choline + glyphosate) application was performed following all label requirements on August 2 (24 C temperature). Wind speed was 5 kph at the onset of the application but dropped below this minimum requirement during application. At 21 days after treatment (DAT), non-Enlist soybean injury was visually assessed (0 to 100% injury). Moreover, paper filters were placed at seven distances up to 10 m from Enlist soybean block on the East (upwind) and on three downwind directions (northwest, west central and northeast). Paper filters were retrieved shortly after application, 2,4-D concentration analyzed by the Mississippi State Chemical Laboratory, and deposition (ƞg cm-2) estimated via a three-parameter log-logistic model. Neighboring sensitive vegetation (tomato gardens and vineyard) combined with adverse climatic conditions in July postponed the Enlist Duo application to August (R2 soybean stage). Results showed less than 5% injury of non-Enlist soybean (considered a compatible crop) in the downwind directions and 0% injury in the upwind direction. The average in swath 2,4-D deposition was 9966 ƞg cm-2, and at the border of Enlist Duo application block (0 m), the average 2,4-D deposition was 9,360 ƞg cm-2. Deposition of 2,4-D decreased 99% from 0 to 0.30 m from Enlist block, reaching nearly 0 ƞg cm-2 at 10 m from Enlist block. The low detection of 2,4-D at > 0.3 m from Enlist indicates the importance of following label requirements to reduce the chances of unintended OTM of 2,4-D via particle drift. Also, the late application timing under low wind speed combined with lower inherit sensitivity of soybeans to 2,4-D likely minimized the risks of 2,4-D injury to non-Enlist soybeans. Further studies are needed to investigate potential unintended OTM of 2,4-D applied at vegetative soybean stages under different adverse weather conditions.