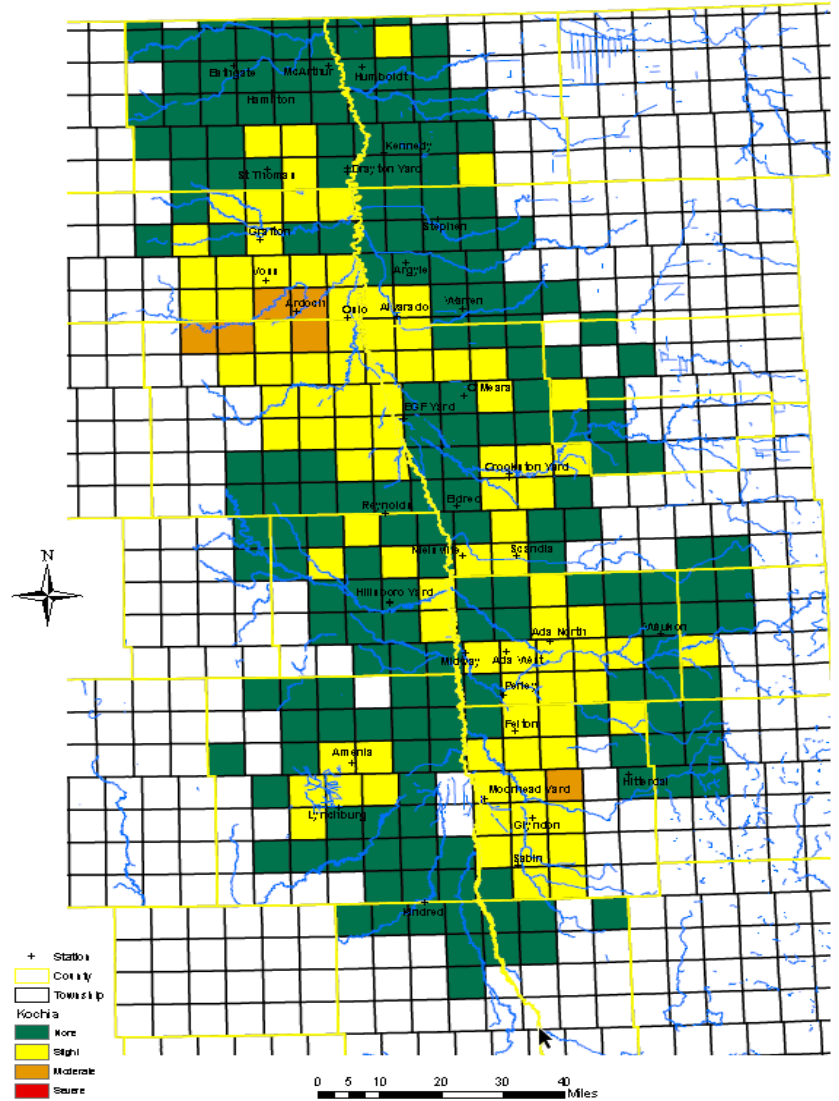
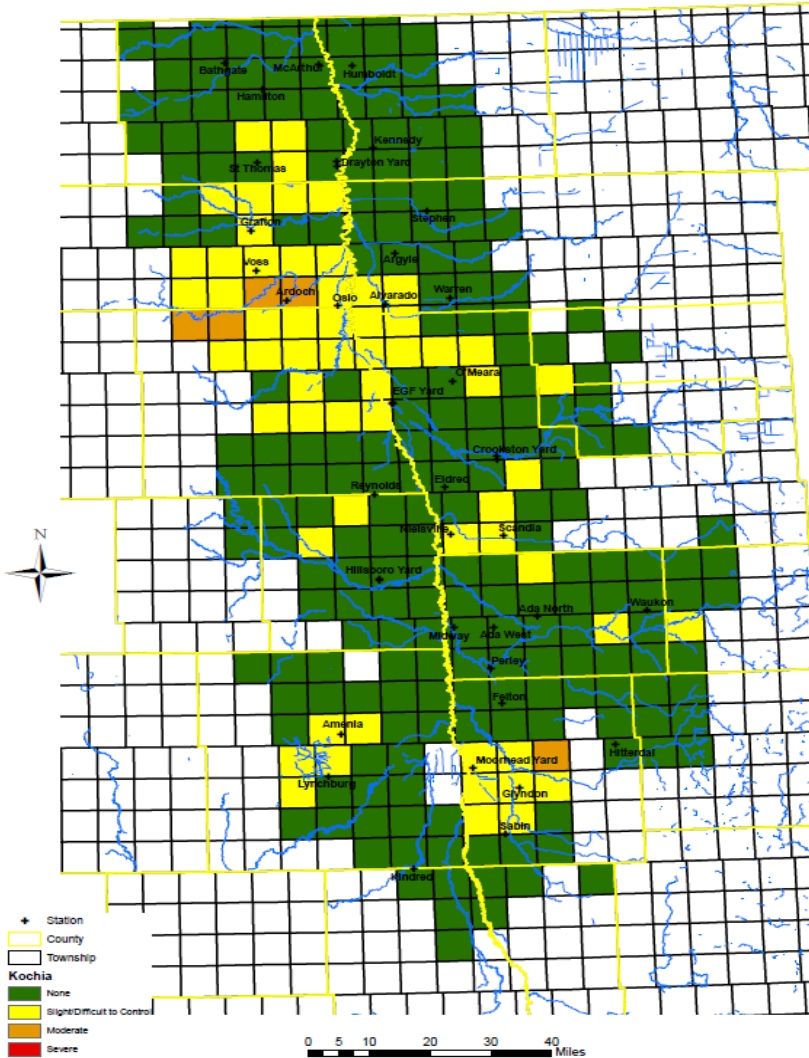


Weed Control Map Kochia

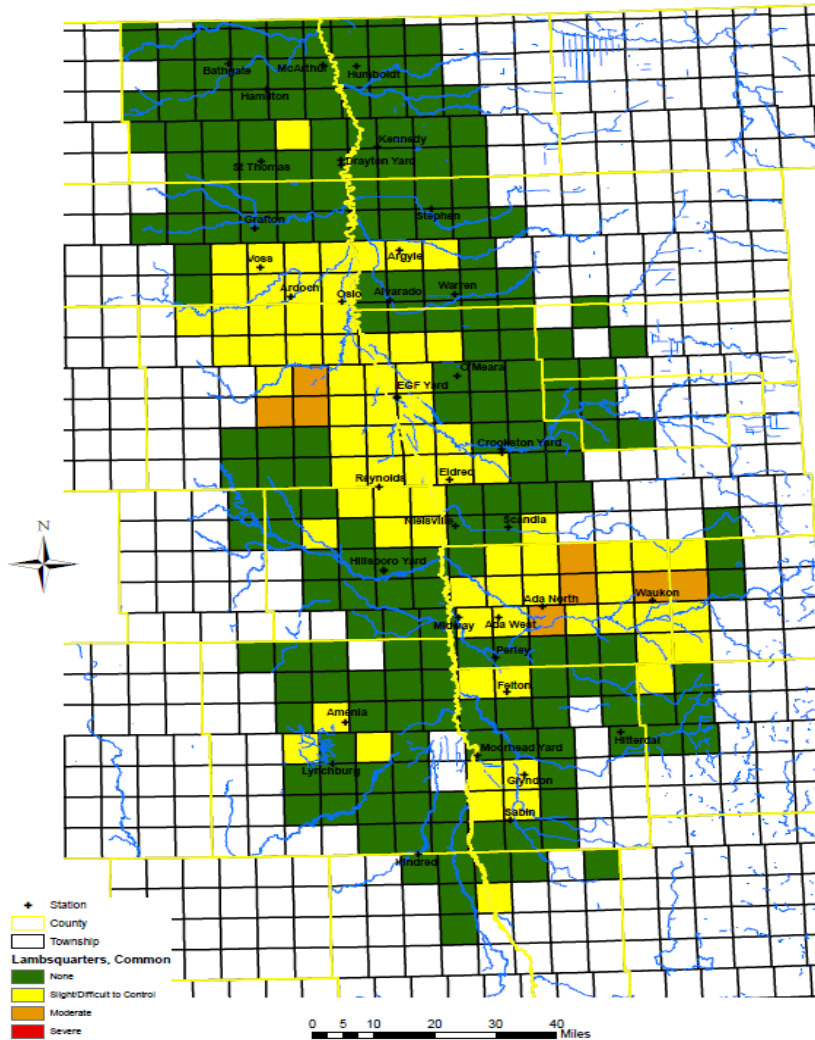
2018 Weed Resistance Map - Kochia

2017 Weed Control Map - Kochia

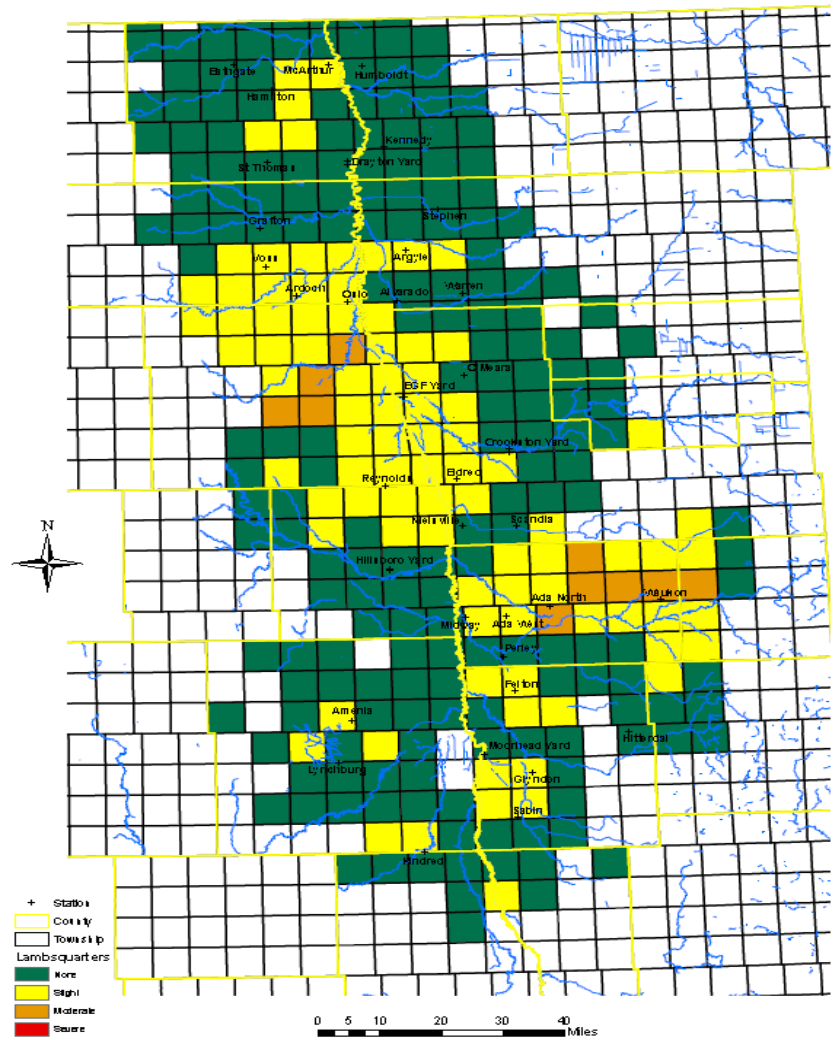


Weed Control Map Common Lambsquarters

2017 Weed Control Map - Lambsquarters



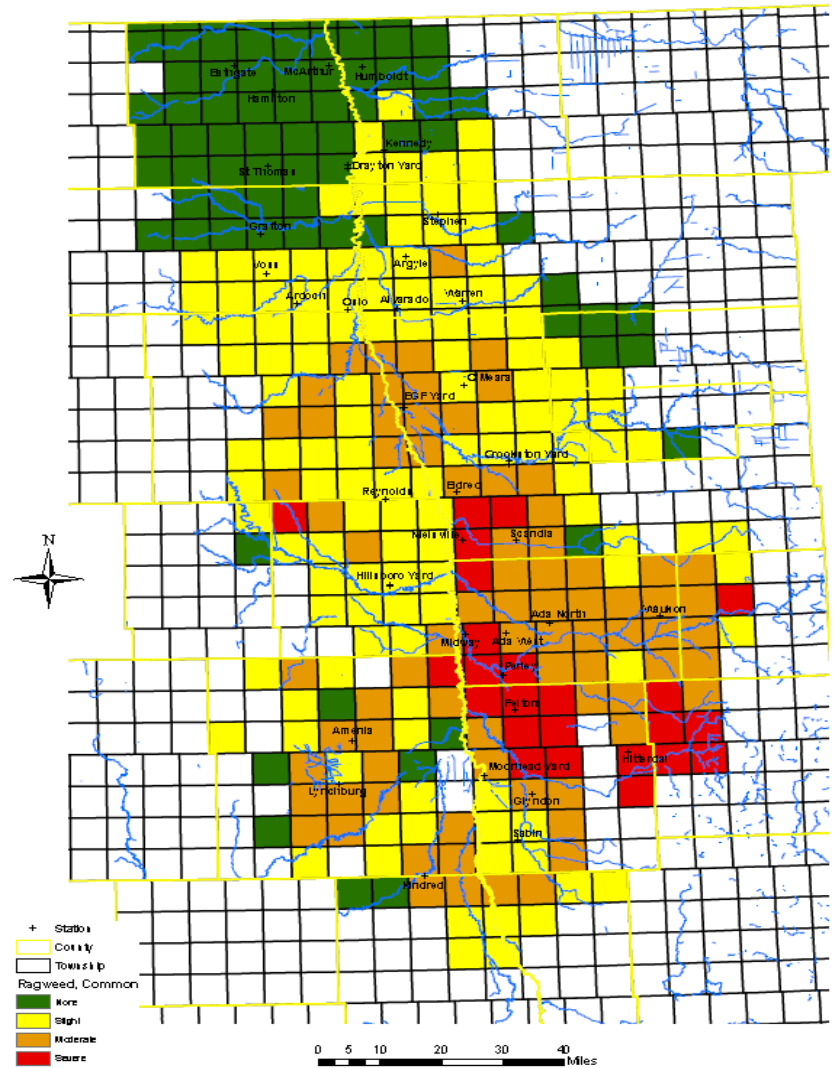
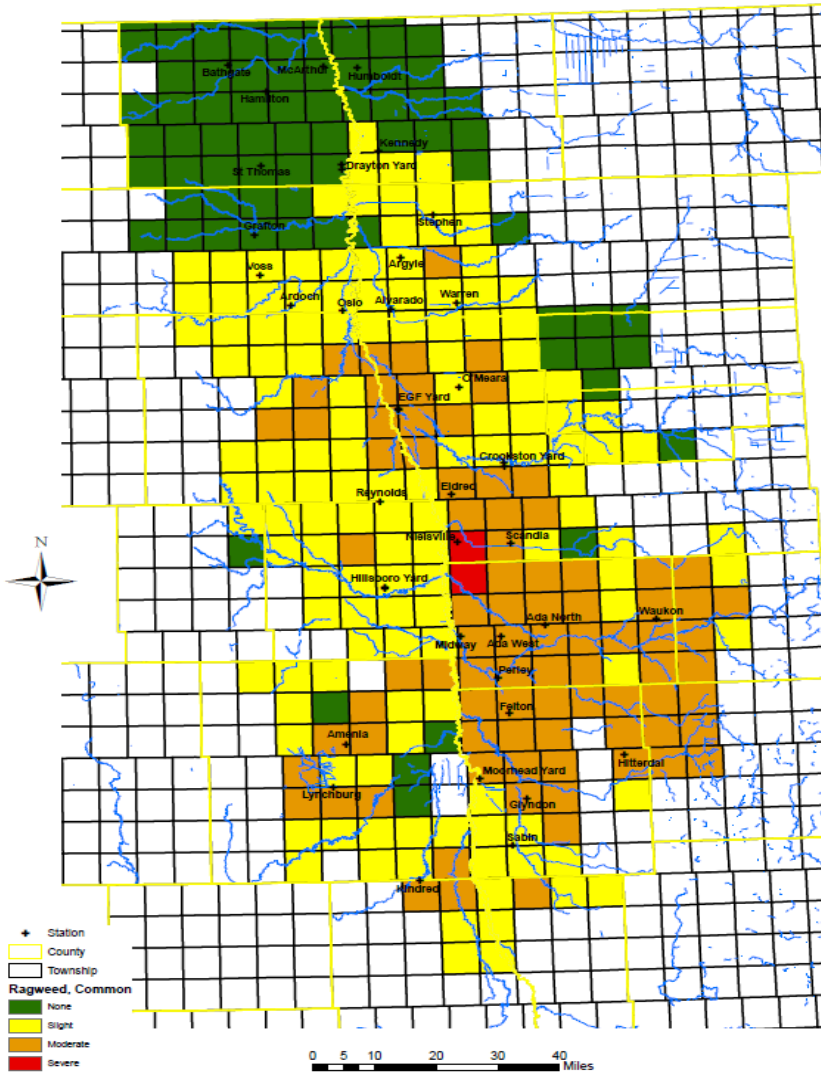
2018 Weed Control Map - Lambsquarters



Weed Resistant Map Common Ragweed

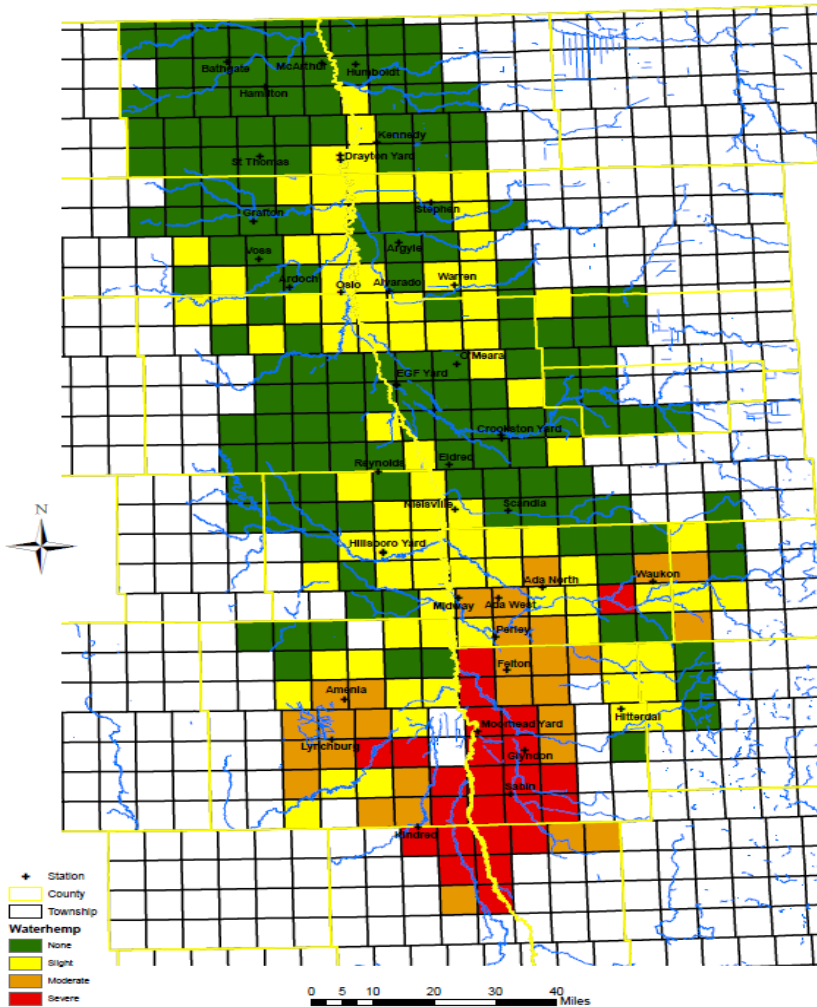
2017 Weed Resistance Map - Ragweed, Common

2018 Weed Resistance Map - Ragweed, Common

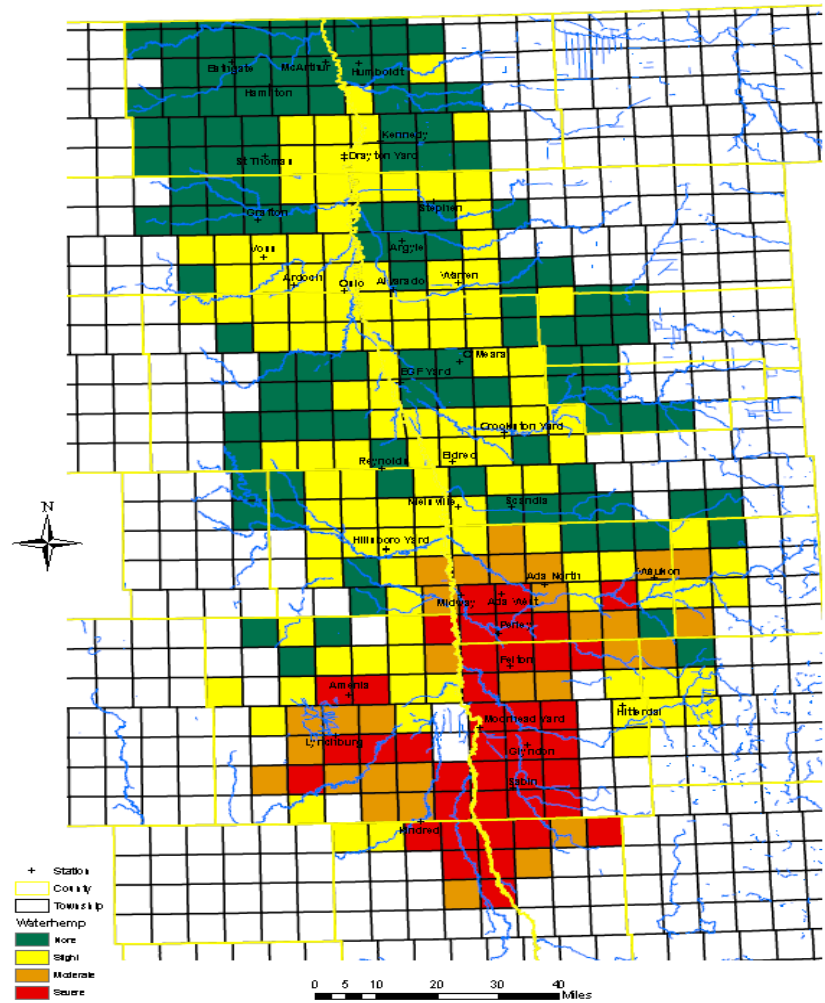


Waterhemp Resistant Map

2017 Weed Resistance Map - Waterhemp



2018 Weed Resistance Map - Waterhemp



Product Label Information

- Ethofumesate 4SC (Willowood)
 - Use rate up to 7.5pts/a PRE or PPI and up to 12 oz/a POST
 - PreHarvest Interval
 - 45 Day
- Nortron(Bayer), or Ethotron(UPL)
 - Use rate up to 7.5 pts/a PRE or PPI and up to 12 oz/a Post
 - PreHarvest Interval
 - 90 Day

Weed Control Strategies 2019

- PPI/PRE
 - Ethofumesate or Dual Magnum(Syngenta)
 - Up to 10 week residual w/Ethofumesate
 - Application of higher rates, Recommended to follow with Beans or Potatoes
 - Dual Magnum(Syngenta)- requires indemnified label signature
 - Generic versions can only be applied Lay-by
 - Recommendation
 - Ethofumesate - 1-3pts/a + Dual Magnum - 0.5pts/a
 - Dual Magnum - 0.5pts/a
 - Ethofumesate - 6-7.5 pts/a

Weed Control Strategies 2019

- POST Lay-by
 - Outlook, Dual Magnum, Warrant
 - Tank mixed with Roundup
 - Split apply to eliminate gaps in residual coverage
 - Rain activation (.25" Outlook, .5" Dual Magnum, .6-.75" Warrant) is need and emerged weeds will not be controlled
 - Recommendation
 - Outlook - 21 oz/a Or 12oz/a FB 12oz/a
 - Dual Magnum - 1pt/a
 - Warrant - 3 pts/a

Recommended Waterhemp Strategy

- PRE/PPI - Ethofumesate + Dual Magnum, or Ethofumesate, or Dual Magnum
- POST- Roundup + Betamix + Ethofumesate + Layby
 - POST App #2 - Roundup + Betamix + Layby
 - POST App #3 - Roundup + Betamix
- We should be targeting Cotyledon to 2 Leaf weeds on our first POST application

Recommended Kochia Strategy

- PRE/PPI - Ethofumesate
- POST - Roundup + Betamix + Ethofumesate
 - Post App #2 - Same Treatment
 - Post App #3 - Same Treatment (if needed)
- We should be targeting dime to quarter size weeds on our first POST application

Recommended Ragweed Strategy

- POST - Roundup + Stinger
 - Post App #2 - Same Treatment
 - Post App #3 - Same Treatment (if needed)
 - Post App #4 - Same Treatment (if needed)
- We should be targeting cotyledon to 2 leaf weeds on our first POST application
- Do not use less than 2oz/A of Stinger
- Maximum use rate is 10.6 oz/A per Season
- Do not apply after the 8 leaf stage

Weed Control Strategy 2019

- Cultivation as a rescue
 - Use on problem fields
 - Done right before canopy closure has shown to reduce weed population
 - If used, still be careful on speed to keep soil away from crown of plant

Weed Removal

- Hand Weeding/ Removal of plants from field to stop the spread of seeds
- Mowing portions of field/field edges with weed escapes
- Waterhemp can produce 300,000 seeds and 1.5 times more than any other pigweed species
<https://www.ag.ndsu.edu/weeds/weed-of-the-year-files/waterhemp>
- Viability of Kochia Seed is 1-3 years in the soil
- Viability of Waterhemp seed is 4-6 years in the soil
- Viability of Common Ragweed seed is up to 10 years in the soil
- Viability of Common Lambsquarters seed is greater than 20 years in the soil

Summary

- Tough to kill and resistant weeds are progressing north through the valley
- PRE/PPI work well
- Weed control strategy should include a layered, lay-by approach to avoid gaps in coverage
- Next major flood will spread resistant weed seeds faster and further than we see now.