NDSU Carrington Research Extension Center:
WEED MANAGEMENT PROGRAM UPDATE

Greg Endres, Extension agronomist
Carrington Research Extension Center
701-652-2951; gregory.endres@ndsu.edu
Research:

1. Winter rye as a cover crop with pinto bean
2. Fall-planted cover crop response to soybean herbicides
Rye cover crop with pinto bean

support from Northarvest Bean Growers Association
‘Lariat’ pinto bean seeded May 31, 2017
July 10, 2017: Weed control (Raptor app to all plots on June 26)

early PP tillage (untreated check)  

Late PP glyt
June 16, 2018:
16 days after pinto planting (May 31) and one day after POST Raptor across trial (June 15)
Weed management notes, 2017-18

- Balance live rye period for benefits (including weed suppression) vs negative impact on dry bean (moisture stress)
- Rye density
  - 'high' = increased and extended (after rye termination) weed suppression
- Rye termination
  - tillage
    - multiple passes required; volunteer rye and more weeds (?)
  - glyphosate
    - > 1 lb ae/A glyt
    - coverage with > boot stage rye?
- Rye (living) potentially a substitute for soil-applied herbicide
  - timely POST herbicide app
  - watch for tolerant species (e.g. legumes, lanceleaf sage)
Many factors to consider when planning and establishing cover crops

- **Herbicide history of field** - data on impact of soybean herbicide soil residues on cover crops is limited
  - Herbicide residues can negate resources (e.g. time and costs) used to establish cover crops in the fall following a soybean crop

**Current NDSU wheat herbicide** risk to cover crops data:

![Herbicide risk table](image-url)
Current data:
1. Fargo, 2016 (K. Howatt)
   • 11 corn and soybean herbicides; 10 cover crops
     ❖ data published in 2016 ND Weed Control Research
2 and 3. Fargo and Carrington, 2018 (G. Endres, K. Howatt, and M. Ostlie; support from ND Soybean Council)
   • Soybean herbicides
     • Soil-applied: metribuzin (Sencor), Pursuit, Spartan, Valor, Raptor, and Zidua
     • POST: Engenia, Flexstar, Liberty, and Raptor
   • Cover crops
     • barley, winter rye, field pea, lentil, flax, radish, and turnip
     ❖ data published in 2018 ND Weed Control Research
Preliminary results:

- High risk (51-100% injury)
  - Valor (flumioxazin) - radish, turnip, rapeseed (Fargo, 2016)
  - Spartan (sulfentrazone) - radish (Fargo, 2018)
  - Raptor (imazamox; PRE) - radish, turnip, flax (Fargo, 2018)
  - Flexstar (fomesafen) - radish (Fargo, 2016)

- Medium risk (21-50% injury)
  - Zidua (pyroxasulfone) - oat, rapeseed (Fargo, 2016)
  - Spartan - oat, radish, rapeseed (Fargo, 2016); lentil, turnip (Fargo, 2018)

- Low risk (0-20% injury)
  - balance of treatments

➢ Research will continue in 2019 at Fargo and Carrington
Weed identification (quiz)

- 2015 = 12 species
- 2016 = 7 species
- 2018 = 10 species
- 2019 = 8 species

- 8319 plants in ND (USDA)
Asparagus

- **Source:** Foster County (edge soybean field)
- **Description:**
  - perennial (30+ years)
  - most well-drained soils
- **Reference:** Handbook of ND Plants (p. 105)
Pink beardtongue

- **Source:** Burleigh County
- **Description:**
  - native perennial forb
  - sandy soils and hillsides
  - fair forage
- **Reference:** Plants of SD Grasslands (p. 122)
Chicory

- **Source:** Wells County (salt-affected soil area of field)
- **Description:**
  - native of Europe
  - sunflower family
  - perennial
  - bright blue flowers; milky sap
  - potential as a cultivated crop
- **Reference:** Weeds of the Midwestern US and Central Canada (p. 77)
Wild four-o’clock

- **Source:** Morton County
- **Description:**
  - native of North America
  - Four O’clock family
  - perennial herb
  - Stems squarish; nodes swollen, resembling ball-and-socket joints
  - flowers open in late afternoon and close next morn
- **Reference:** Weeds of the Midwestern US and Central Canada (p. 247)
Black henbane

- **Source:** McLean County
- **Description:**
  - native of Europe
  - nightshade family
  - annual or biennial, reproducing by seed
  - fruits 1-inch long and 5-lobed
  - common pasture weed
  - foliage has foul odor
  - poisonous to humans and livestock
- **Reference:** Weeds of the West (p. 558-559)
Forage kochia
(Kochia or Basia prostrata)

- **Source:** Foster County
- **Description:**
  - Goosefoot family
  - introduced; well adapted in Intermountain West; saline sites
  - semi-evergreen, half-shrub; perennial
  - highly nutritious to cattle
- **Reference:** NRCS
Cutleaf nightshade

- **Source:** Logan County
- **Description:**
  - native of west US
  - nightshade family
  - warm-season annual
  - large calyx; berry green at maturity
- **Reference:** Weeds of the Midwestern US and Central Canada (p. 302)
Biennial wormwood

- **Source:** McIntosh County (flax field)
- **Description:**
  - native to U.S. (northwest)
  - sunflower family
  - annual or biennial, reproducing by seed
- **Reference:** Weeds of the West (p. 62-63)
Carrington REC living weed exhibit