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Evaluation of EcoRobotix green-on-green herbicide sprayer in sugarbeet.

Green-on-green sprayer technology allows an herbicide to be applied only to weeds while avoiding contact with the crop. This technology may allow use of herbicides that normally would cause severe injury or crop loss while controlling herbicide-resistant or herbicide-tolerant weeds within the same field, potentially using less herbicide per-hectare compared to a traditional broadcast application. In 2024, a series of studies were conducted to determine potential herbicides for use within in sugarbeet including high concentrations of urea, acetic acid, sulfuric acid, phenmedipham, desmedipham, and standard use rates of ammonium nonanoate and glufosinate on herbicide-resistant kochia. A later field trial was conducted to test urea, ammonium nonanoate, and glufosinate with the EcoRobotix sprayer when applied at the cotyledon, two-true leaf, and four-true leaf growth stage. Crop safety was excellent with no loss of stand or observed sugar beet injury. Weed control was also excellent with ammonium nonanoate and glufosinate, however coverage decreased as sugarbeet increased in size. Green-on-green spray technology can effectively manage herbicide-resistant weeds in sugarbeet when applied early in the season but should be paired with soil active herbicides and other weed control practices to maximize weed control and crop safety.