

AGR1811: Glyphosate- or Auxinic-Resistant Kochia and Russian Thistle Prairie Surveys

Kochia is a problematic, patch-forming tumbleweed in Western Canada. Herbicide-resistant kochia has previously been identified within parts of Western Canada. Russian thistle is another tumbleweed with herbicide resistance detected in the United States. The study purpose was to survey kochia and Russian thistle populations in Manitoba, Saskatchewan, and Alberta for herbicide resistance towards glyphosate and dicamba. The Manitoba survey was conducted in 2018, Saskatchewan in 2019, and Alberta scheduled for 2021. Kochia and Russian thistle were collected at approximately 300 sites in both Manitoba and Saskatchewan using a stratified random survey.

Screening for the Manitoba Russian thistle populations were completed with no resistance to glyphosate or dicamba found. Screening of the Manitoba kochia populations were completed and glyphosate resistance was detected in 59% of populations. Screening for the Saskatchewan kochia samples are ongoing. Preliminary results indicate that many Saskatchewan populations have glyphosate resistance to some degree. In both Manitoba and Saskatchewan, populations were typically mixed, with a low number of surviving resistant plants. Dicamba screening for kochia is ongoing.

While glyphosate still has activity on some kochia plants, the risk for further resistance evolving is high. Using multiple modes of action to kill kochia is recommended for herbicide inputs including: 1) pre-seeding tank-mixing involving glyphosate, 2) sequential applications during the field season including in-crop, pre-harvest, and post-harvest sprays, and 3) rotating modes of action between years when feasible.