Small Grain Disease Update

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Bacterial Leaf Streak and Black Chaff

- “Flag Leaf” Disease
- Storms and other injury events
- Survives on residue and seed

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Host Resistance

A574-19

North Dakota Hard Red Spring Wheat

Variety Trial Results for 2019 and Selection Guide

Joel Ransom, Andrew Green, Senay Simsek, Andrew Friskop, Matt Breiland, Tim Friesen, Zhaohui Liu and Shaobin Zhong (NDSU Main Station); John Rickertsen (Hettinger Research Extension Center); Eric Eriksmoen (North Central Research Extension Center, Minot); Bryan Hanson (Langdon Research Extension Center); Glenn Martin (Dickinson Research Extension Center); Gautam Pradhan (Williston Research Extension Center); Mike Ostlie (Carrington Research Extension Center)


BLS Score = 2-3


BLS Score = 5-6


BLS Score = 8-9

Importance of Varietal Resistance

2019 HRSW Variety Trials

- Joel Ransom and Andrew Green
- Steele County and Thompson
- High level of BLS and a yield limiting factor
- Significant yield differences

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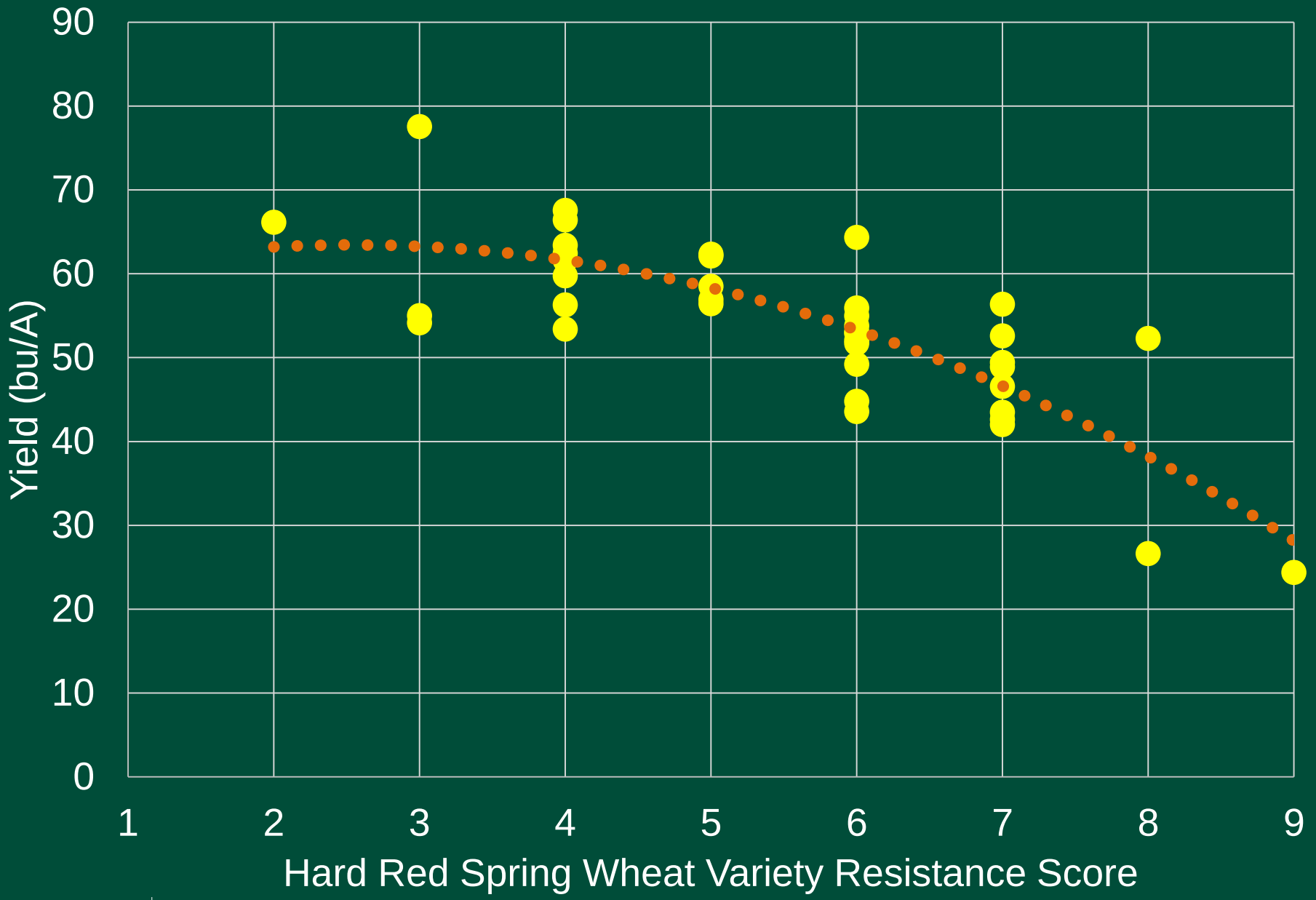
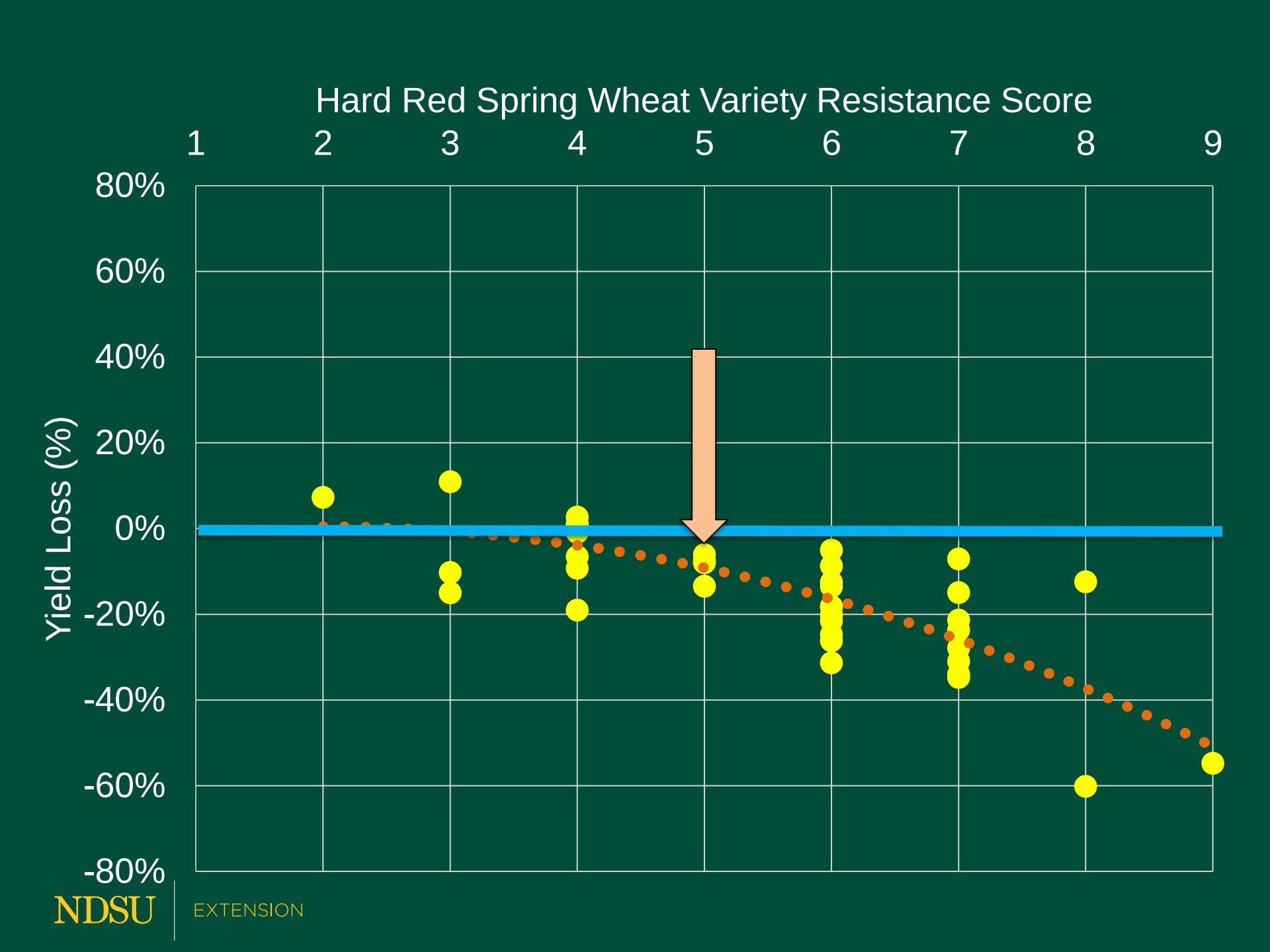

90
80
70
60
50
40
30
20
10
0
Yield (bu/A)
1
2
3
4
5
6
7
8
9
Hard Red Spring Wheat Variety Resistance Score

Another Way to Look at the Data

- Average yield of three Eastern ND (non BLS) locations (Carrington, Langdon and Casselton)
- Average yield from Steele Co. and Thompson
- Calculated yield loss (%) between non-BLS and BLS locations
- Determine the point where the “greatest risk” occurs based on HRSW variety score



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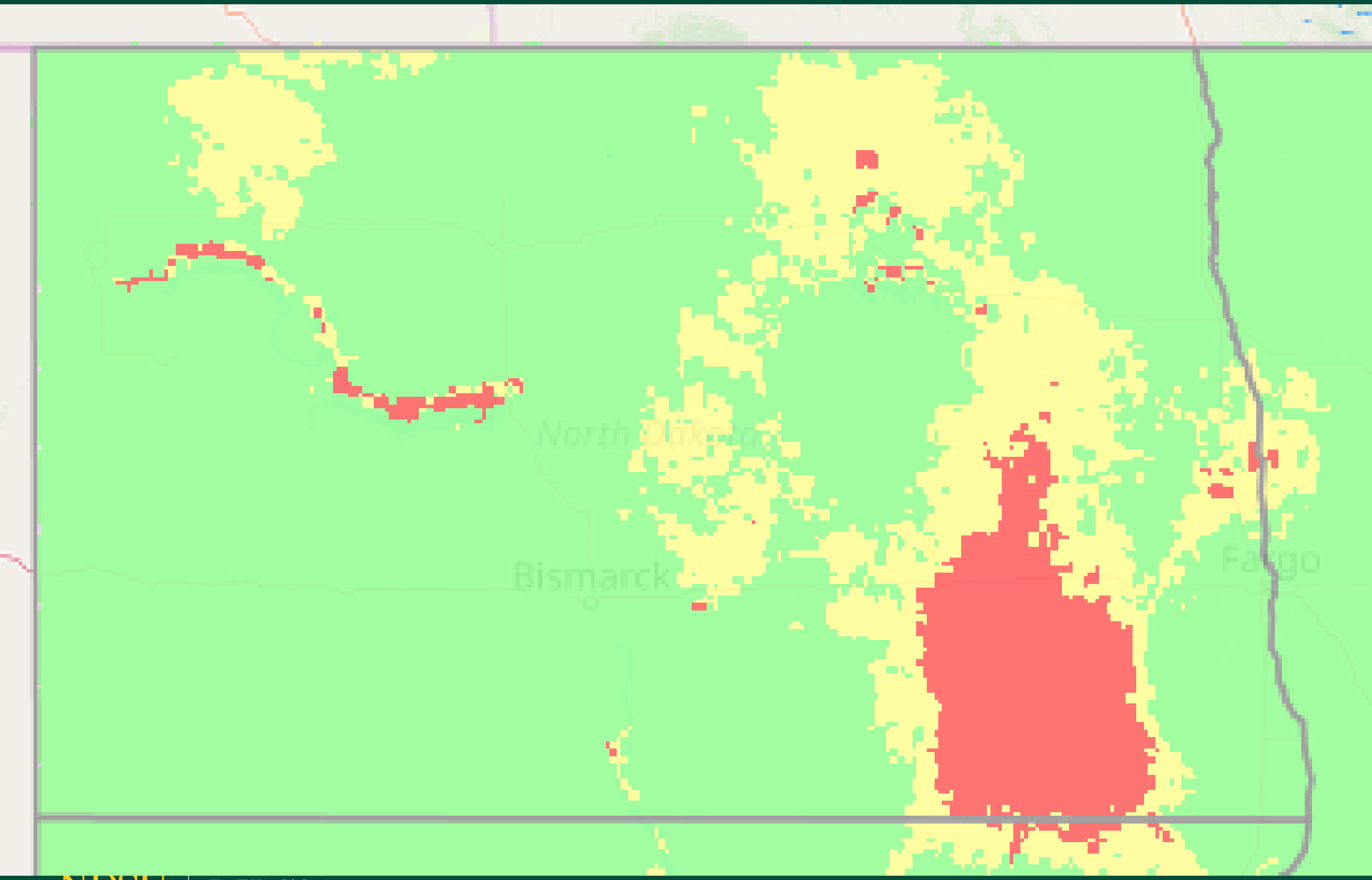
Fusarium Head Blight

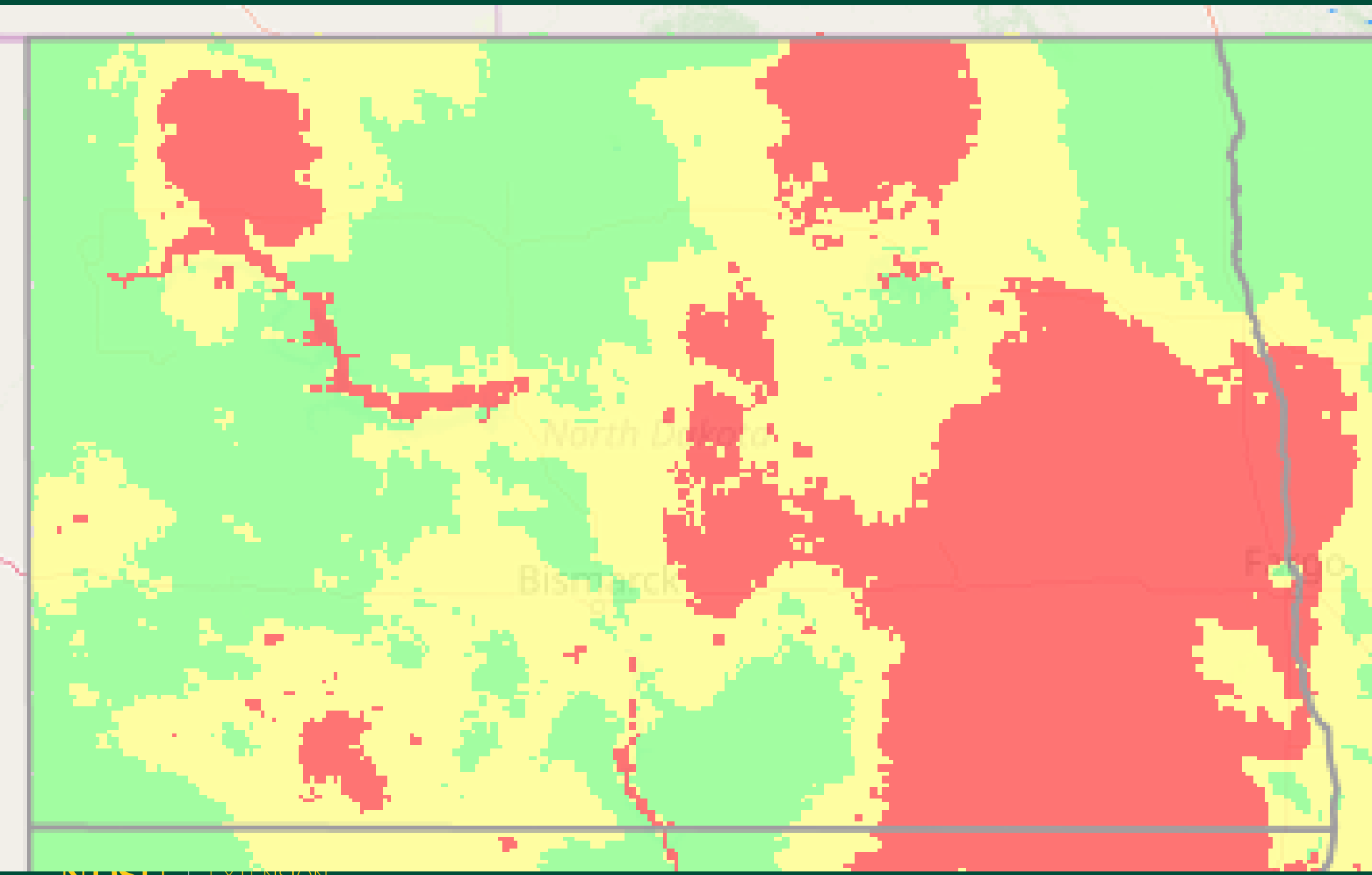
*Remember Integrated Management is BEST!!


FHB Risk in 2019

June 24, 2019



July 1, 2019



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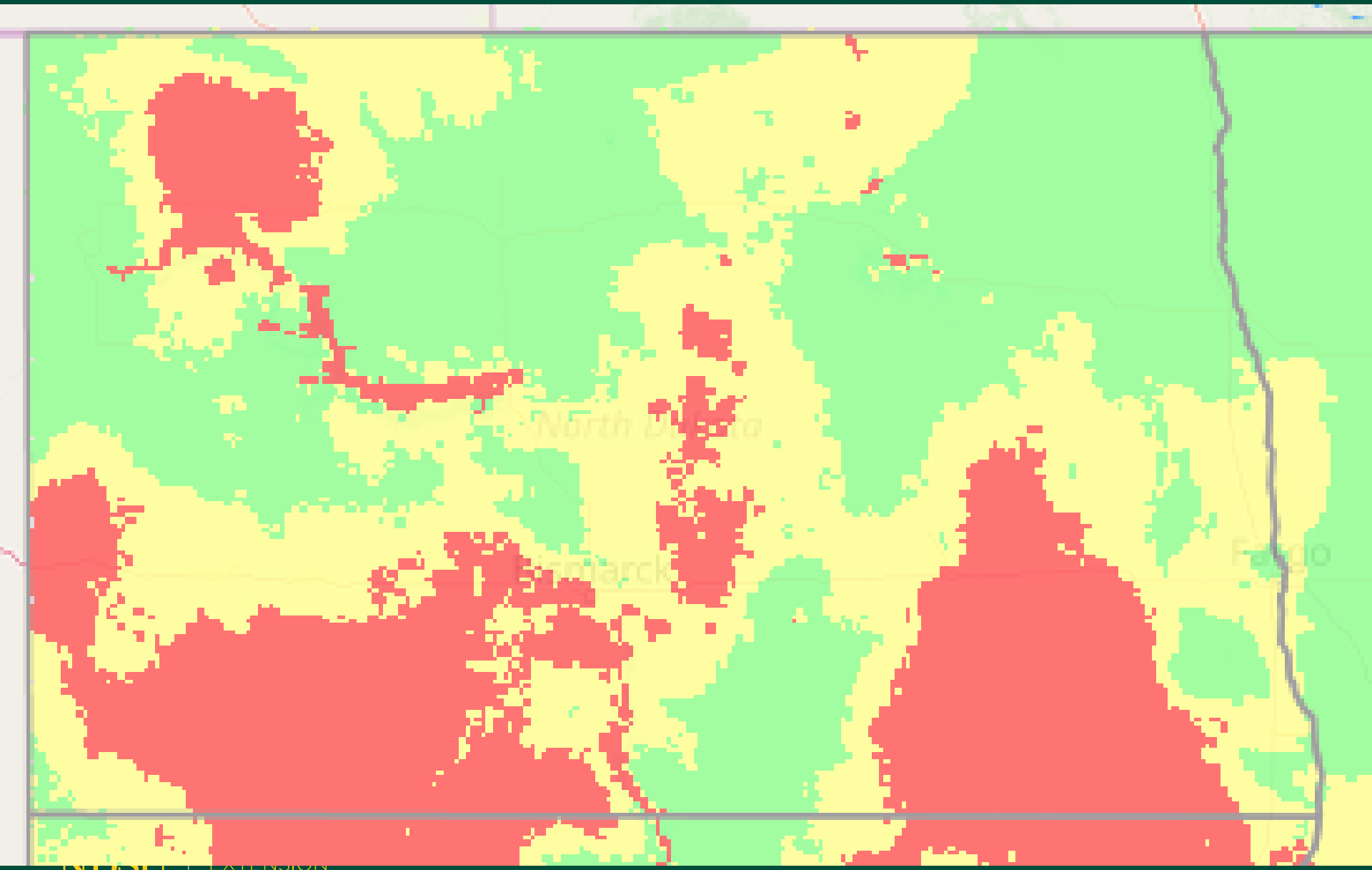
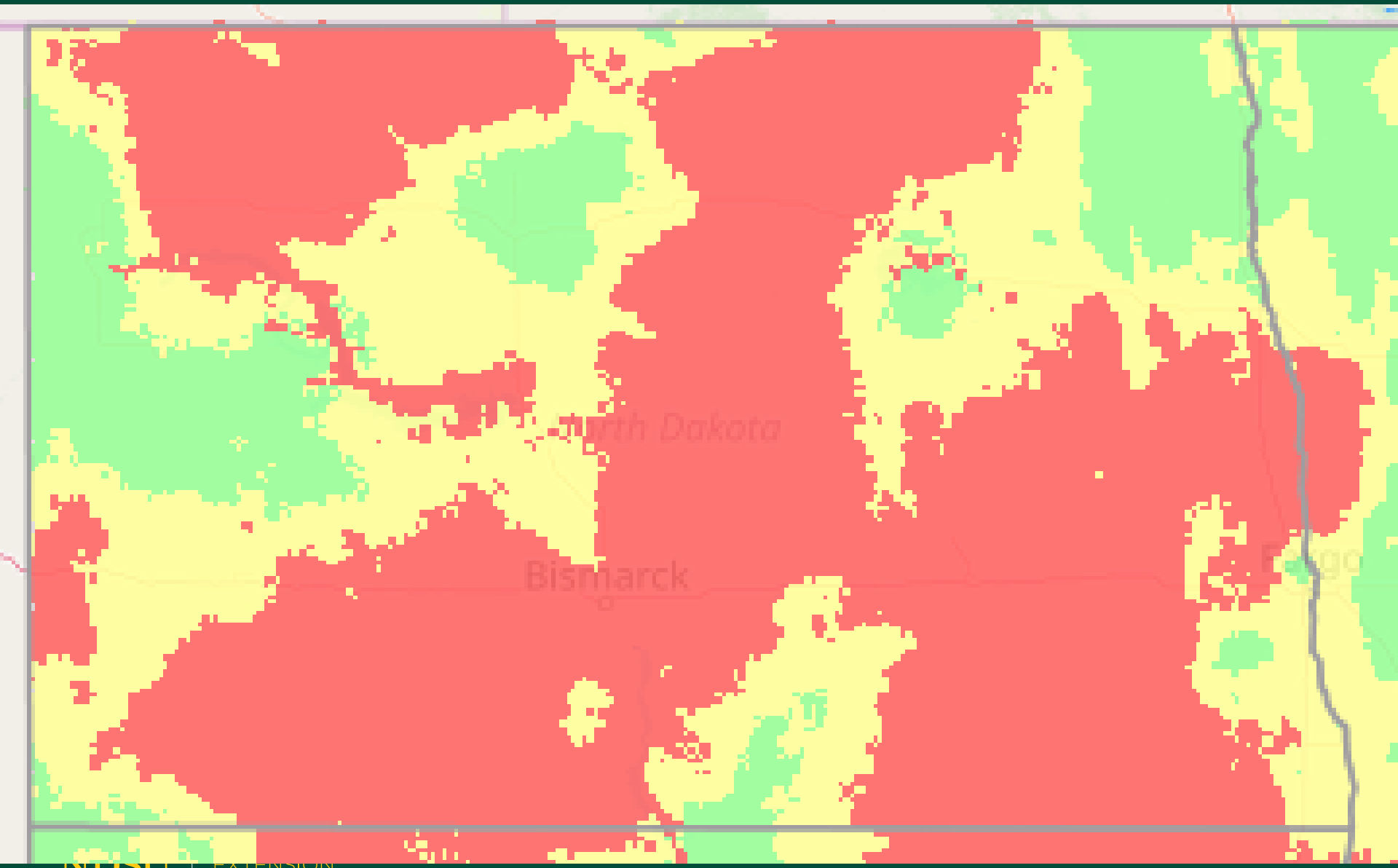


July 15, 2019



Onset of flowering (Fks. 10.51) AND up to 7 days after

Onset of flowering (Fks. 10.51) AND up to 7 days after

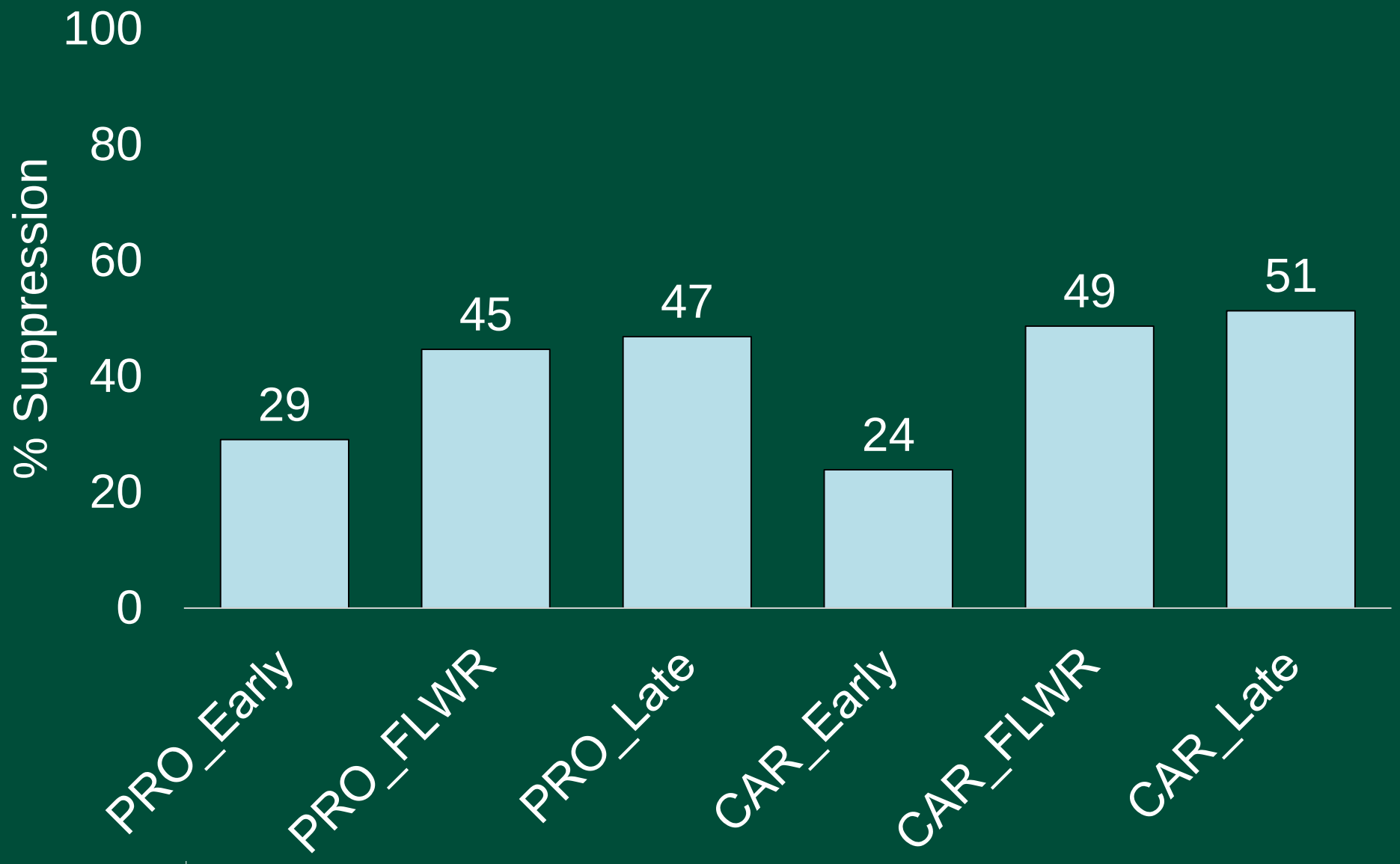
Fungicide Before, At, or After Early Flowering

- Uniform Fungicide Trials from 1995-2013

Treatment	Rate	Timing
Non-treated Check	-	-
Prosaro	6.5 oz/A	Fks. 10.5
Prosaro	6.5 oz/A	Fks. 10.51
Prosaro	6.5 oz/A	5-7 days after Fks. 10.51
Caramba	13.5 oz/A	Fks. 10.5
Caramba	13.5 oz/A	Fks. 10.51
Caramba	13.5 oz/A	5-7 days after Fks. 10.51

Paul et al. 2018 – Plant Disease

HRSW – DON Suppression



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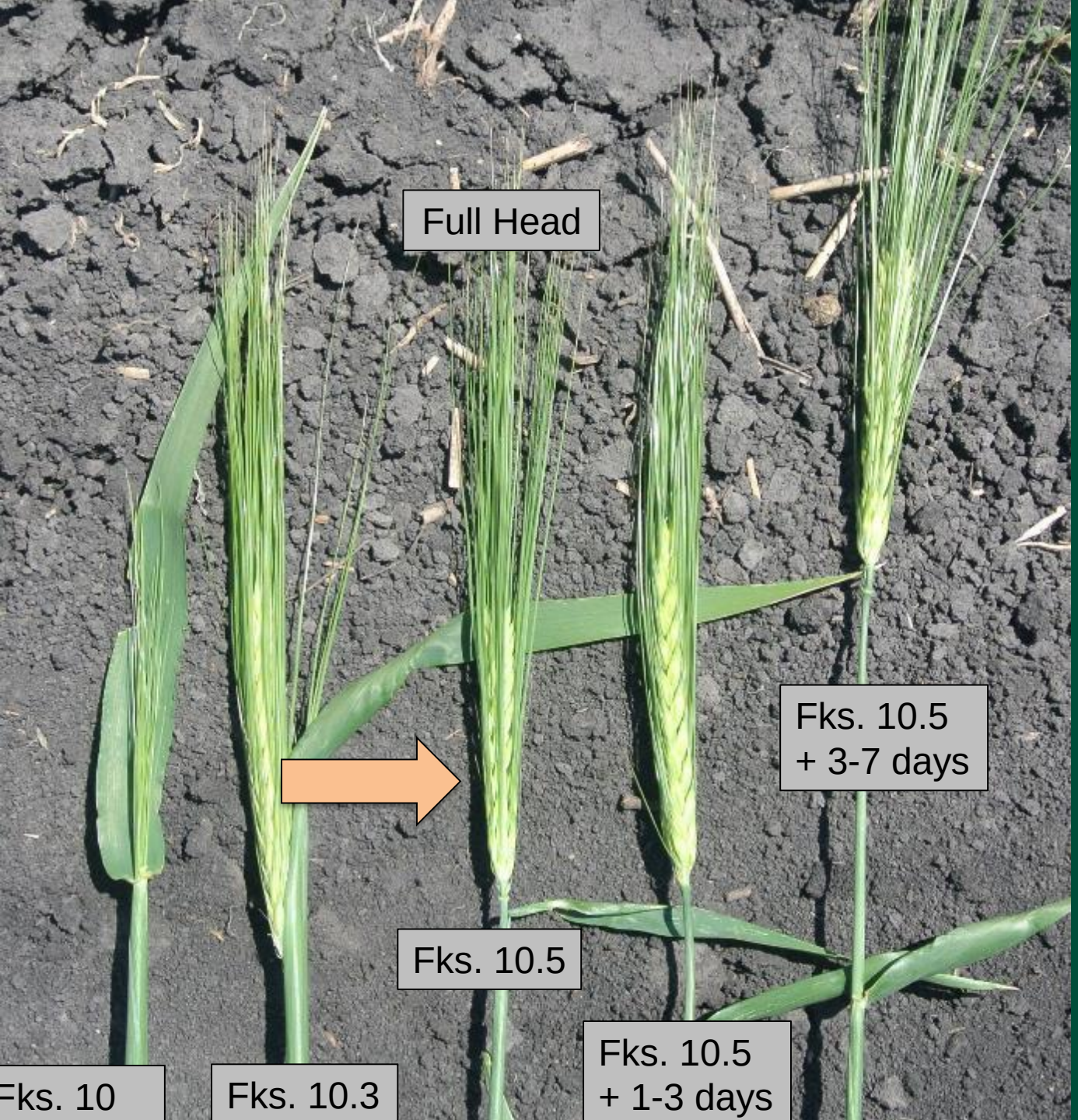
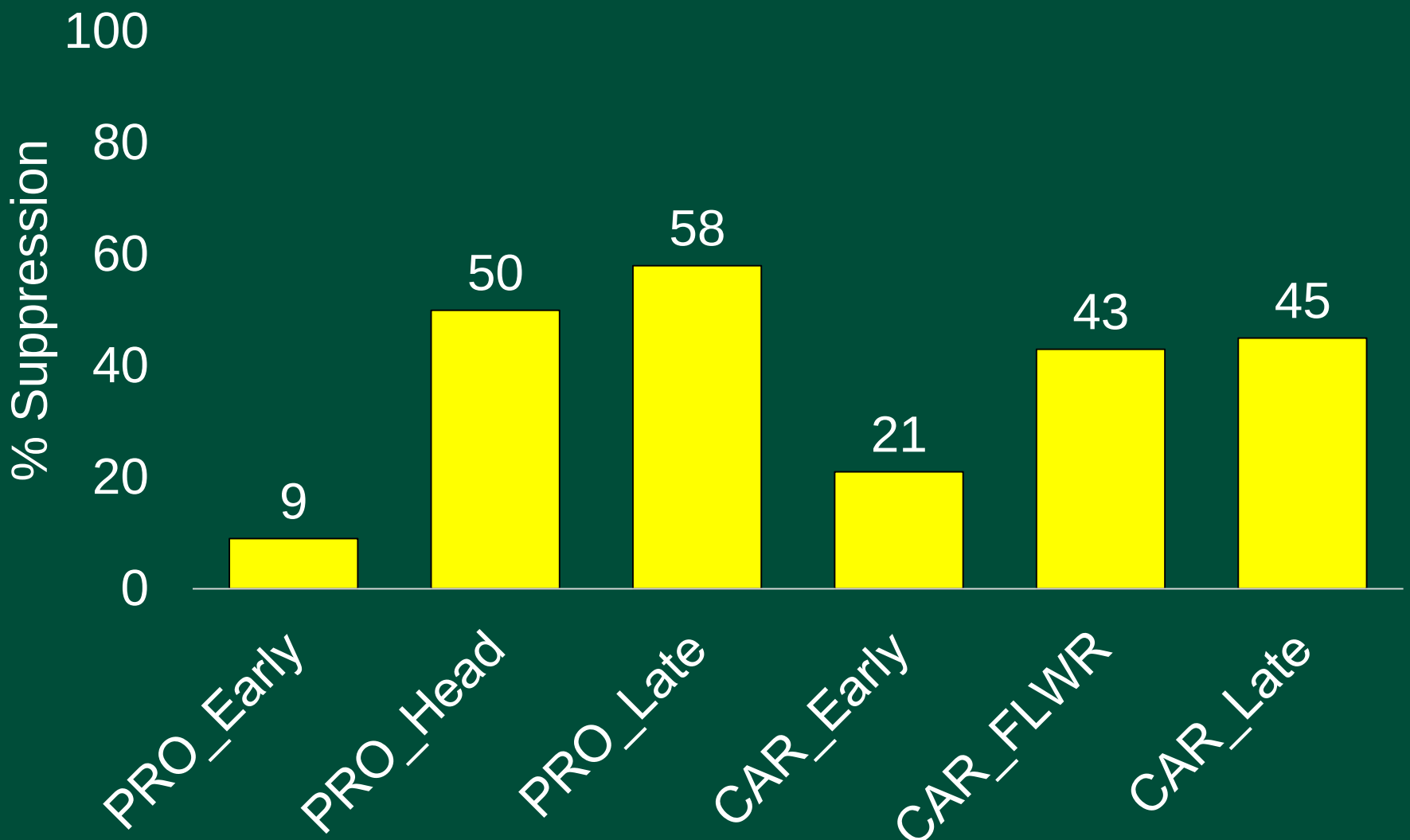
Same trend in Spring Barley?

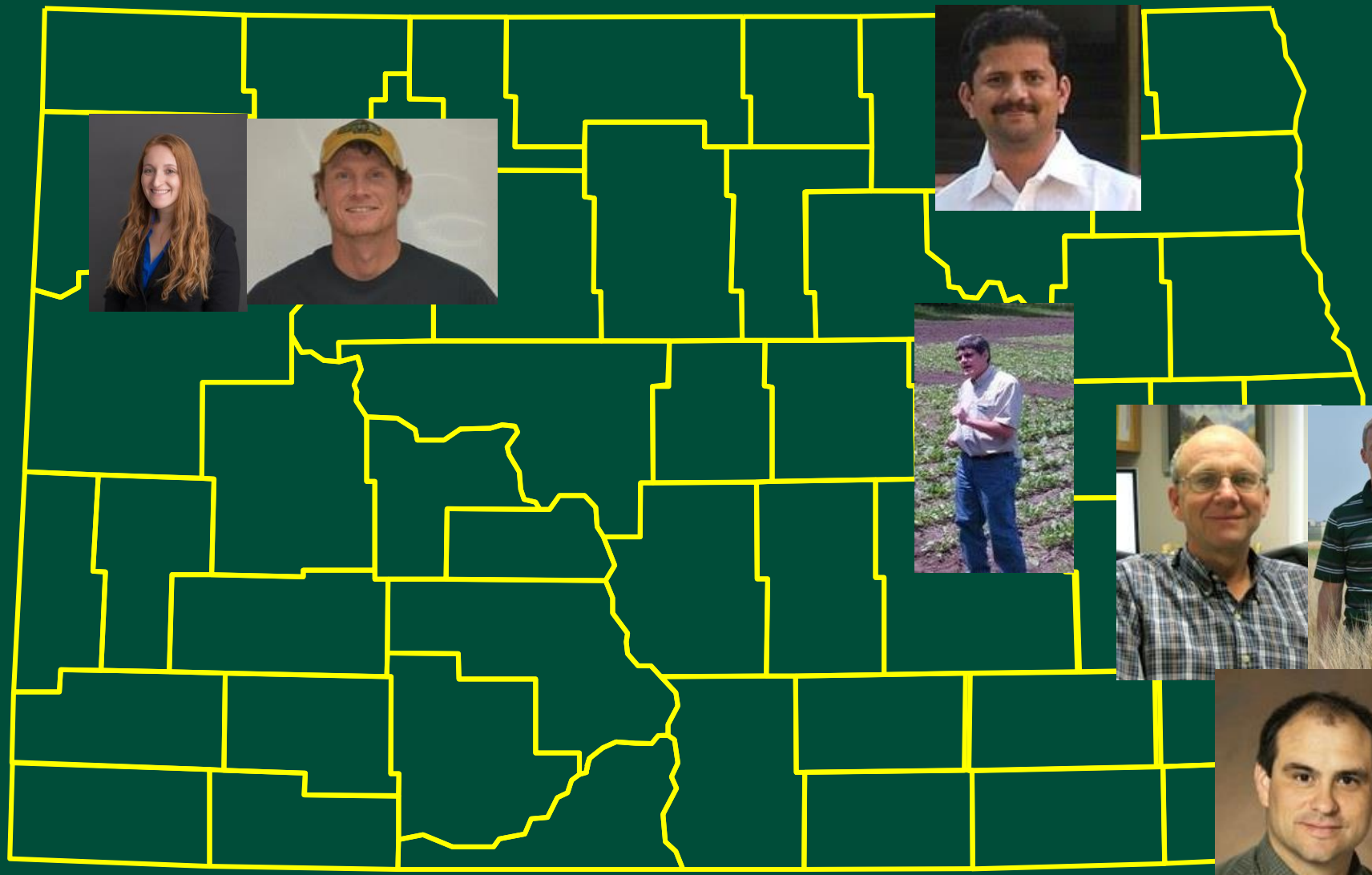


Complete head emergence (Fks. 10.5) AND up to 7 days after

Barley - DON Suppression



2018 & 2019 USWBSI Trials



Evaluating Efficacy of Miravis Ace

- Miravis Ace is pydiflumetofen (FRAC 7/SDHI) + propiconazole (FRAC 3/DMI)
- Reports of adequate efficacy at Fks. 10.3
- Robust multi-state effort to quantify level of efficacy of Miravis ACE

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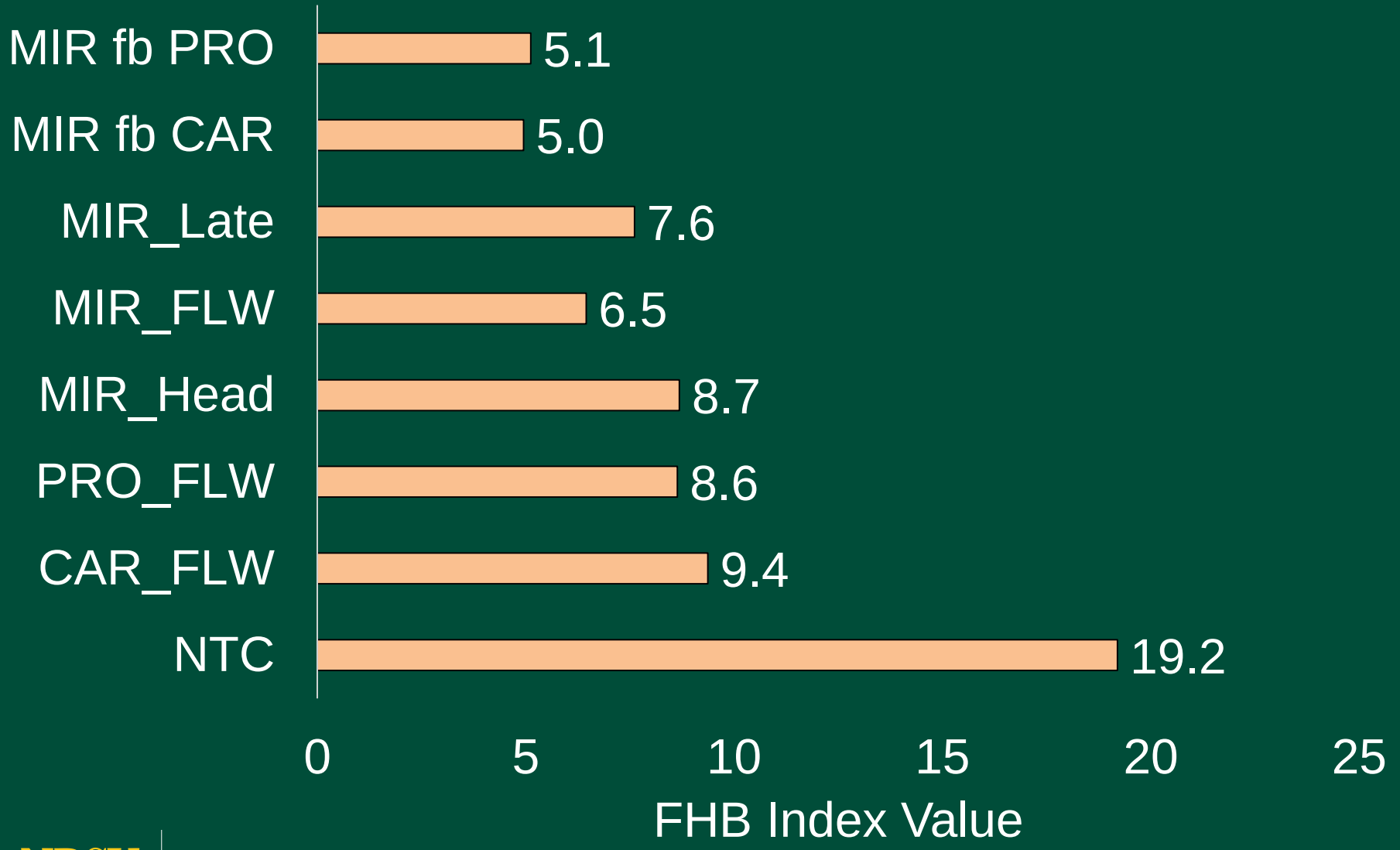
Fungicide Efficacy Trials - USWBSI

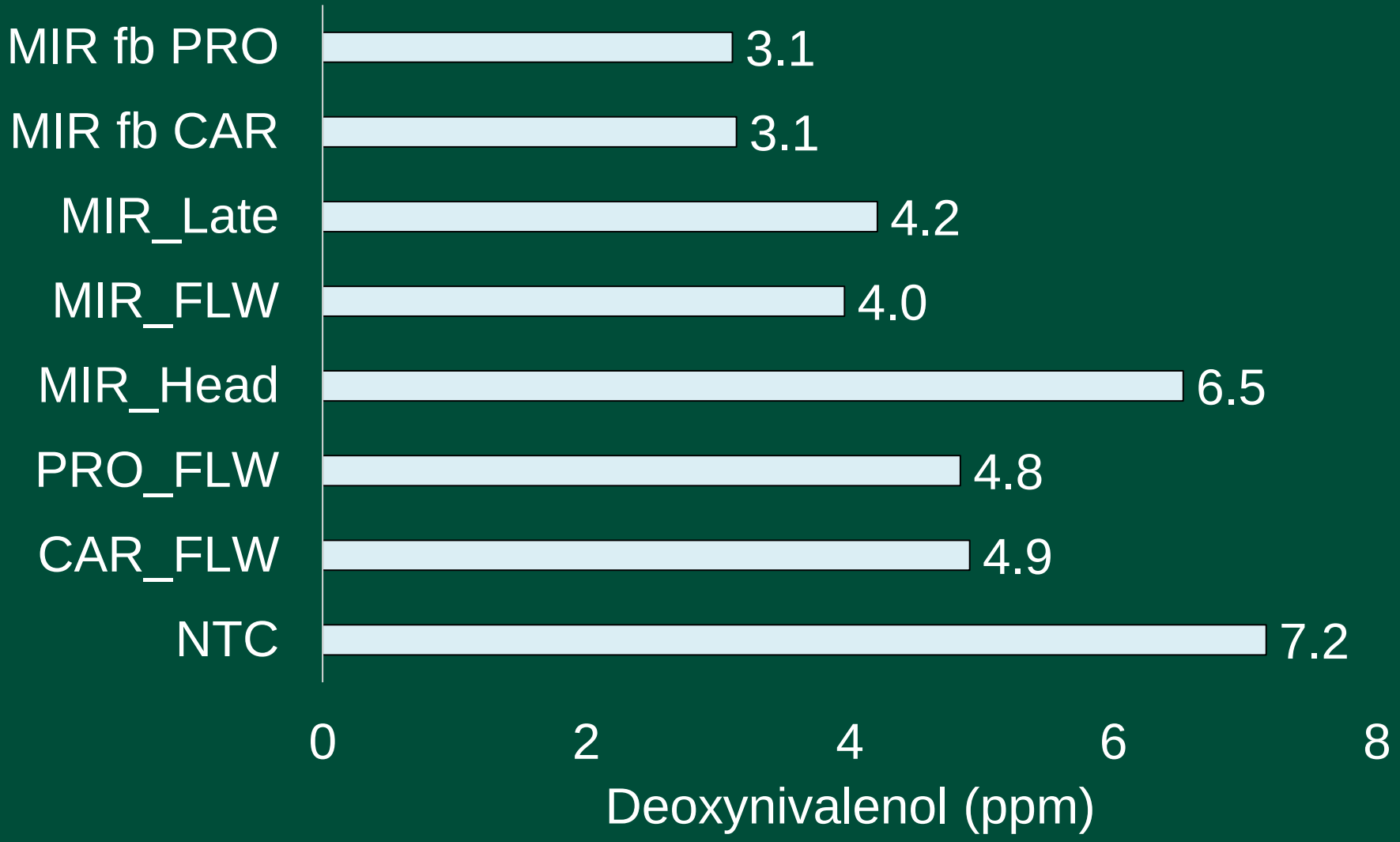
2018-2019 – 10 states – 24 trials

Treatment	Rate	Timing
Non-treated Check	-	-
Prosaro	6.5 oz/A	Fks. 10.51
Caramba	13.5 oz/A	Fks. 10.51
Miravis Ace	13.7 oz/A	Fks. 10.3
Miravis Ace	13.7 oz/A	Fks. 10.51
Miravis Ace	13.7 oz/A	4-6 days after Fks. 10.51
Miravis Ace fb Prosaro	13.7 oz/A fb 6.5 oz/A	Fks. 10.51 fb 4-6 days later
Miravis Ace fb Caramba	13.7 oz/A fb 13.5 oz/A	Fks. 10.51 fb 4-6 days later

Efficacy Trials – Field Severity

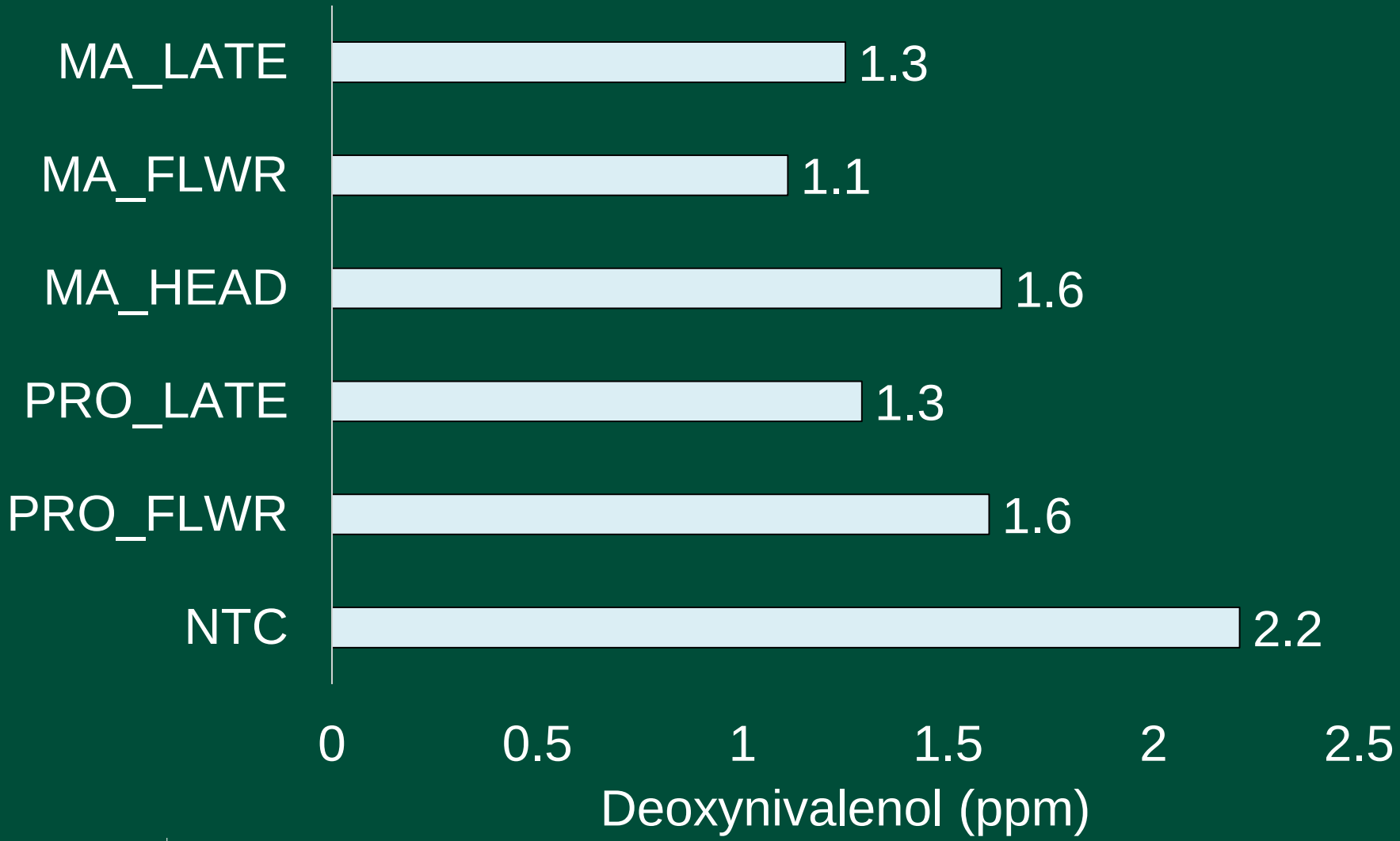


Efficacy Trials – DON Levels



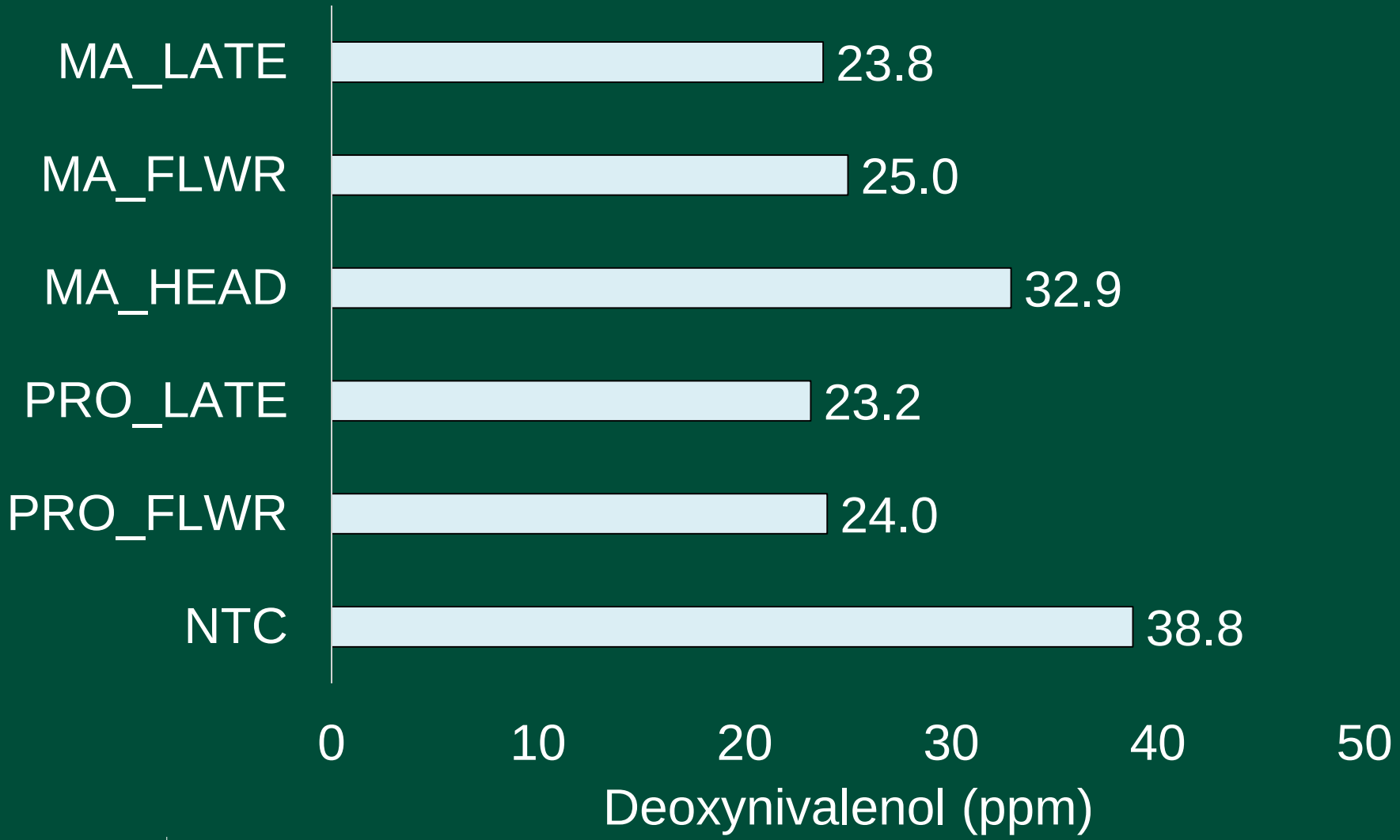
ND Durum Data - Four Locs
Low to Moderate Disease Pressure

Durum – Low Disease - DON Levels



ND Durum Data - One Loc
Very High Disease Pressure

Durum – Very High Disease - DON Levels



- Variety selection is our best management tool for BLS
- FHB fungicide timing should occur at early-flowering for wheat and at full-head for barley AND up to 4-7 days after
- Miravis Ace is an effective product, yet timing recommendation is the same as triazoles