

# CARRINGTON REC WEED MANAGEMENT REPORT (part 2)

Greg Endres, Extension area agronomist  
Carrington Research Extension Center  
701-652-2951; [gregory.endres@ndsu.edu](mailto:gregory.endres@ndsu.edu)

# Pinto bean research

1. Winter rye with pinto bean
2. Assessing impact of herbicide drift





## Objectives:

- 1) Pinto bean response to timing of winter rye removal
- 2) Rye impact on weed management





'Lariat' pinto bean seeded May 31, 2017





# Winter rye termination timing and methods



June 16



# Weed control (Raptor app to all plots on June 26)



July 10



# 2017 trial results

- Rye termination with herbicides
  - use  $\geq 1$  lb ae/A glyphosate (e.g.  $\geq 28$  fl oz/A RU PowerMax)
  - suppression at heading with Raptor at 4 fl oz/A (+ MSO and UAN)
- Weed control with rye (evaluated July 10 and 24)
  - excellent broadleaf weed control with late rye termination (trts 4-5) but broadleaf control was excellent (94-97%) among all trts on July 24
  - black medic – prominent growing season weed, but adequately controlled (84-95%) with trts 3-5
    - greater rye residue levels vs. trts 1-2
      - tolerant to Raptor
  - late PP herb (trt 3) provided desirable control (84-99%) among all grass and broadleaf weeds in the trial

“Rest of the story” on Bean Day (Friday, Jan. 19)...  
Trial will continue in 2018...





## **An Update of Dicamba Drift Injury Thresholds for Dry Beans and Field Peas**

*Mike Ostlie, Greg Endres, Harlene Hatterman-Valenti, Richard Zollinger, Andrew Robinson, and Brian Jenks*

**D**icamba injury to soybeans was a hot topic in 2017. Prior to this year, research was conducted in 2015 and 2016 to evaluate the injury to several specialty crops including dry beans and field peas. Soybeans are the most dicamba-sensitive crop grown in North Dakota. However, the above crops are sensitive to dicamba and yield loss can occur with fewer symptoms than soybeans. Because of this, the following studies were conducted to determine how well visual injury after a drift event corresponds to yield loss and whether a tissue test can be used predict yield damage.

Simulated drift was studied with the application of 2.5-25% of Clarity (0.6-6% of the new dicamba formulations) and 0.45-4.5% of RoundUp Powermax (or equivalent) alone and together. This would be the same product ratio that is used for Extend soybeans. The applications were made just prior to flowering for each crop. Injury was rated 10 and 20 days after the drift event and tissue samples were taken at the same time. Plots were harvested and grain was sent for residue analysis and tested for germination.



Herbicide app = July 18, 2017



mid dicamba rate

Aug 8



Sept. 9



# Dry bean (navy and pinto) response to herbicide drift, ND, 2015-16 (4 site-years)

Table 2. Dry bean injury, leaf residue levels, and yield following dicamba and glyphosate applications								
Treatment	Rate	Phytotoxicity		Residue Level 10 DAT		Residue Level 20 DAT		Yield
		10 DAT	20 DAT	Dicamba	Glyphosate	Dicamba	Glyphosate	
	fl oz/a	%	%	ppb	ppb	ppb	ppb	%
Check		0	0	0	0	0	0	91
Dicamba	0.05	4.6	5.5	7	0	62	0	83
Dicamba	0.25	19.5	21	22	6	1204	1	72
Dicamba	0.5	22.8	26.4	259	253	625	30	33
Glyphosate	0.1	6.2	5.4	15	11	305	5	74
Glyphosate	0.5	20.6	16.1	65	1037	414	143	54
Glyphosate	1	24.6	25.3	121	510	145	75	40
Glyphosate + dicamba	0.1 + 0.05	11.4	11.4	8	258	49	108	78
Glyphosate + dicamba	0.5 + 0.25	29.3	23.8	85	541	628	38	48
Glyphosate + dicamba	1 + 0.5	33.4	39.3	262	676	509	185	14
LSD (0.05)		9.1	11.6	192	930	586	100	26



## Dicamba and glyphosate drift on dry bean: Summary (preliminary)

- Significant plant injury with mid and high rates of dic and glyt, and all herbicide combination rates.
- Plant maturity was delayed with all treatments except low glyt; average delays from 8 to 38 days with increasing herbicide rates (pinto bean, Carrington, 2015-17).
- Yield tended to be reduced with all herbicide treatments; significantly reduced with mid rate of glyt and herbicide combination, and all high treatment rates.



## Current data suggests

- **Plant tissue analysis:**
  - Residue levels are unreliable in predicting yield loss
  - Confirm if herbicide is present in plant
- **Visual injury can provide estimate of yield loss**



Plant tissue herbicide residues and visual injury impact on dry bean yield			
	Plant tissue level	Plant injury	Seed yield reduction
Herbicide	ppm	%	%
Dicamba	0.03-0.20	20-35%	≥25%
Glyphosate	0.02-0.1	x	?

2018 ND Weed Control Guide (p. 109)



# Seed germ/vigor, 2016-18





# Weed identification (quiz)



# Narrowleaf Hawksbeard



- 2018 Weed of the year
- See pp. 132-133 in WCG



# Fairy Candelabra



- Winter annual
- Reference: Handbook of ND Plants (p. 222)
  - “A common, little, weedy plant in fields and bare places on the prairie”



# Oakleaf Goosefoot



- **Source: Ramsey County**  
(submission through NDSU pest mgmt app)
- **annual**



# Evening Primrose



- **Source: Cavalier County**  
(submission through NDSU pest mgmt app)
- **Description:**
  - biennial, reproducing by seed
  - large taproot
  - stems: erect, 1-6 ft tall, woody and covered with soft silky hairs
  - bright yellow flowers open in evening
  - found in waste areas, fields, and roadsides
- **Reference: South Dakota Weeds (p. 130)**



# False Gromwell



- Source: Griggs and Kidder counties
- Description:
  - winter annual or biennial herb
  - fields, waste areas, and roadsides
- Reference: Weeds of the Midwestern US and Central Canada (p. 136)

# Tumble Pigweed



- **Description:**
  - annual
  - cotyledon leaves are smooth and lanceolate; true leaves have recessed venation
  - found in cultivated and disturbed sites
- **Reference: Weeds of the West (pp. 6-7)**



# Stinging Nettle



- Source: Golden Valley County
- Description:
  - perennial; native species
  - stems: 4-angled; 2-9 feet tall
  - leaves coarsely toothed, opposite, numerous stinging hairs
  - non-cropland areas
- Reference: Weeds of the West (pp. 584-585)

# Skeletonweed



- **Source: Emmons County**
- **Description:**
  - sunflower family
  - perennial, reproduces by seed
  - stems erect; up to 18" tall
  - lower leaves linear, up to 2"; upper leaves small awl-like projections
  - contains milky sap
  - found along roadsides, waste areas, pastures, rangeland, and cropland
- **Reference: Weeds of the West (pp. 156-157)**



# Wild Licorice



- **Source: Bottineau County**
- **Description:**
  - native species; pulse family
  - perennial, reproducing by seed and rhizomes
  - roots deep, sweet tasting with small tuber-like growths
  - stem erect, brached, 1-3 ft tall
  - Leaves alternate, pinnately compound (11-19 leaflets)
  - seed pods brown, 0.5-1" long, bur-like with hooked spines
- **Reference: Nebraska Weeds (p. 109)**

# Witchgrass



- Source: McLean County
- Description:
  - annual
  - soft and hairy throughout; wide, flat leaves; hairy ligule
- Reference: Weeds of the West (pp. 462-463)



