Best Management Practices for Scab of Small Grains

Andrew Friskop

NDSU Cereal Extension Plant Pathologist

Pathogen (Causal Agent)

- *Fusarium graminearum*
- FHB on spring wheat, winter wheat, durum, barley, rye, and oat
- Also causes root rots, corn stalk rots and corn ear rots

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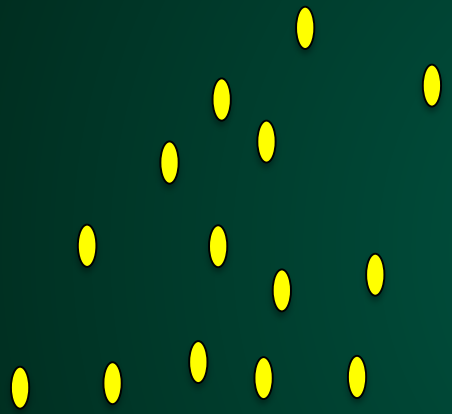
1. Yield Losses
2. Lower Test Weights
3. DON

*Persistent Moisture
*High humidity
*75-85˚F
**Before and during heading*



Cereal Crop Residue – wheat, barley, corn, oat

NI

Management of FHB and DON

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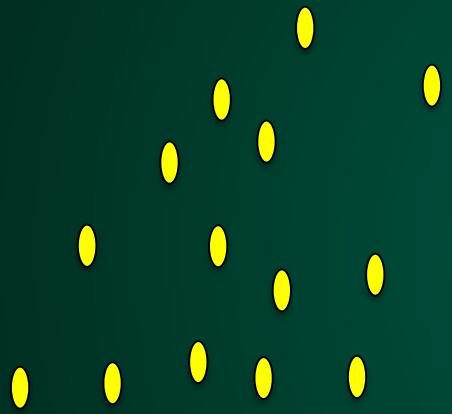
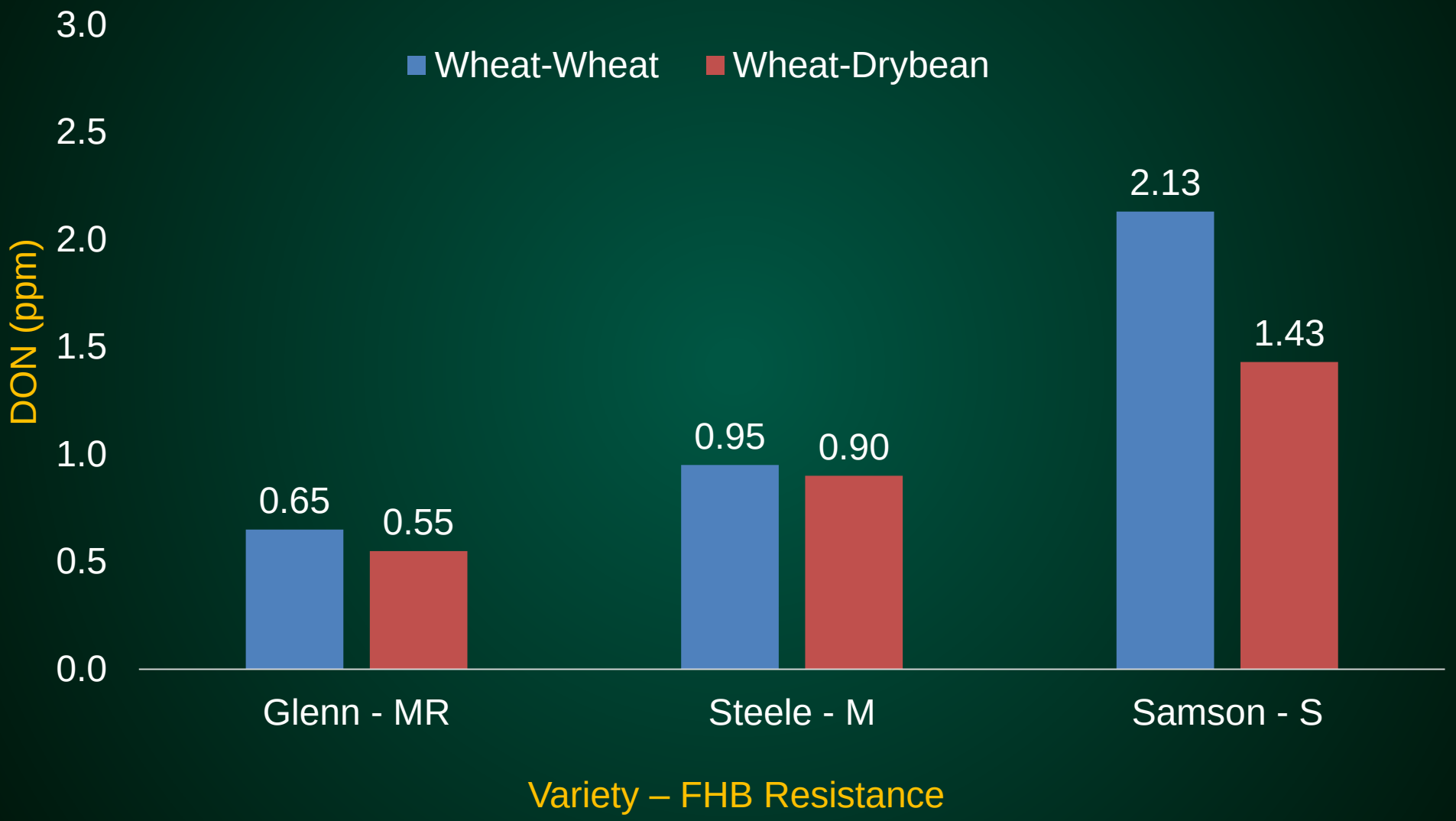
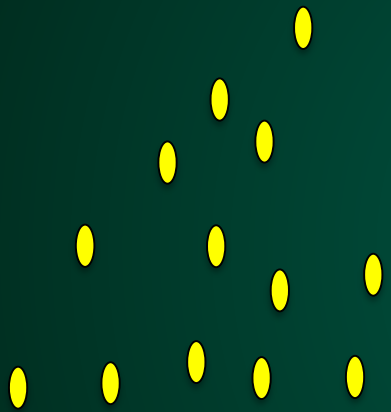


Cereal Crop Residue – wheat, barley, corn, oat

Crop Rotation



McMullen, 2011



Cereal Crop Residue – wheat, barley, corn, oat

Management with Less Susceptible Varieties

Less Susceptible Varieties

- Hard red wheats FHB resistance often includes *Fhb1* (Chinese Spring Wheat ‘Sumai 3’)
- Barley has natural Type II resistance, but still susceptible to initial infection
- Less resistance available in durum

HRSW

Variety	FHB Rating
SY Soren	M
SY Ingmar	M
Elgin-ND	M
Barlow	M
Glenn	MR
Faller	M
Linkert	M
WB Mayville	S
Rollag	MR
SY Valda	MR

Durum

Variety	FHB Rating
Divide	M
Carpio	M
Alkabo	MS
Joppa	M
Tioga	MS
Lebsock	MS
Mountrail	S

HRWW

Variety	FHB Rating
Jerry	S
Decade	S
WB Matlock	MS
SY Wolf	MS
Wesley	S
Emerson	MR

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Fungicide Application for Scab

- Weather conditions prior and at heading
  -Forecasting models, “gut-instinct”
- Triazoles only (efficacy differences)
  -Prosaro, Caramba, Folicur
- Scout fields for growth stage
  -Heading, flowering etc.

Should I Spray

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ABOUT NDSU

SMALL GRAIN DISEASE FORECASTING MODEL

NDSU › Small Grain Disease Forecasting Model

Small Grain Disease Forecasting Model

Small Grain Diseases Explained

Other Crops and Weather Information

Small Grain Disease Forecasting Model

Department of Plant Pathology

Thanks to:

Bayer CropScience

NDSU thanks Bayer CropScience for providing financial support for the maintenance and operation of this Web site. NDSU, by policy, neither endorses nor recommends use of specific commercial products

Small Grain Disease Forecasting Model

Share

The NDSU Small Grains Disease Forecasting Model assists producers in estimating the possibility of disease in their crops and provides information for making. This is done in conjunction with NDAWN weather station locations within North Dakota and sections of western Minnesota and eastern Montana.

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FUSARIUM HEAD BLIGHT Prediction Center

FUSARIUM RISK Assessment Tool

- Introduction
- Model Basics
- User Guide
- Fusarium
- Developers
- Login

ND Commentary *last update 2015-06-17* Andrew Friskop.

According to the model, the areas with the highest level of scab risk continue to be in south central to southwestern ND. A few more pockets of elevated scab risk are apparent on the eastern side of the state as well. Areas south of I-94 received a steady rain yesterday, which will likely increase scab risk in the small grains. Also, the dew point temperatures have been relatively high resulting in prolonged moisture periods (dew) in the morning. The combination of these factors and with rain in the forecast could elevate scab risk throughout he state.

1. Choose a State

State: North Dakota Help

2. Choose a Model

Wheat: Spring Winter ?

Susceptibility: Susceptible

Link to Spring Wheat Variety Information

3. Weather Forecast Mode

Forecast (hrs): 0 24 48 72

Assessment Date: 06/22/2015 ?

6/15 6/16 6/17 6/18 6/19 6/20 6/21 6/22

Advanced: Save Model and Location

Name: Save As New

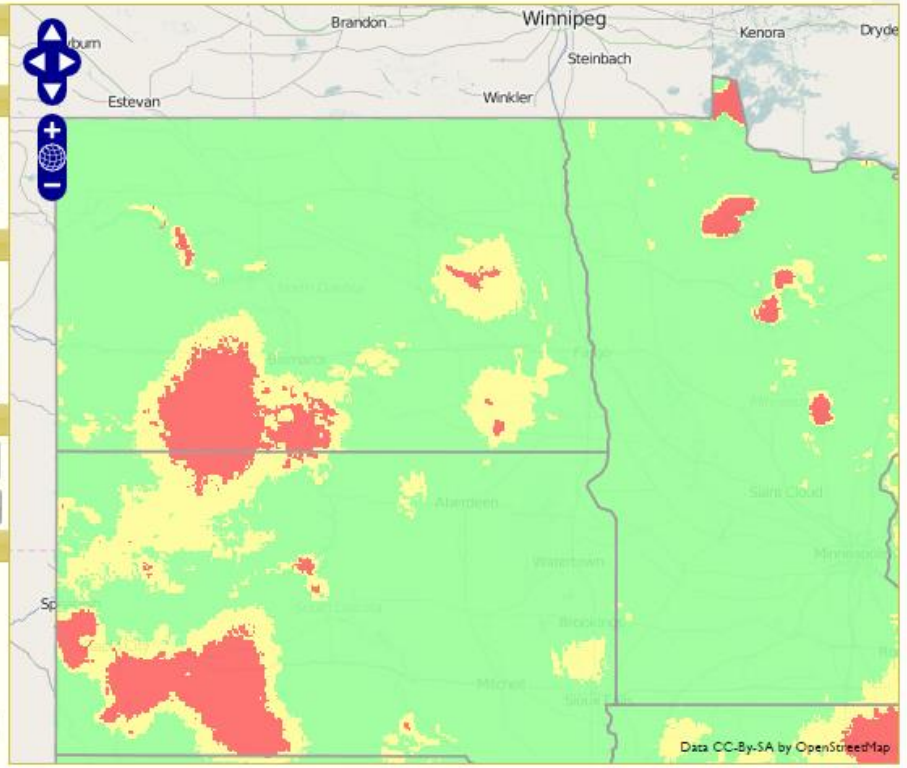
Saved Locs: Delete

Legend

Blight Risk: High, Medium, Low, No Data

Weather Stations: FAA, AgNet, Inactive (for model)

Risk Map Opacity Query



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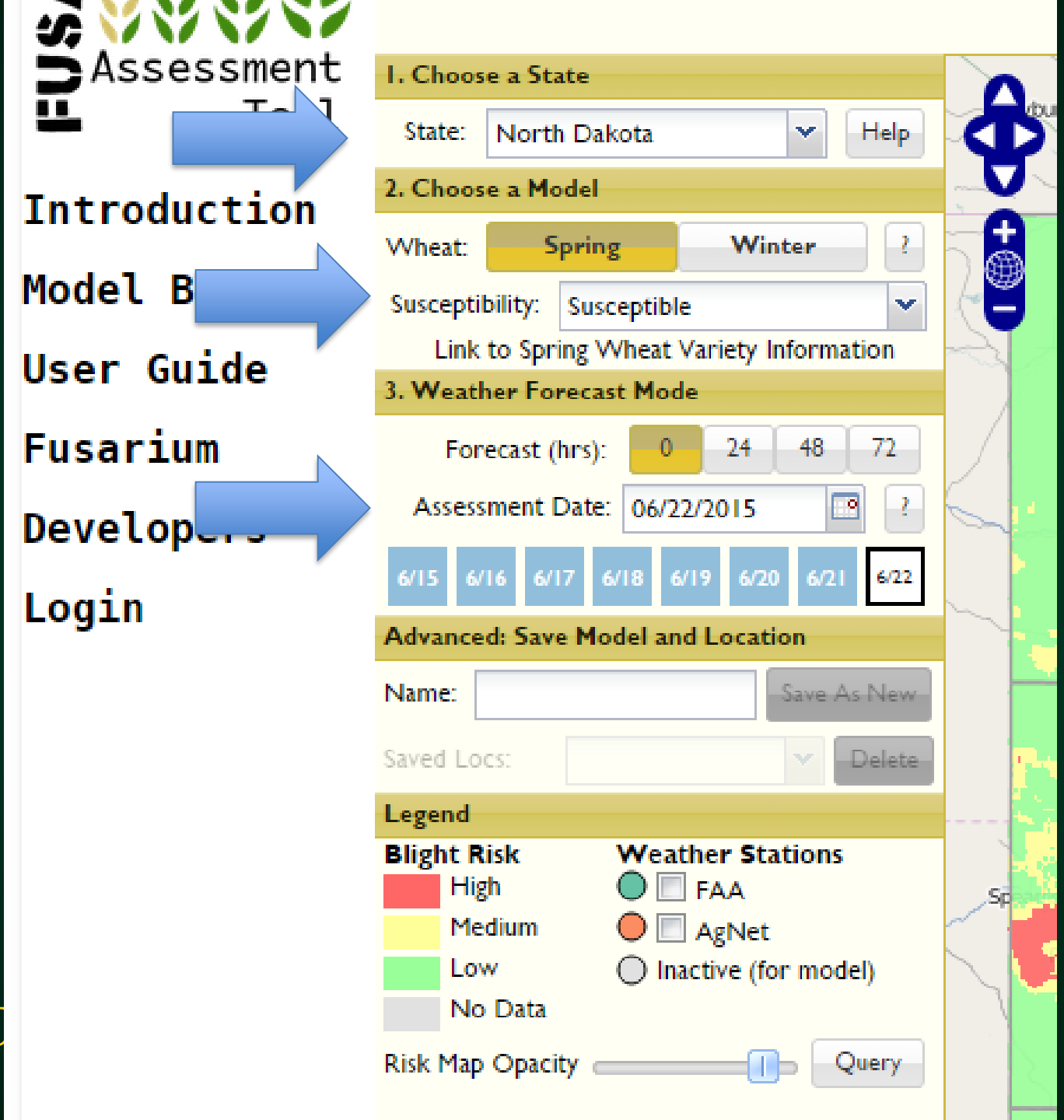
Disclaimer


FUSA
Assessment
Introduction
Model B
User Guide
Fusarium
Develope
Login
1. Choose a State
State: North Dakota
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Legend
Blight Risk
High
Medium
Low
No Data
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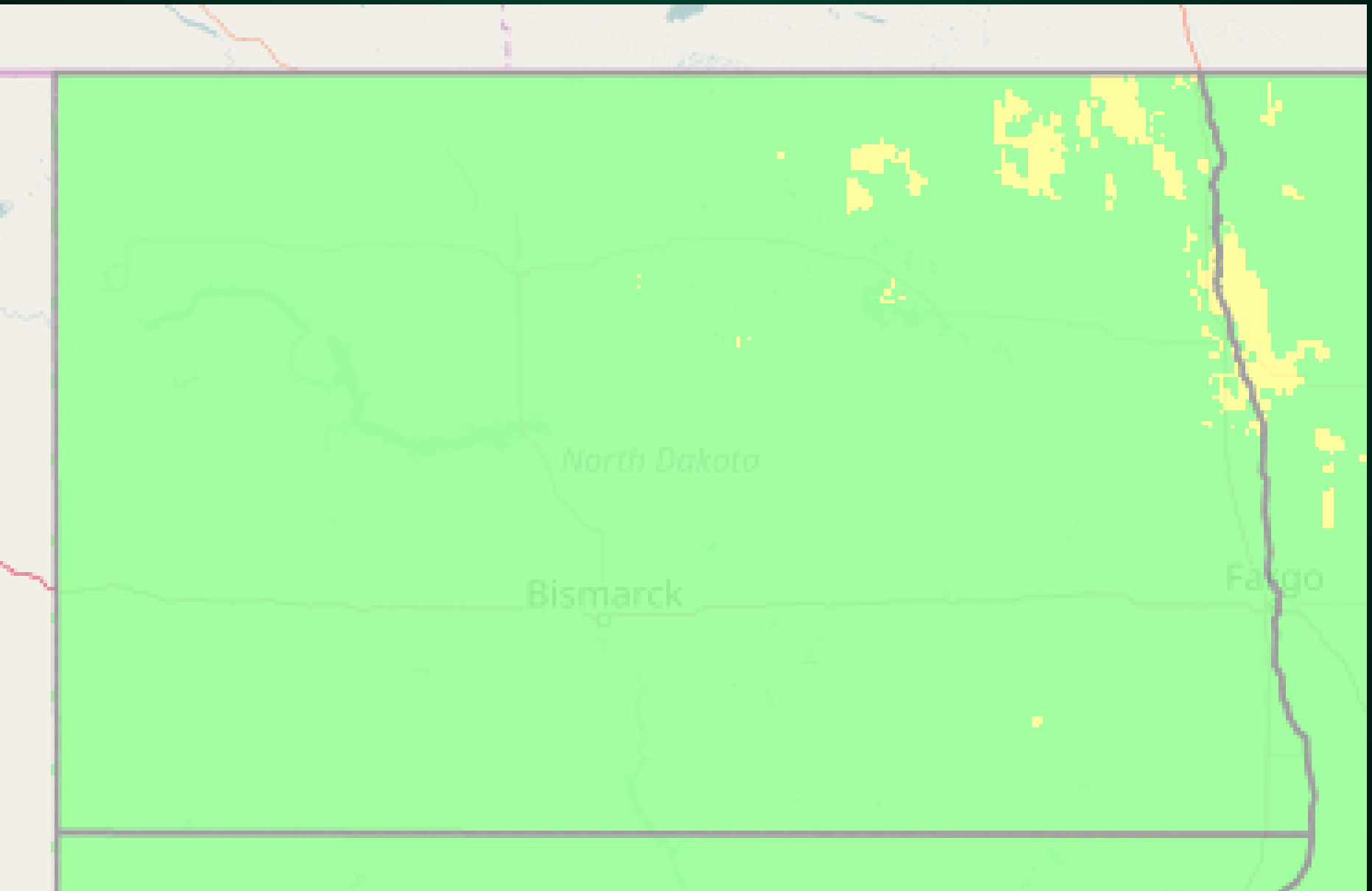
Risk Map Opacity
Query

NDSU

June 15, 2016



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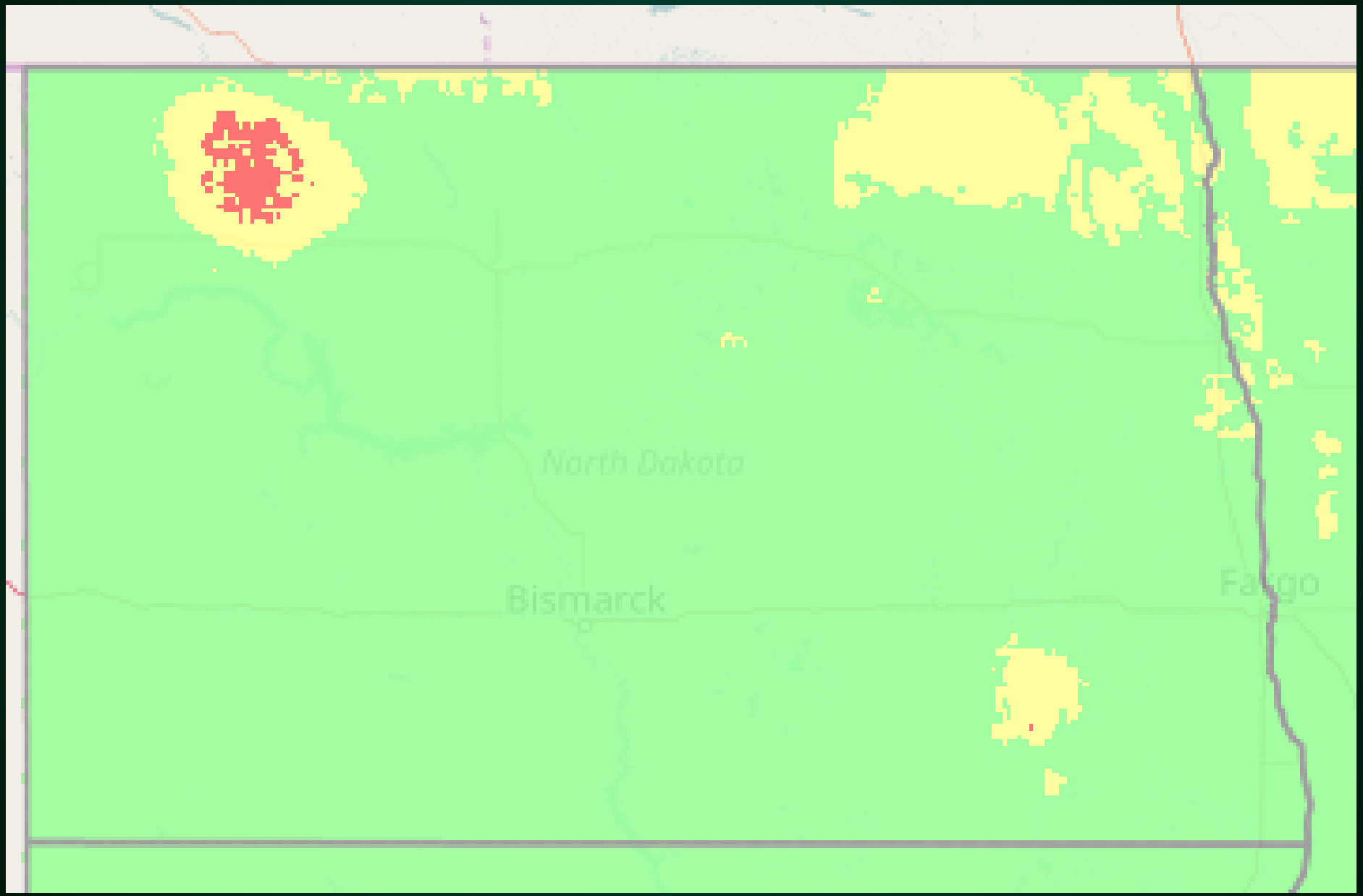
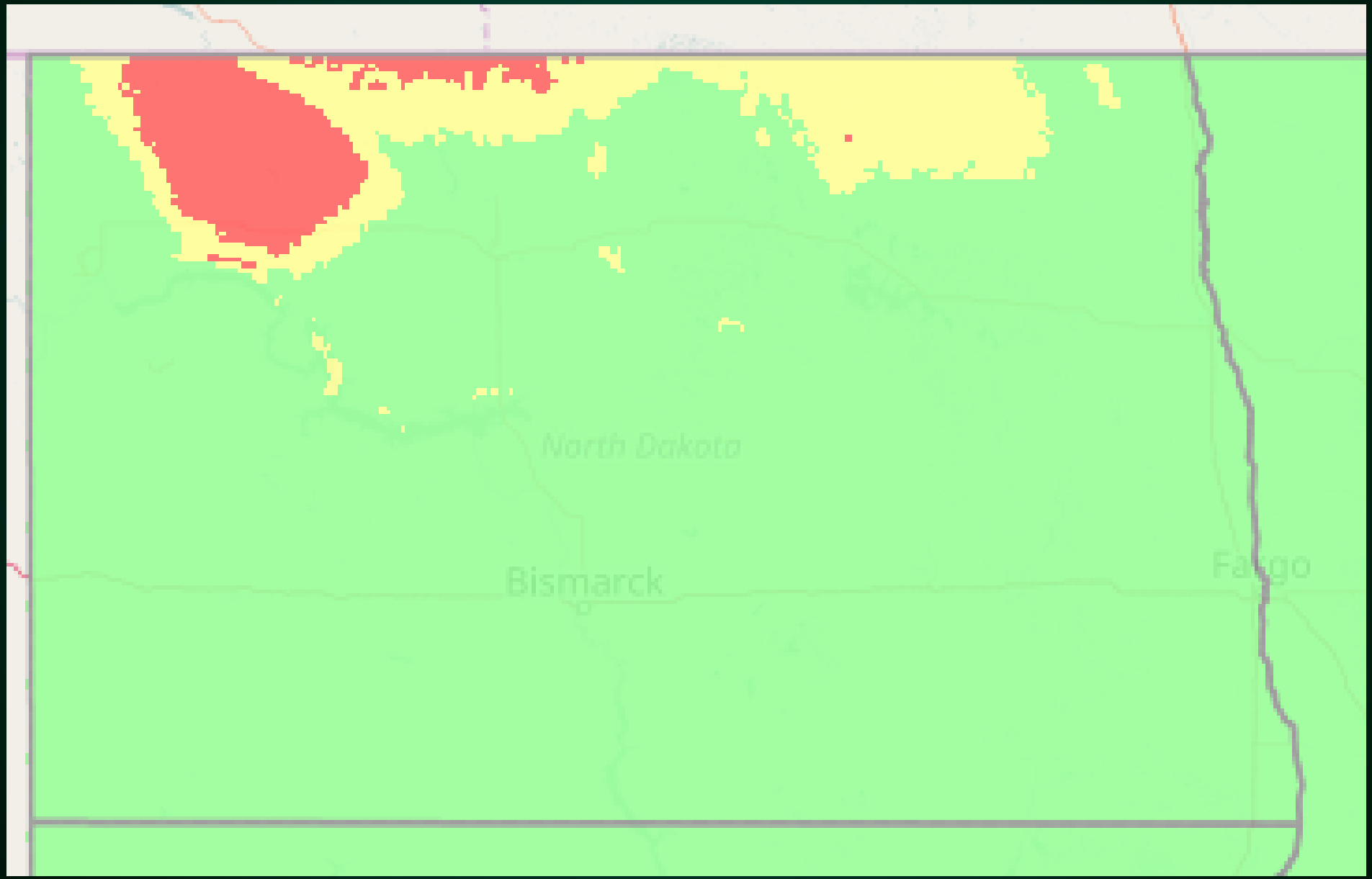


July 5, 2016



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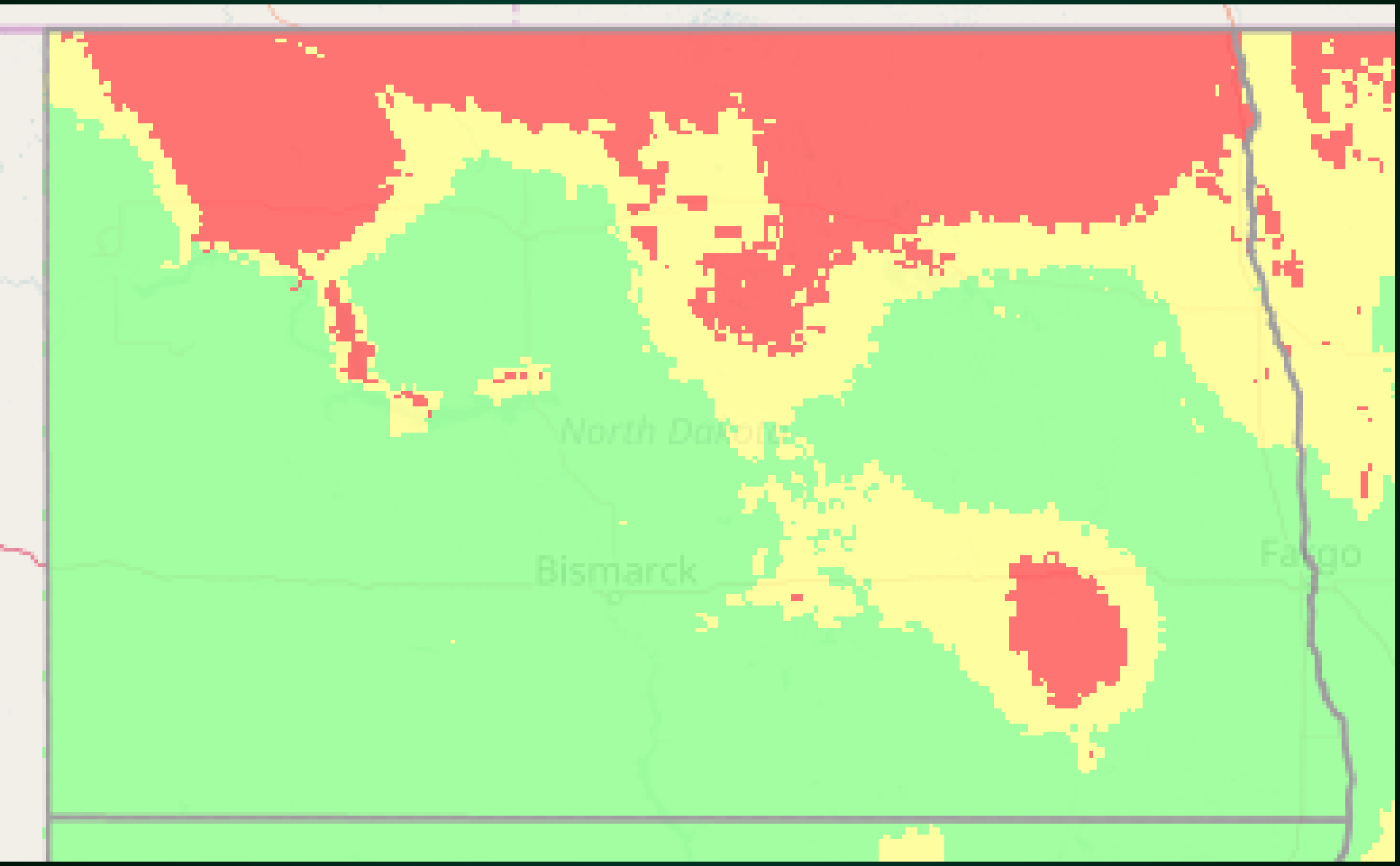

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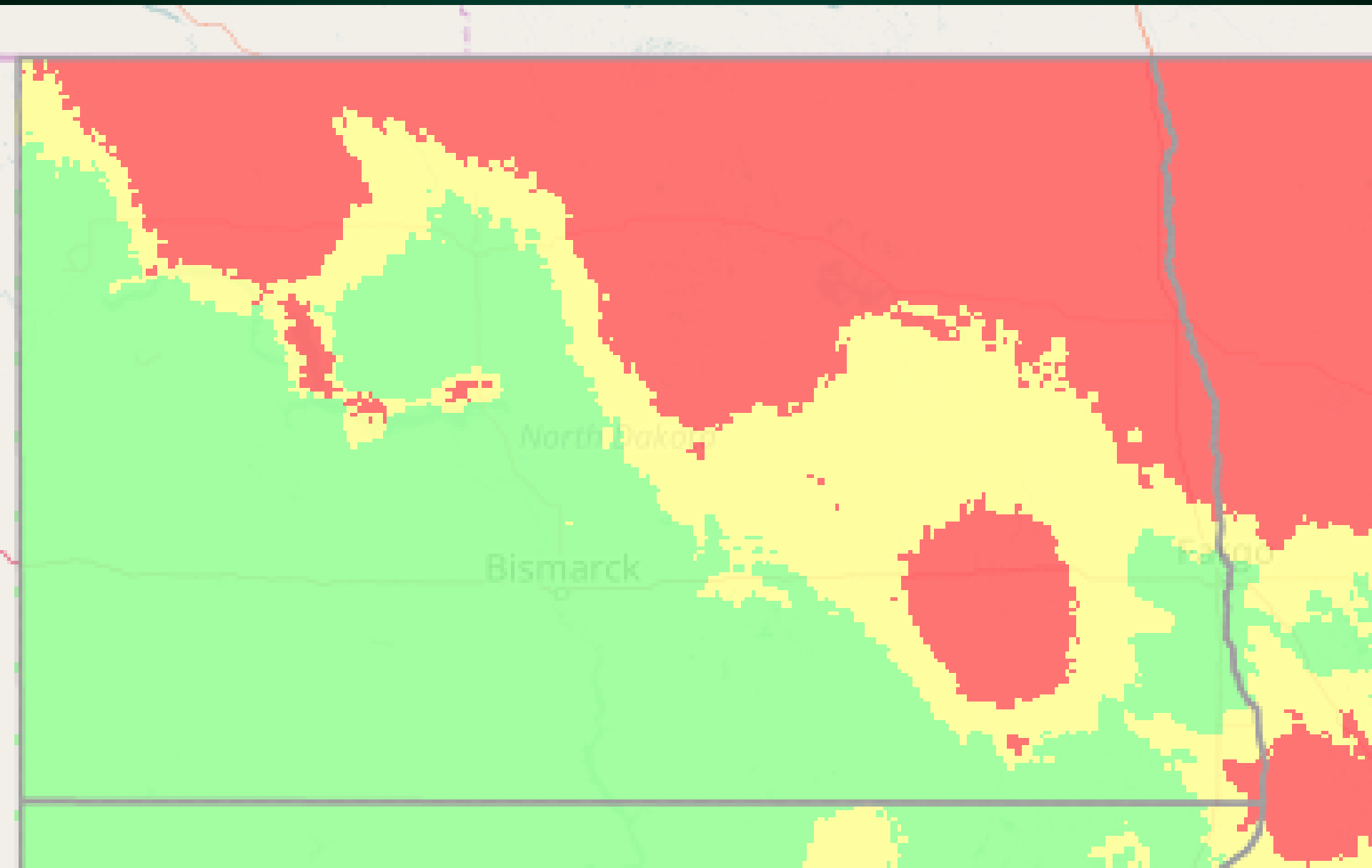


Fungicide Choice

Fungicide Choice – FRAC 3 (Triazoles)

Pierce et al. 2008

Mean Percent Reduction

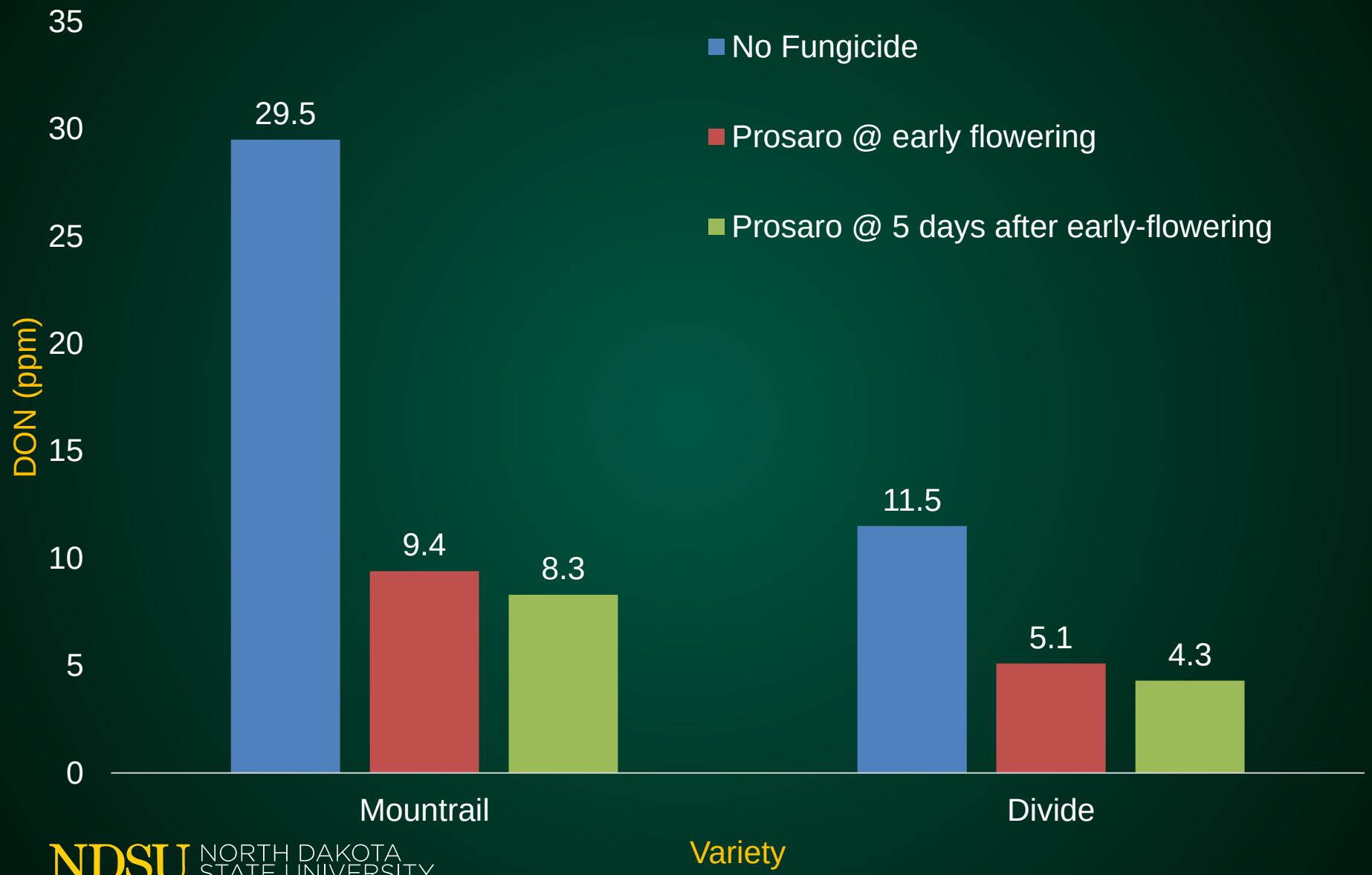
Fungicide	FHB Severity	DON
Prosaro	52%	42%
Caramba	50%	45%
Proline	48%	43%
Folicur, generics	40%	23%
Tilt, generics	32%	12%

*Often observe greater reductions in durum and HRSW

Fungicide Timing

NDSU

Durum – FHB Trial – 14-15 Langdon



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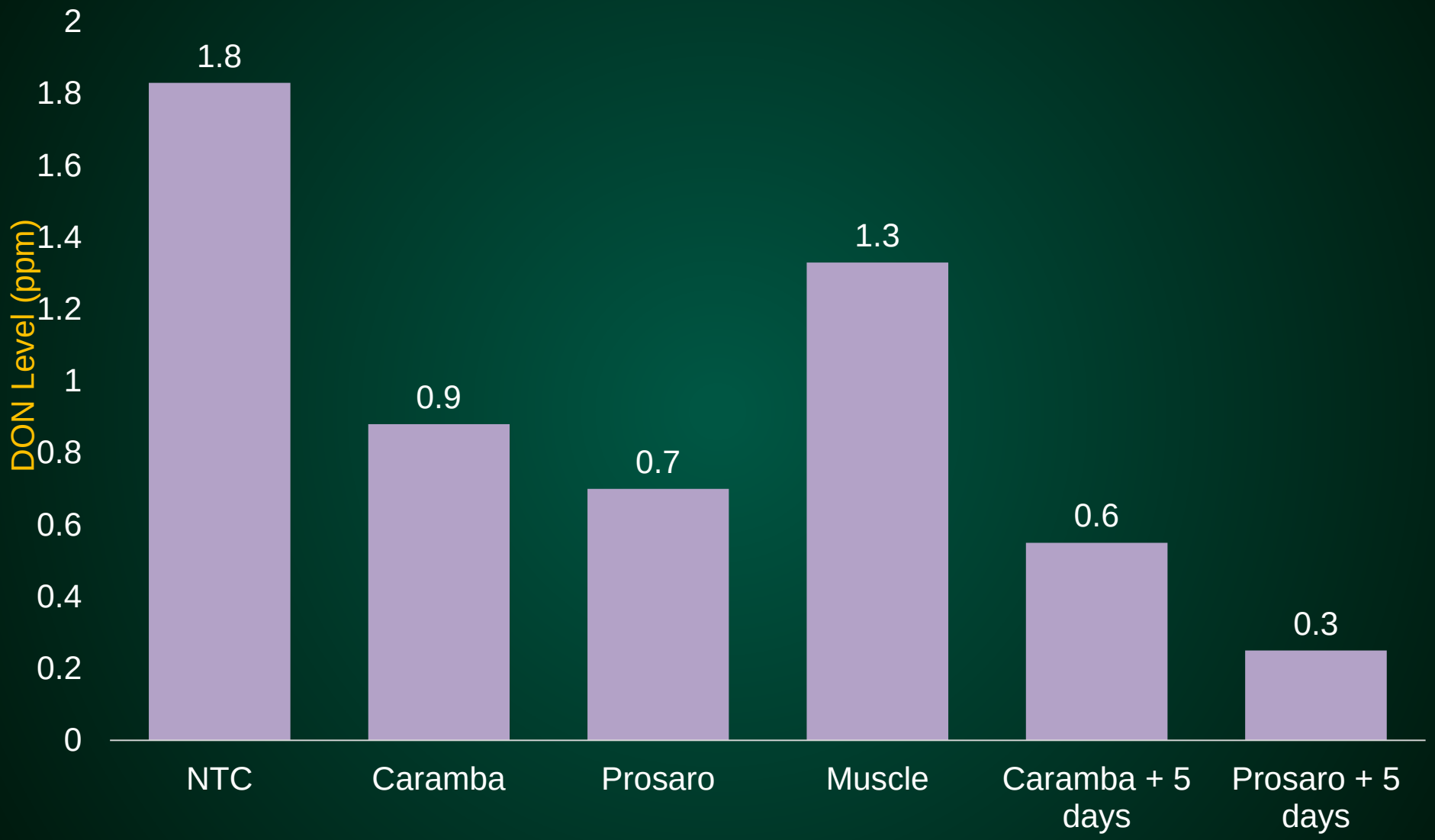
Chapara, Friskop and Gautam, 2014

FHB – Fungicide Timing - Barley



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2015 – Fargo

Double (Split) Applications

12 trials at 5 locations

Friskop, Brueggeman, Ransom, Schatz and Kalil

USWBSI Funded

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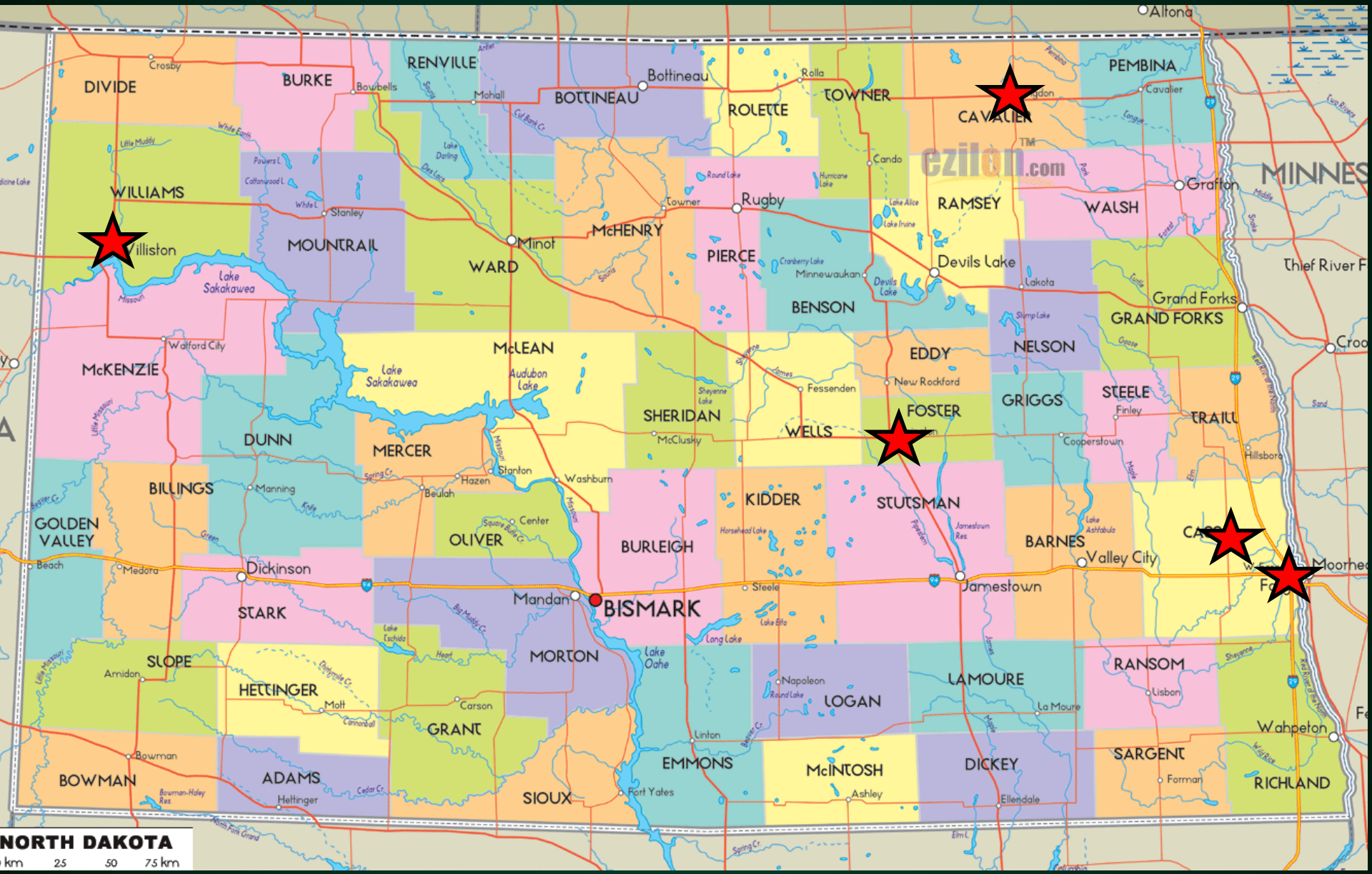

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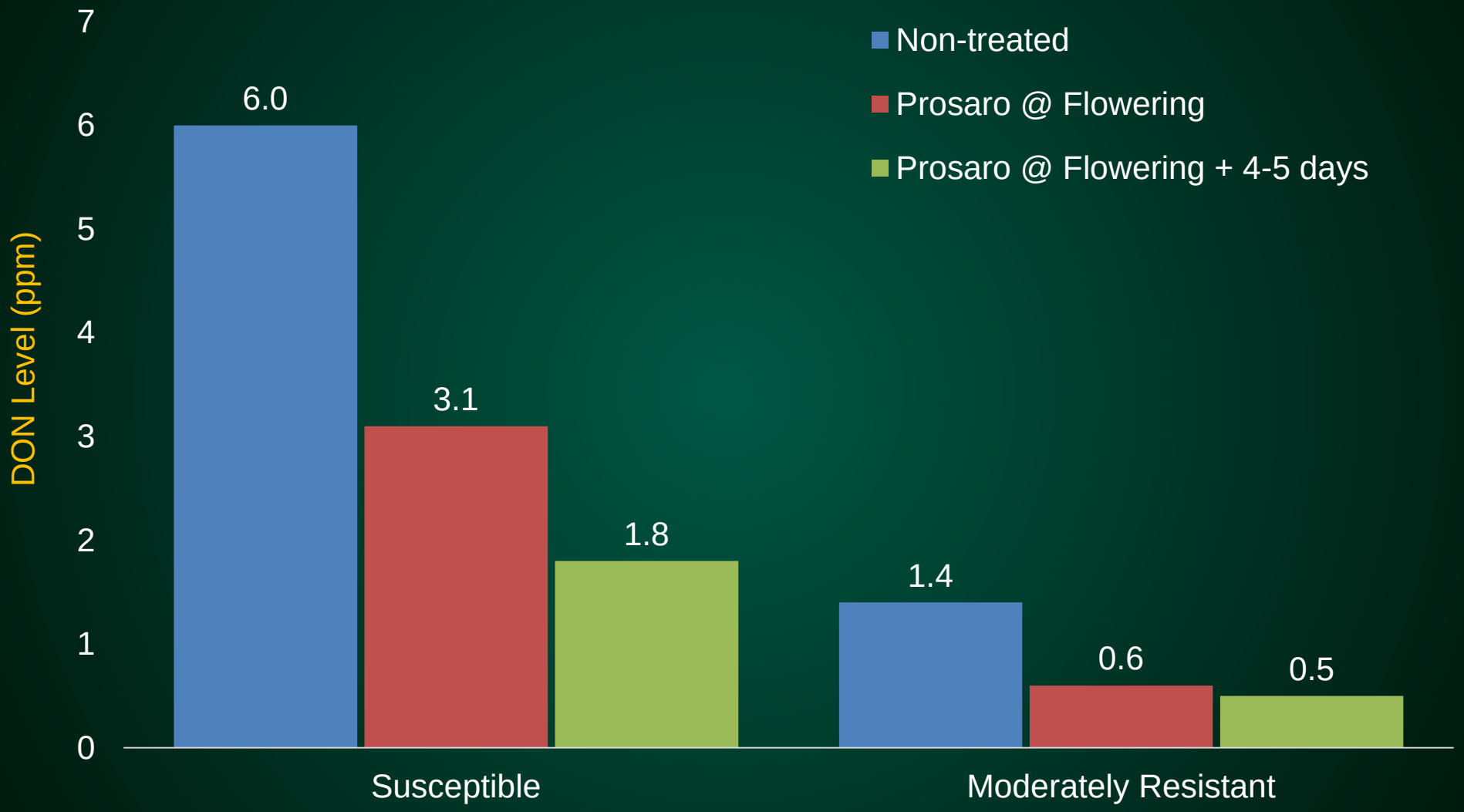
http://www.ezilon.com/maps/images/usa/north-dakota-county-map.gif

#	Fungicide	Timing	DON Reduction
1	Prosaro @ 6.5 oz/A	Recommended Time	44%
2	Prosaro @ 6.5 oz	Recommended Time	64%
2	Caramba @ 14 oz/A	4-7 days later	
3	Caramba @ 14 oz/A	Recommended Time	58%
3	Tebuconazole @ 4 oz/A	4-7 days later	
4	Proline @ 5.7 oz/A	Recommended Time	64%
4	Tebuconazole @ 4 oz/A	4-7 days later	

Recommended time for wheat= early flowering; for barley = full-head

HRSW – Integrated Management



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Variety Reaction to Scab

2014 & 2015 – Fargo and LREC


Questions