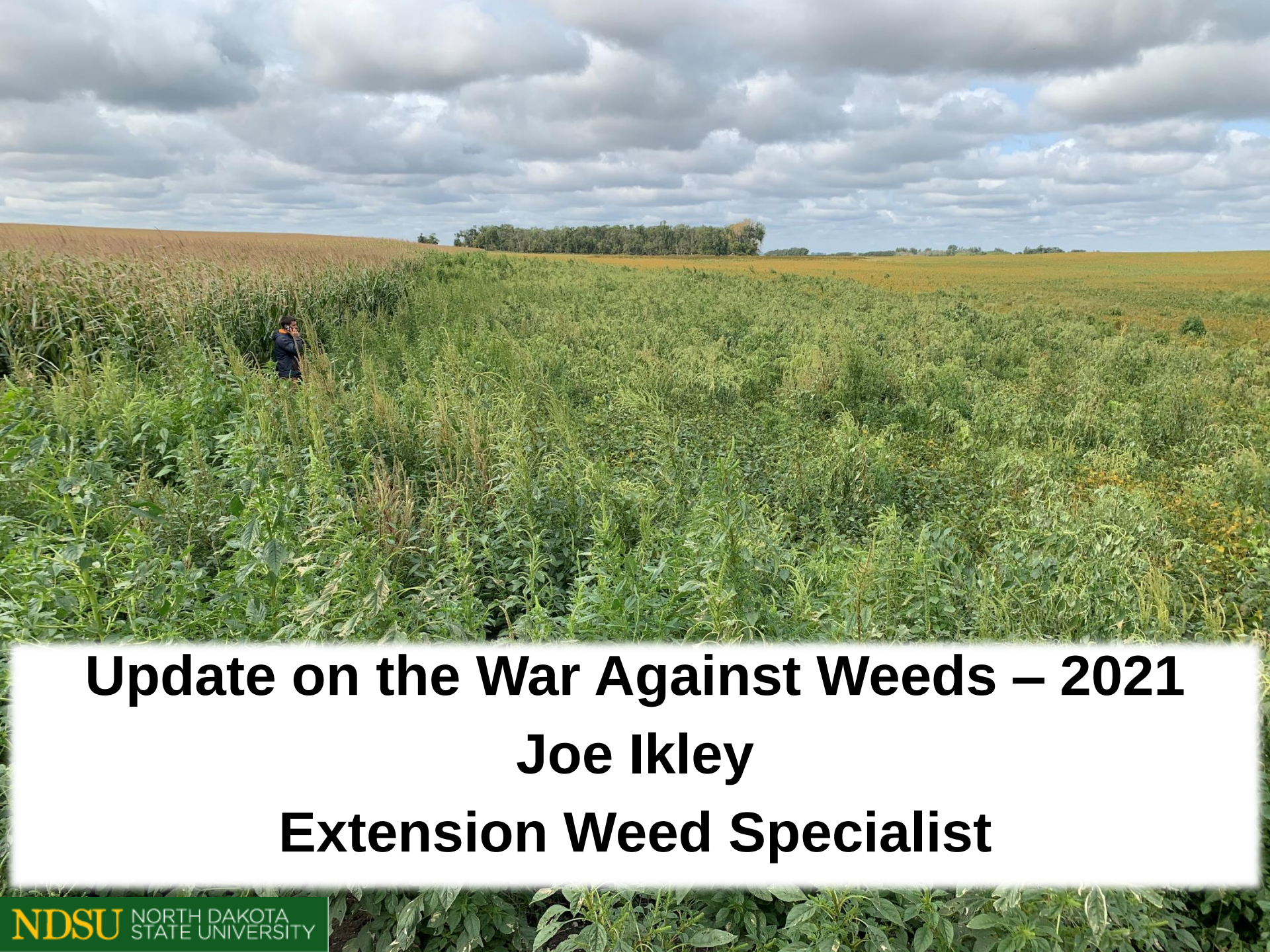

Update on the War Against Weeds – 2021

Joe Ikley

Extension Weed Specialist

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2021 Weed Control Guide

- Available at AgComm Distribution Center
  - Morrill Hall Basement
  - 701-231-7883
- Available Soon at County Extension Offices

W253-21 This Publication Supercedes All Previous Issues

2021

North Dakota Weed Control Guide

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Fargo, North Dakota

2021 Weed of the Year – Green Foxtail

Green foxtail resistance to postemergence herbicides in 2016-17 and 2018-19

	2016-17	2018-19
	Green foxtail (n=63)	Green foxtail (n=27)
	% resistant	% resistant
Puma[1]	51	63
Axial[1]	40	44
Discover[1]	55	63
Everest[2]	4	33
Varro[2]	12	37
GoldSky[2]	14	33
Raptor[2]	0	0
Assure II[1]	38	48
Select[1]	0	0
Assure II[1] + Select[1]	0	0
Roundup[9]	0	0

Herbicide Resistant Traits (PS1945)

Table 4. Soybean herbicide-resistance traits and herbicides that can be used in combination with resistant traits. A checkmark indicates that soybean herbicide trait packages have resistance to various herbicide products.[a]

Soybean Herbicide Trait	Glyphosate	Glufosinate	2,4-D Choline[b]	Dicamba[c]	HPPD Inhibitors[d]
Conventional					
Glyphosate Tolerant (GT)	✔				
Roundup Ready[e]	✔				
Roundup Ready 2 Yield[e]	✔				
Roundup Ready 2 Yield Xtend[e]	✔			✔	
Roundup Ready 2 Yield Xtendflex[f]	✔	✔		✔	
LibertyLink (LL)		✔			
LLGT27[d]	✔	✔			✔
Enlist	✔		✔		
Enlist E3	✔	✔	✔		
GT27	✔				✔

[a]Always consult herbicide labels for application requirements.
[b]Only approved 2,4-D choline formulations (Enlist Duo, Enlist One) are permitted for over-the top applications to Enlist and Enlist E3 soybeans.
[c]Only approved dicamba formulations (Engenia, FeXapan, Tavium, XtendiMax) are permitted for over-the-top application to Xtend and XtendFlex soybeans.
[d]GT27 and LLGT27 are resistant to isoxaflutole preemergence. No HPPD-inhibiting herbicide is approved for use in soybeans in the U.S. as of January 2020.
[e]Always consult herbicide label to determine if glyphosate formulation is approved for RR soybeans.
[f]Not approved for commercial production in the U.S. as of January 2020.

Engenia, Xtendimax, Tavium Label Updates

- 5-year registration (ends 2025)
- Only labelled for RR Xtend/Xtendflex soybeans
- National spraying cutoff of June 30
  - Engenia – June 30
  - Xtendimax – June 30 or no applications after R1
  - Tavium – June 30 or no application after V4
- Adjuvant Requirements
  - Engenia – pH buffering adjuvant + drift-reduction agent (DRA)
  - Xtendimax/Tavium – Volatility-reducing agent (VRA) + DRA
- Buffers – 240’ downwind to sensitive areas (110’ with hooded sprayer)

Palmer Amaranth

Waterhemp

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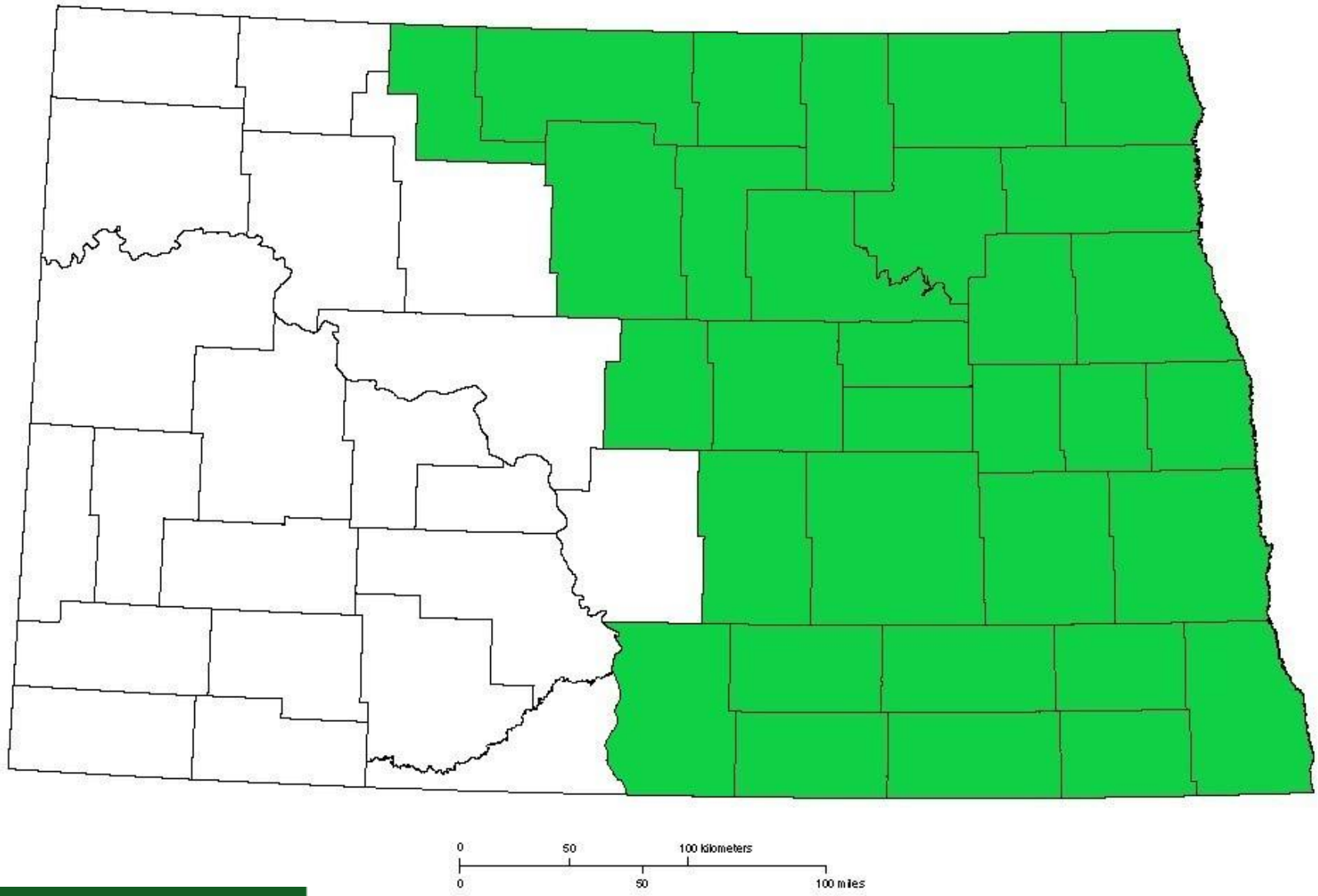
J. Christianson

Waterhemp Issues in 2019, 2020

- Delayed planting
- Saturated fields
- Drowned out areas
- Prevent Plant

NORTH DAKOTA



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May 1 2020

May 12 2020

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Waterhemp in Small Grains

- Lot of escapes in RRV in 2020
- Post Harvest Seed Production

September 18 2020

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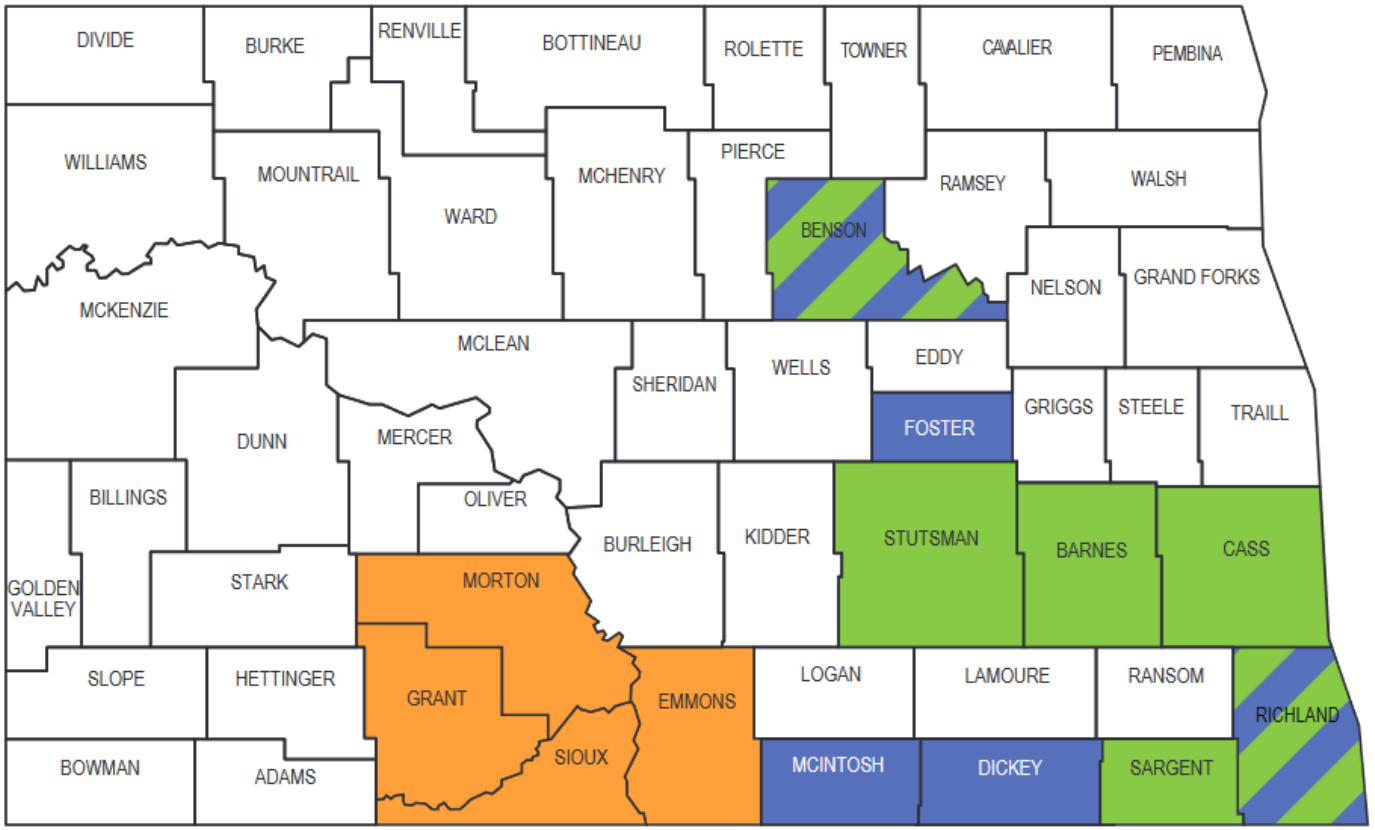
Palmer 2020 Update

North Dakota Department of Agriculture
Palmer Amaranth Distribution



Lab confirmed positive for Palmer amaranth

2018 2020

2019

As of 11/13/2020

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Palmer amaranth in Sunflower Screenings

- Counted out 10 lots of 100 g of screenings (~1/4 pound)
- Ranged from 208 to 376 pigweed seed per 100 g
  - 944 to 1707 per pound
- Average 282 per 100 g (1278 per pound)
- Vast majority (>90%) were Palmer amaranth
  - Redroot pigweed
  - Tumble pigweed


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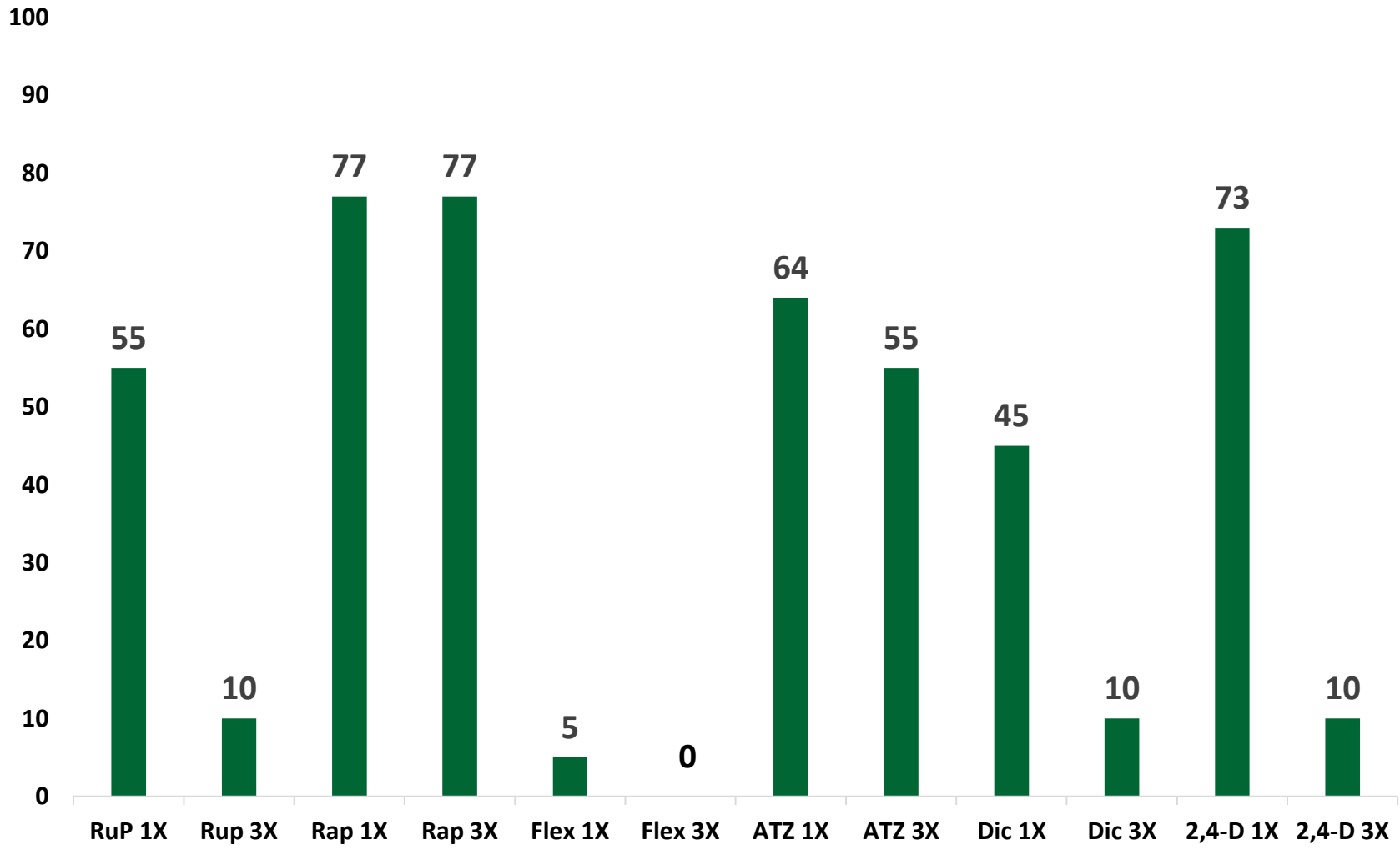
Herbicide Screen of Palmer amaranth

- Applied 1X & 3X rates of herbicides to 3” Palmer

- Roundup Powermax – 32 & 96 fl oz (1.13 & 3.38 lb)
- Raptor – 4 & 12 fl oz (0.0313 & 0.095 lb)
- Flexstar – 0.75 & 2.25 pt (0.176 & 0.53 lb)
- Aatrex – 1 & 3 pt (0.5 & 1.5 lb)
- Engenia – 12.8 & 38.4 fl oz (0.5 & 1.5 lb)
- Enlist One – 1.05 & 3.15 pt (0.5 & 1.5 lb)

Percent Palmer Survivors – 21 DAT



UNTRT, Raptor 1X, Raptor 3X

UNTRT, Dicamba 1X

UNTRT, 2,4-D 1X

Glyphosate Resistance Screen

- 112 Palmer plants treated with 32 fl oz Powermax (1.125 lb)
- Plant tissue sent to National Agricultural Genotyping Center for resistance testing

- 41% of plants survived 21 DAT
- 37% of plants had higher copy number of EPSPS (most common for of resistance)

Glyphosate Resistance Screen

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ALS Resistance Screen

- 112 Palmer plants treated with 4 fl oz Raptor (0.0313 lb)

- 81% of plants survived 21 DAT

ALS Resistance Screen

Summary of Resistance Screen

- Palmer from sunflower screenings highly variable in response to herbicides
  - Glyphosate, ALS (group 2), and atrazine (Group 5) resistance
    - Survivors showed little symptomology
  - Dicamba and 2,4-D results concerning
  - PPO (group 14) sensitive
- Will need to compare to known sensitive populations
- Need to evaluate additional herbicides
- **No idea of number of populations imported through screenings**

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War Against Weeds Podcast

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K-STATE Research and Extension

MU Extension University of Missouri

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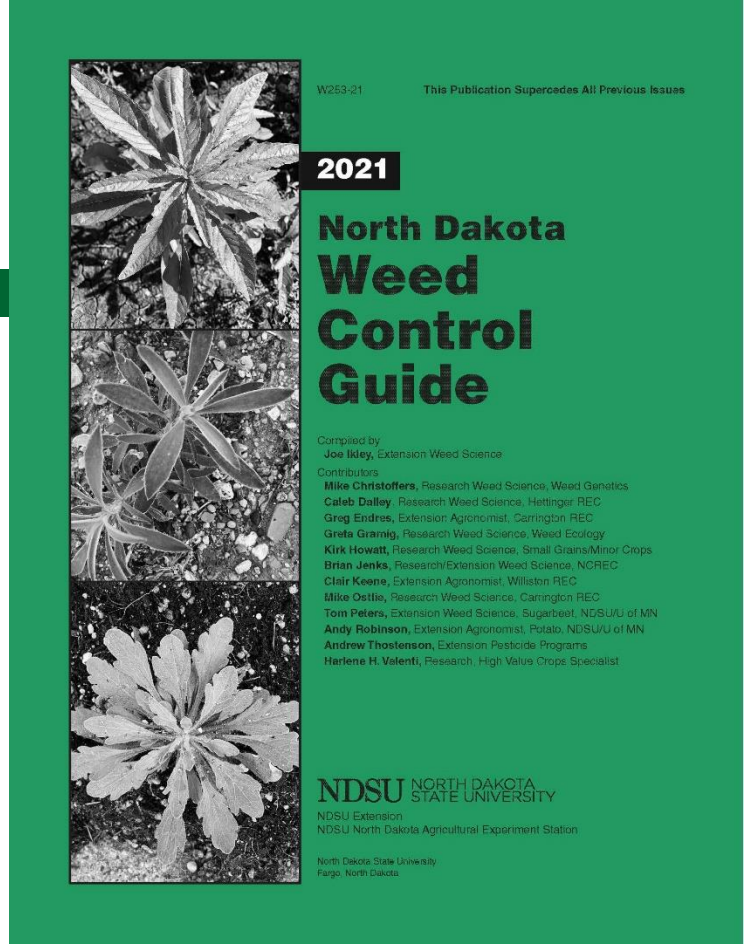

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