NDSU | EXTENSION

NATIONAL SUNFLOWER SURVEY

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NATIONAL SUNFLOWER SURVEY





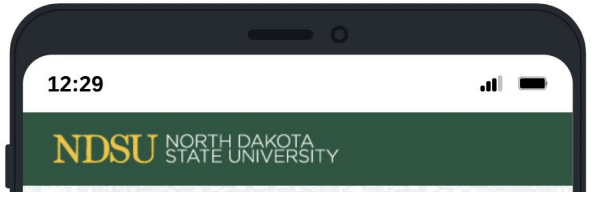



Partnership of University, USDA & Industry

& the numerous county agents working together!

NATIONAL SUNFLOWER SURVEY - MEET THE TEAM

QUALTRICS



NDSU NORTH DAKOTA STATE UNIVERSITY

Below is a summary of your responses

Download PDF

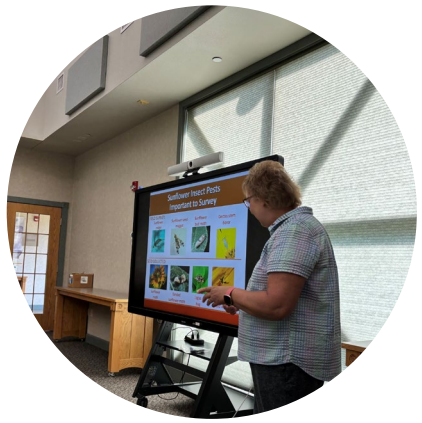
Sunflower Survey 2025

Longitude (decimal format)

Type

Longitude (decimal format)

Type



NDSU | EXTENSION

National Sunflower Association

Trainings

44 County Agents trained

Special thanks

Joe Ikley, Janet Knodel, Anitha Chirumamilla, Jeff Stachler, Sam Markell, Denis Colombo, Mohan, Karthika

NATIONAL SUNFLOWER SURVEY 2023

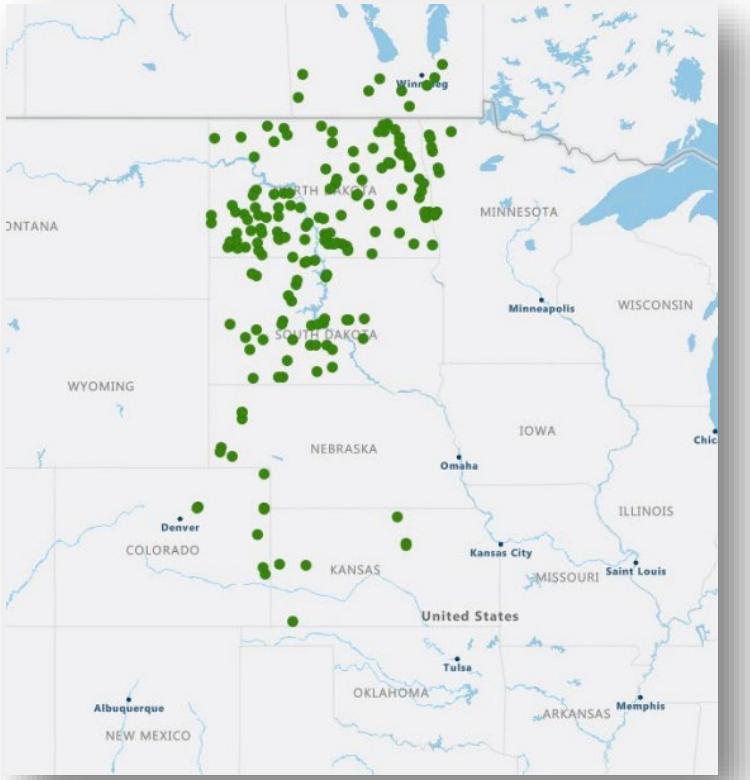
- Fields in 2005 – 146
- Fields in 2006 – 162
- Fields in 2007 – 158
- Fields in 2008 – 162
- Fields in 2009 – 177
- Fields in 2010 – 207
- Fields in 2011 – 155

…

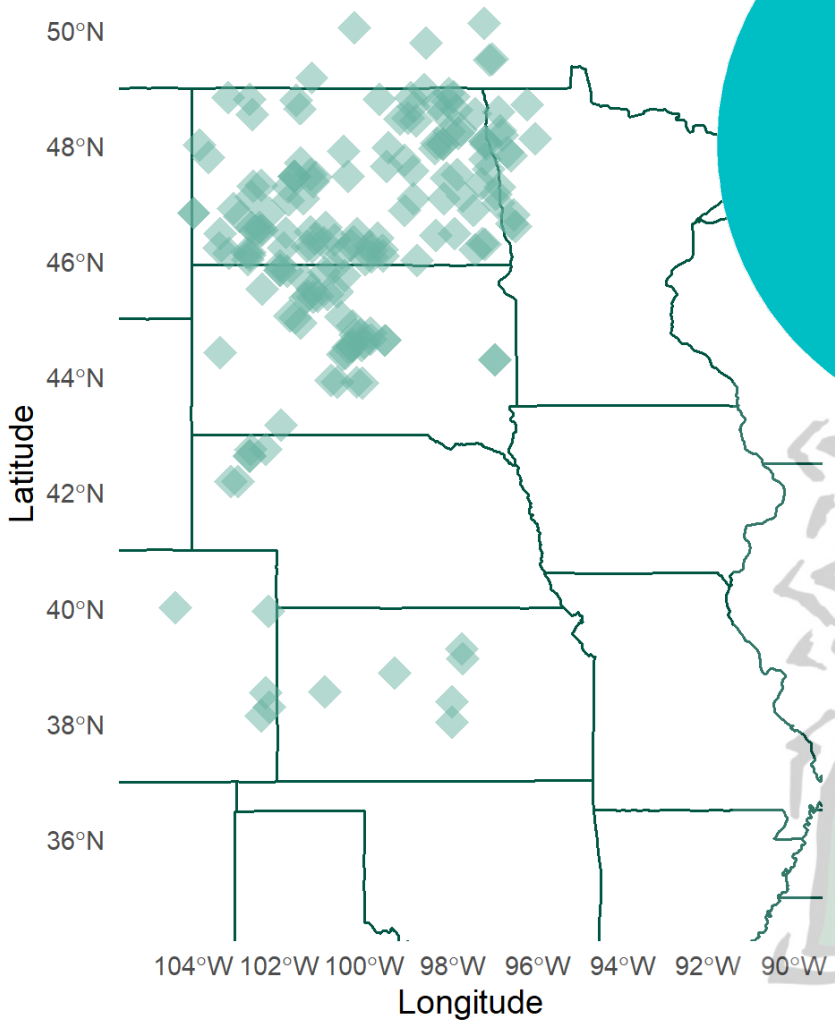
220 Fields in 2023!

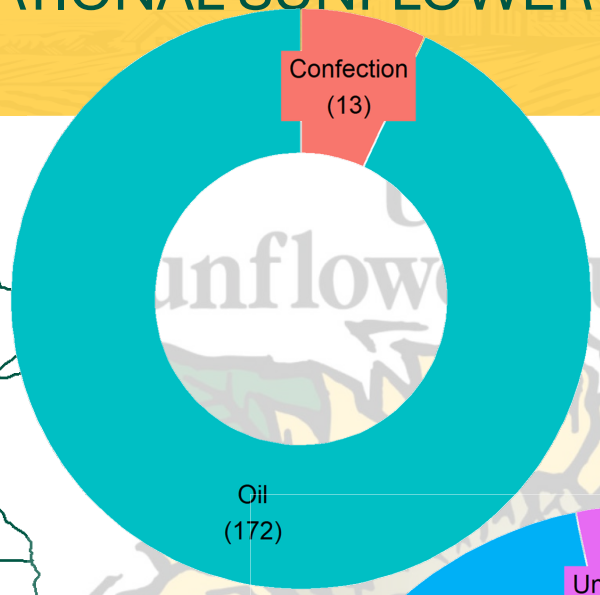
USA
Sunflower Survey

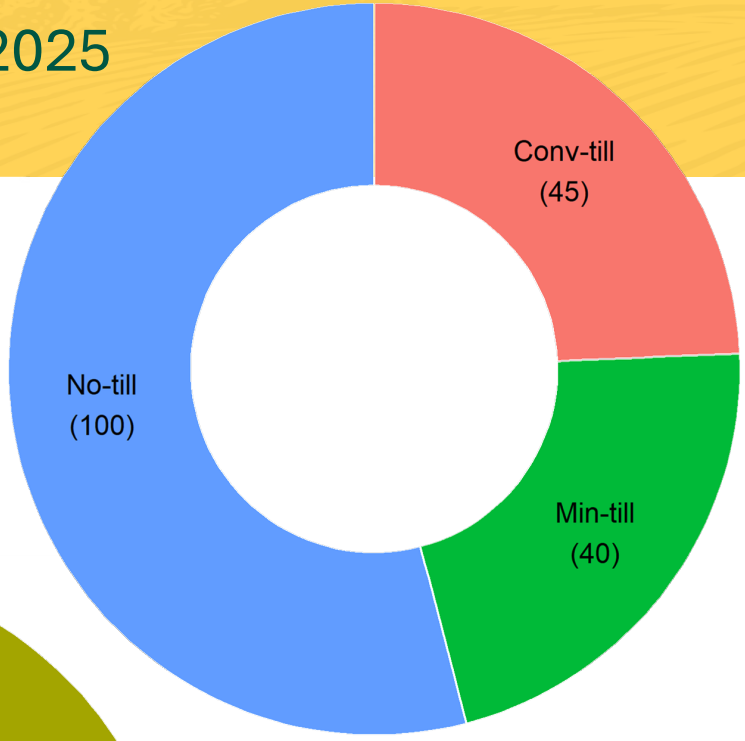
Partnership of
University, USDA & Industry

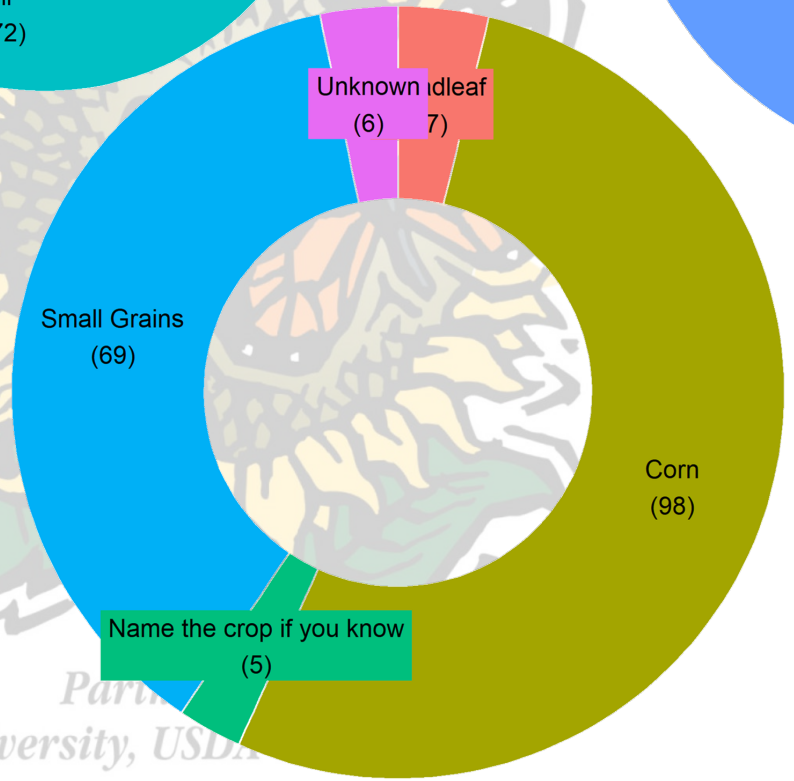


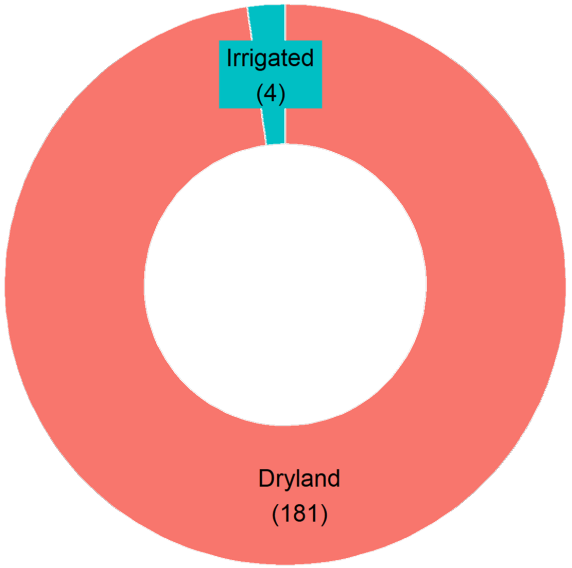
NATIONAL SUNFLOWER SURVEY 2025











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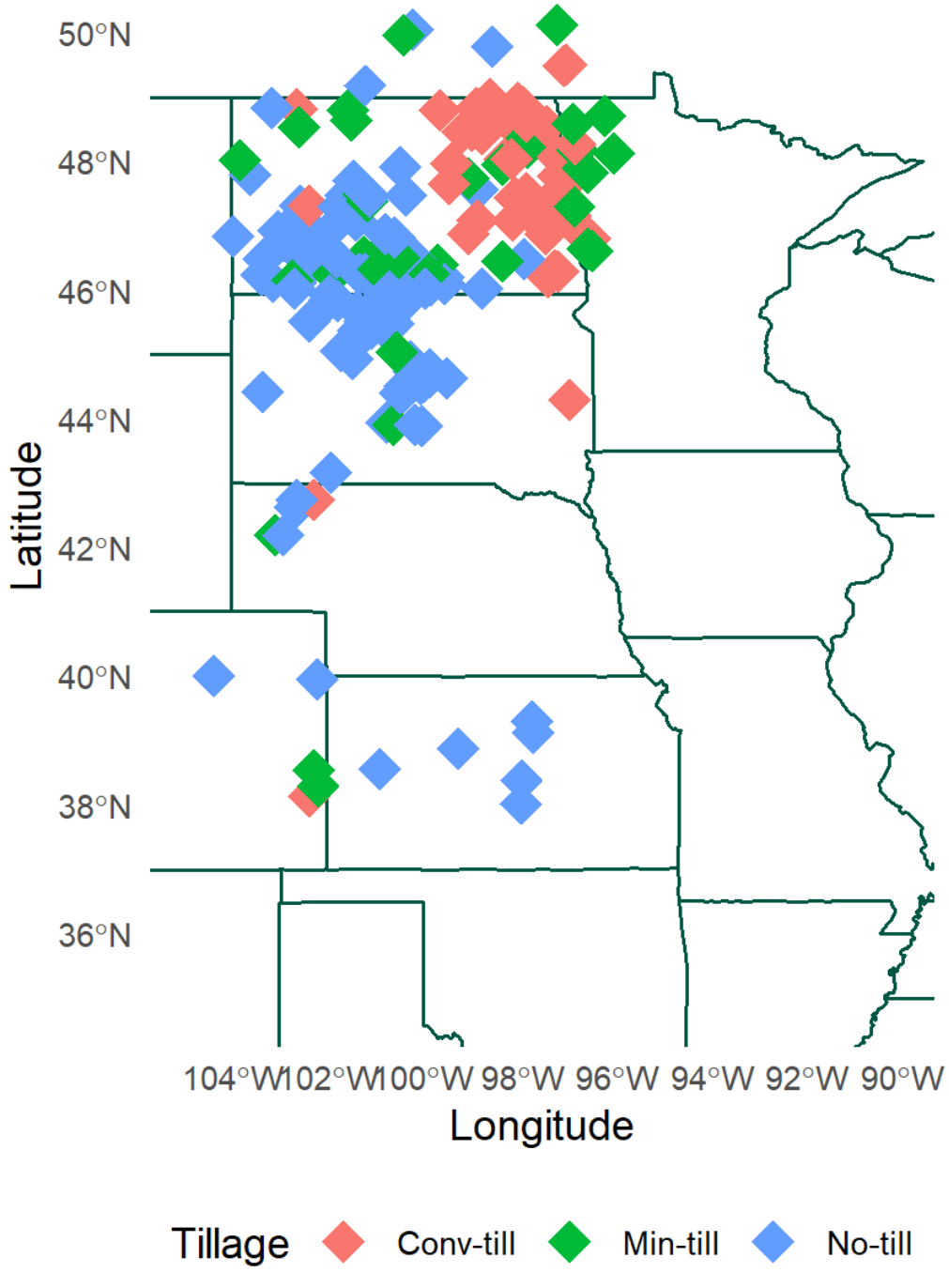
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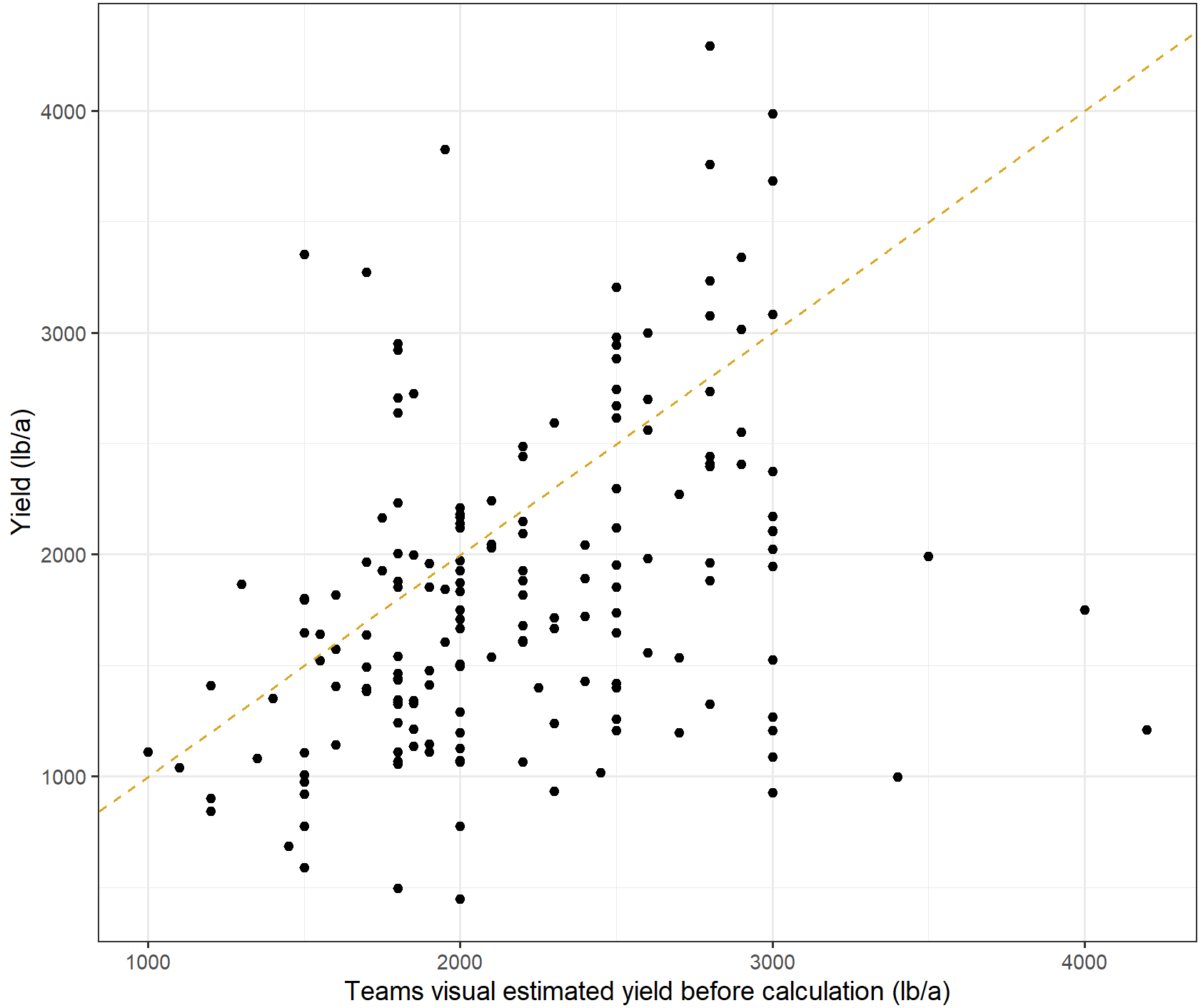
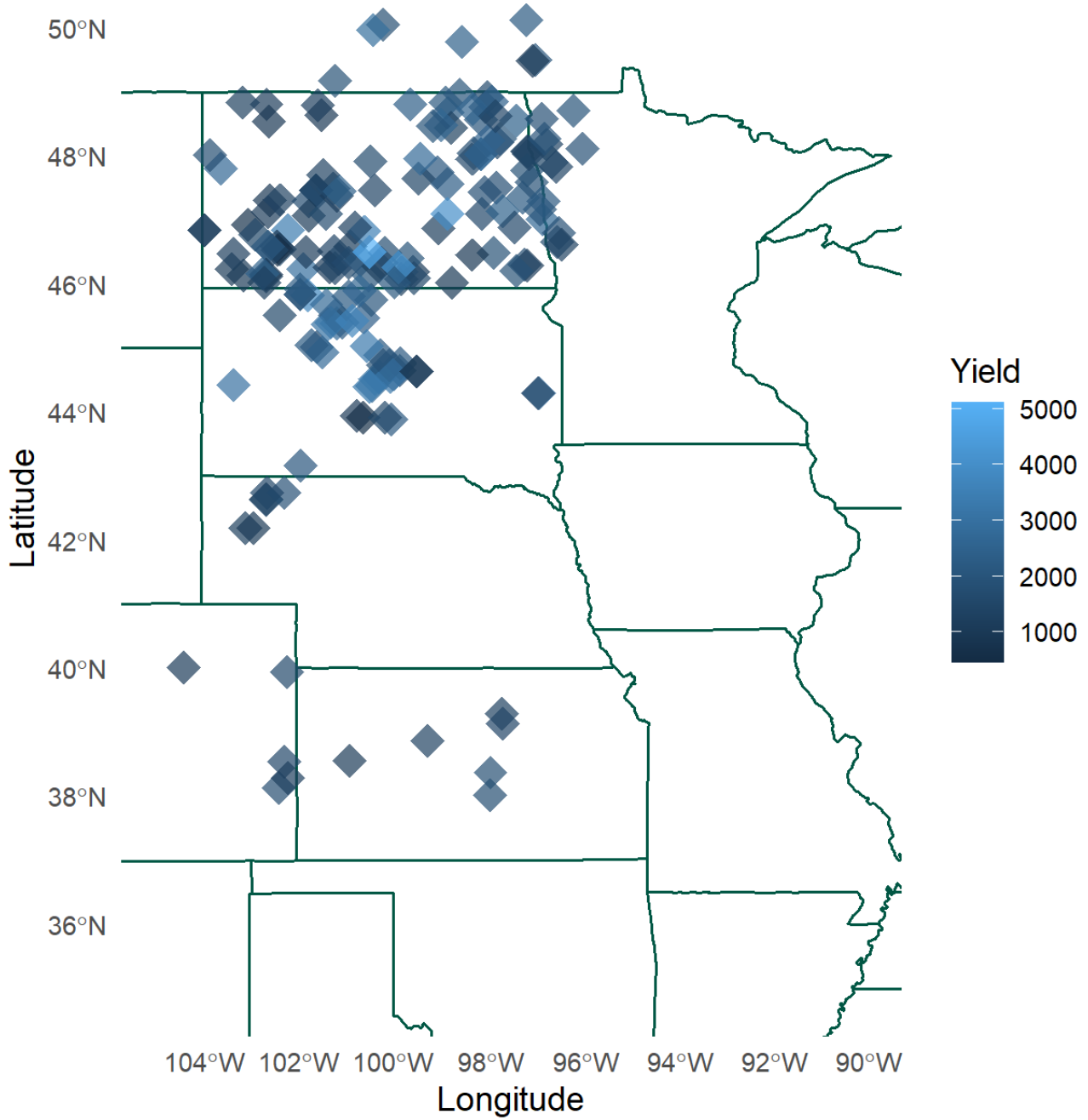
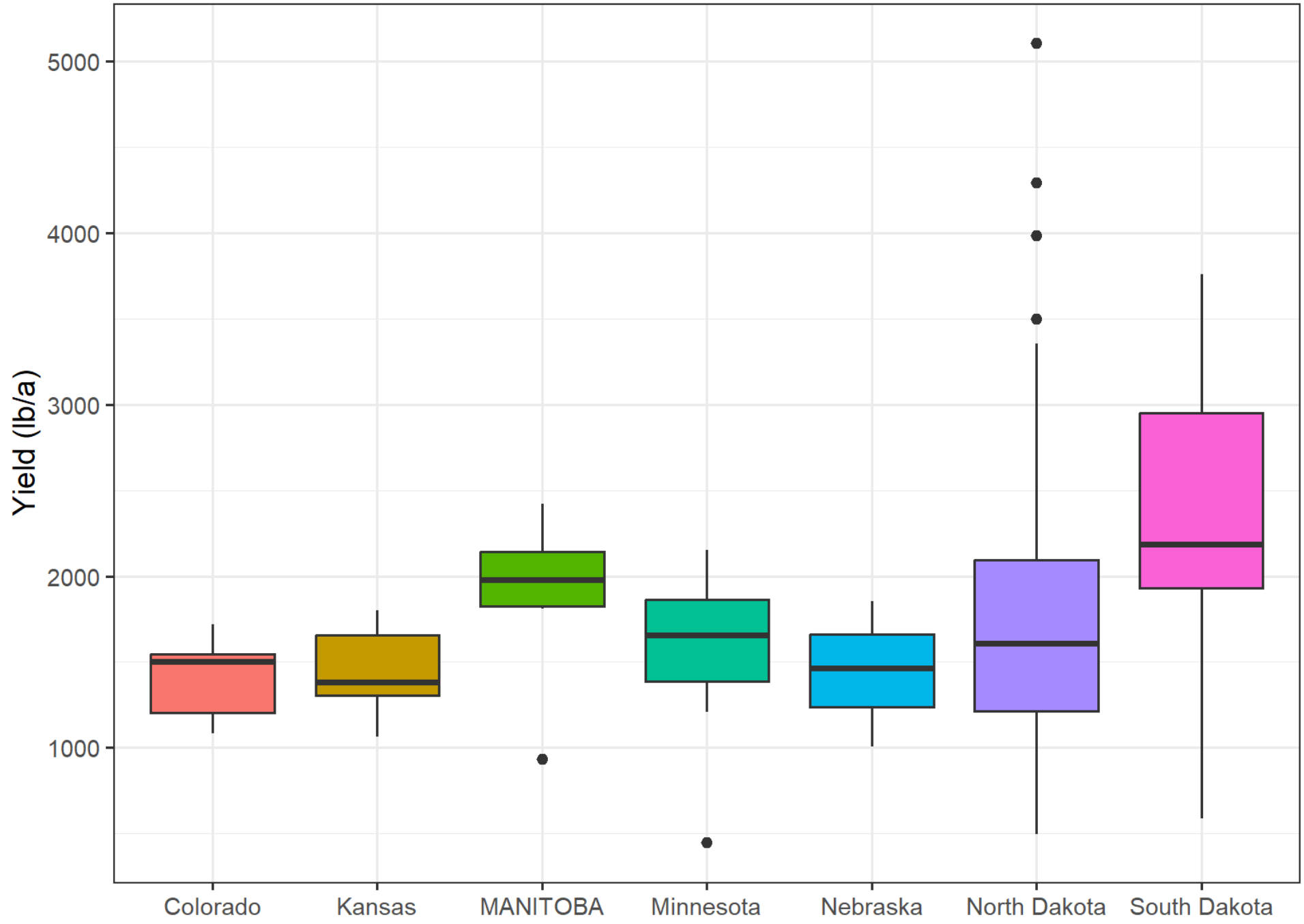
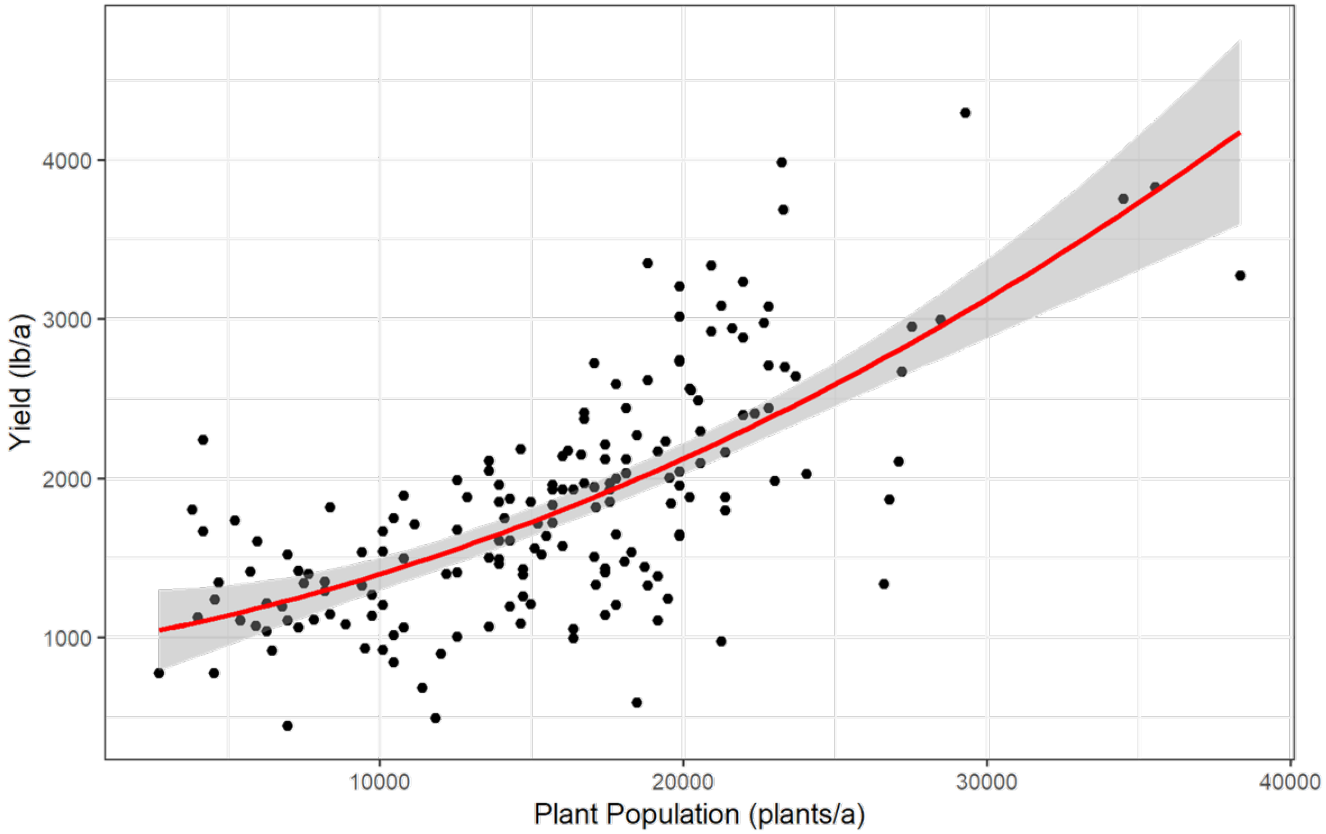
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Tillage
Conv-till
Min-till
No-till


4000
3000
2000
1000
Yield (lb/a)
1000
2000
3000
4000
Teams visual estimated yield before calculation (lb/a)

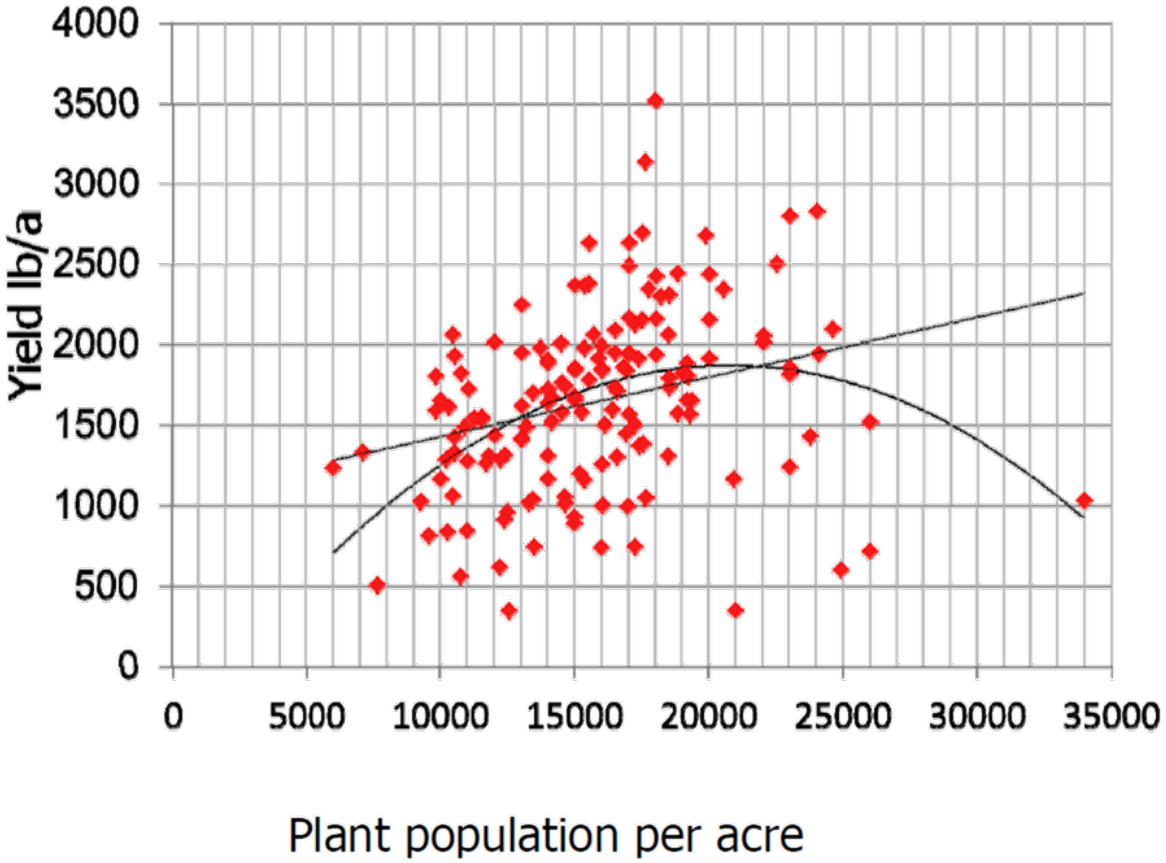

50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Yield
5000
4000
3000
2000
1000


Yield (lb/a)
5000
4000
3000
2000
1000
Colorado
Kansas
MANITOBA
Minnesota
Nebraska
North Dakota
South Dakota

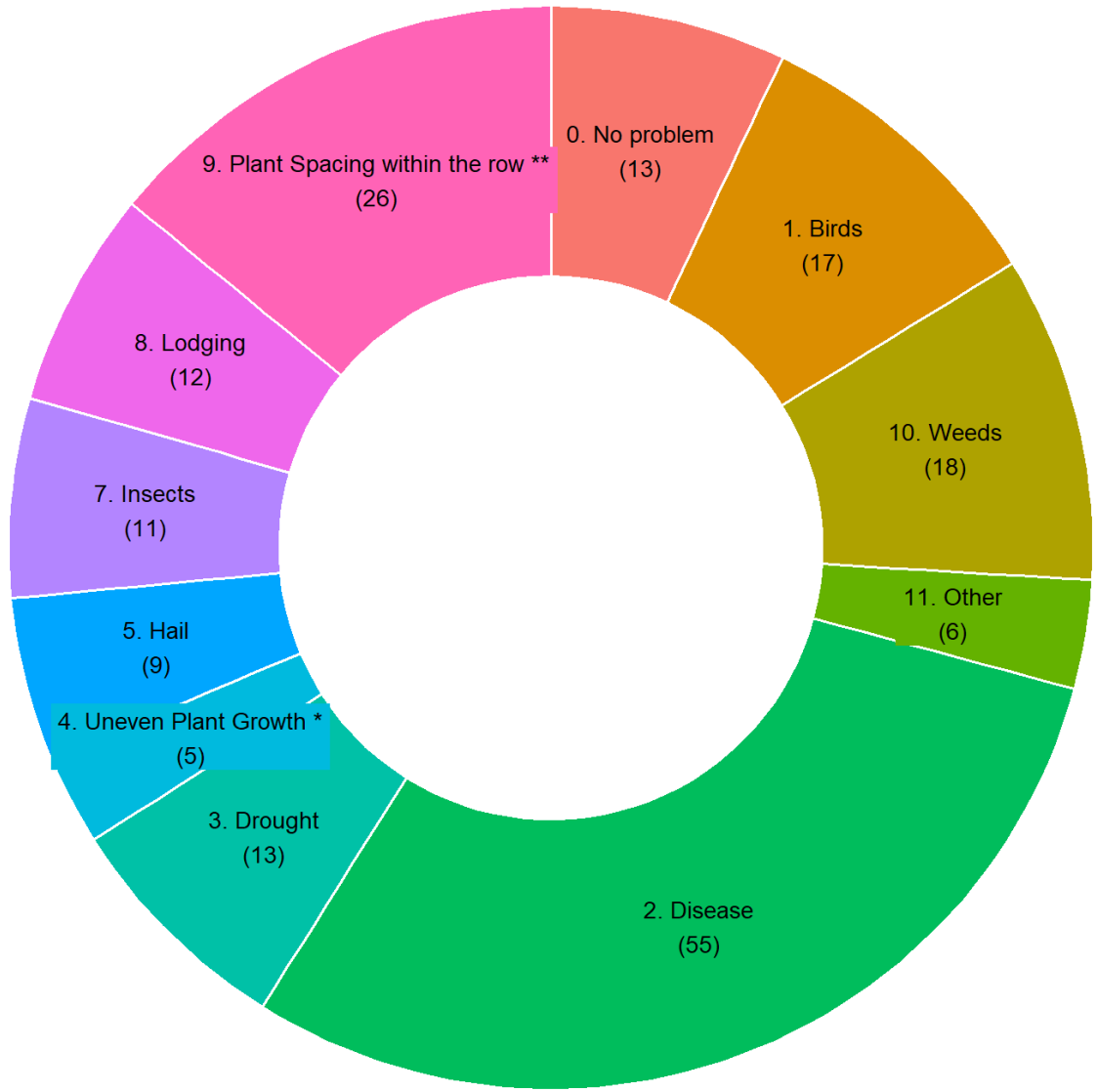
2025

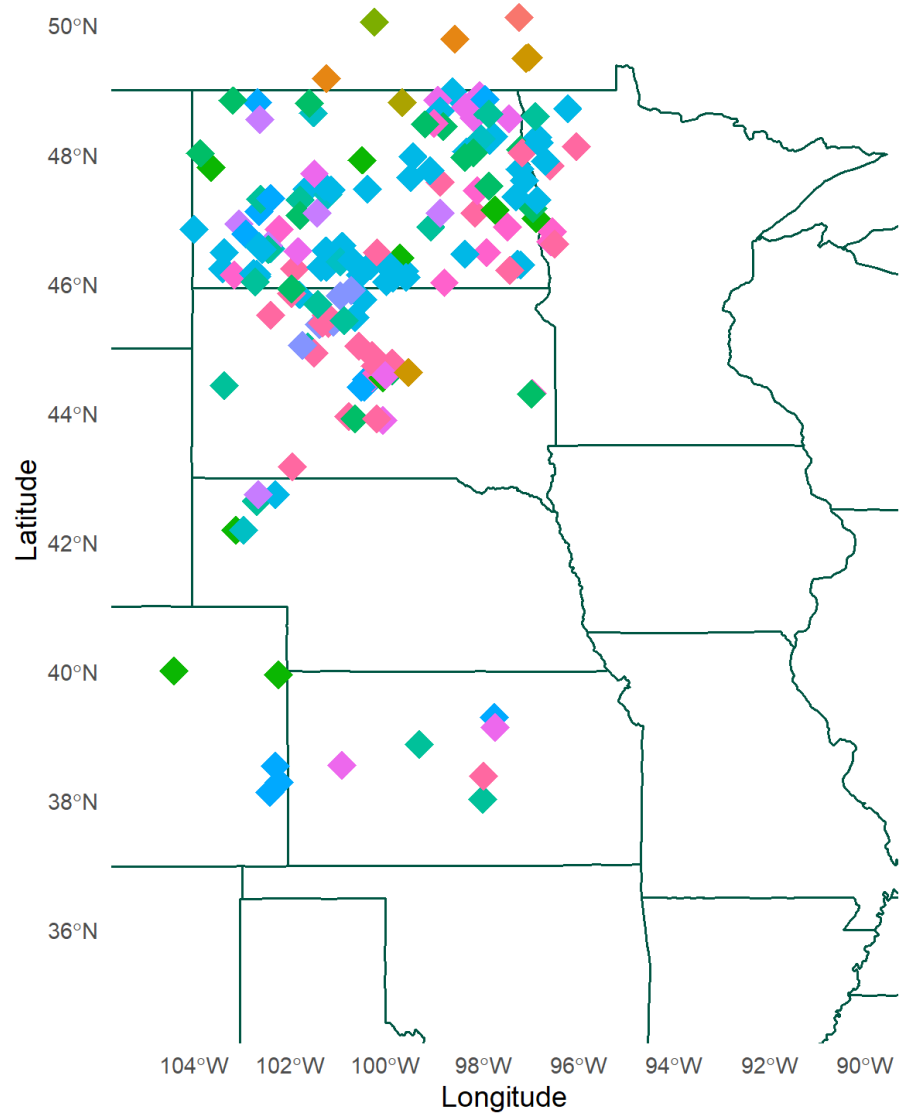

Yield (lb/a)
4000
3000
2000
1000
10000
20000
30000
40000
Plant Population (plants/a)

2023


Yield lb/a
4000
3500
3000
2500
2000
1500
1000
500
0
0
5000
10000
15000
20000
25000
30000
35000
Plant population per acre

Limiting Factor #1 - Sunflower Survey





Limiting.Factor..1

- 1. Birds
- 10. Weeds
- 2. Disease
- 4. Uneven Plant Growth *
- 9. Plant Spacing within the row **
- 0. No problem
- 1. Birds
- 10. Weeds
- 11. Other
- 2. Disease
- 3. Drought
- 4. Uneven Plant Growth *
- 5. Hail
- 7. Insects
- 8. Lodging
- 9. Plant Spacing within the row **

Limiting Factor 1#

2025	
Disease	30
Plant Spacing within the row	14
Weeds	10
Birds	9
No problem	7
Drought	7
Lodging	6
Insects	6
Hail	5
Other	3
Uneven Plant Growth	3

2023

- **Disease 17 %**
- **Plant spacing in row 9 %**
- Lodging 5 %
- **Weeds 11%**
- **Birds 12 %**
- Insects 11 %
- Drought 9 %
- Uneven plant growth 6 %
- Other 12 %
- No Problem 7 %
- Hail 3 %

2021

- Disease 7 %
- **Plant spacing in row 9 %**
- Lodging 2 %
- Weeds 2%
- Birds 6 %
- Insects 5 %
- Drought 51 %
- Uneven plant growth 1 %
- Other 4 %
- No Problem 9 %

2019

- **Disease 25 %**
- **Plant spacing in row 16 %**
- Lodging 11 %
- Weeds 6%
- Birds 8 %
- Insects 7 %
- Drought 2 %
- Uneven plant growth 1 %
- Other 13 %
- No Problem 8 %

Limiting Factor 2#

2025	
No problem	25
Disease	**17**
Weeds	**12**
Plant Spacing within the row	**11**
Insects	10
Lodging	7
Other	5
Drought	5
Uneven Plant Growth	5
Birds	3
Hail	1

2023

- **Disease 16 %**
- **Plant spacing in row 16 %**
- Lodging 6 %
- Weeds 8%
- Birds 6 %
- Insects 11 %
- Drought 9 %
- Uneven plant growth 8 %
- Other 5 %
- No Problem 16 %
- Hail 2 %

2021

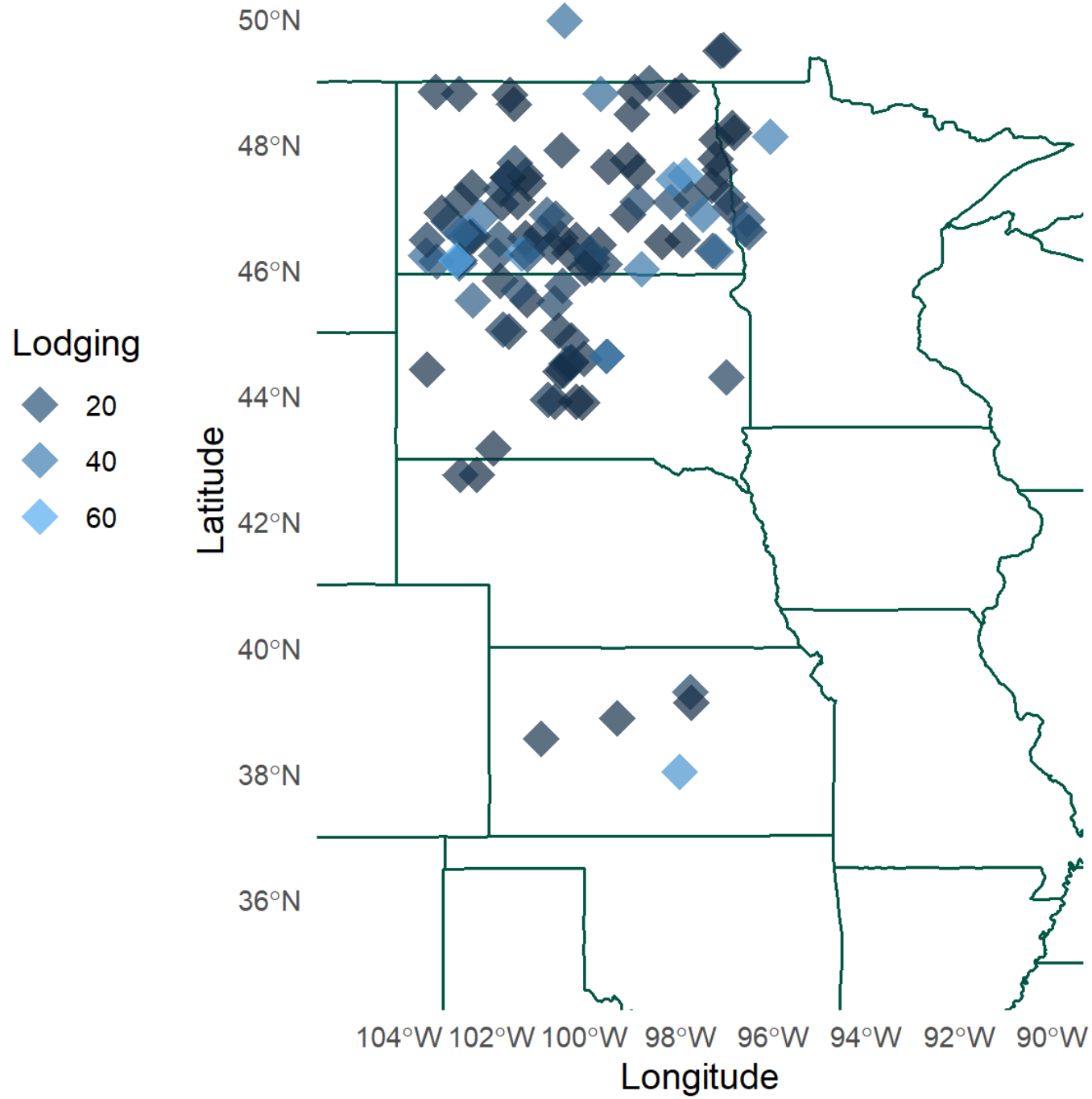
- **Disease 9 %**
- **Plant spacing in row 15%**
- Lodging 4 %
- **Weeds 13 %**
- Birds 4 %
- Insects 7 %
- Drought 10 %
- Hail 3 %
- Uneven plant growth 5 %
- Other 1 %
- No Problem 24 %

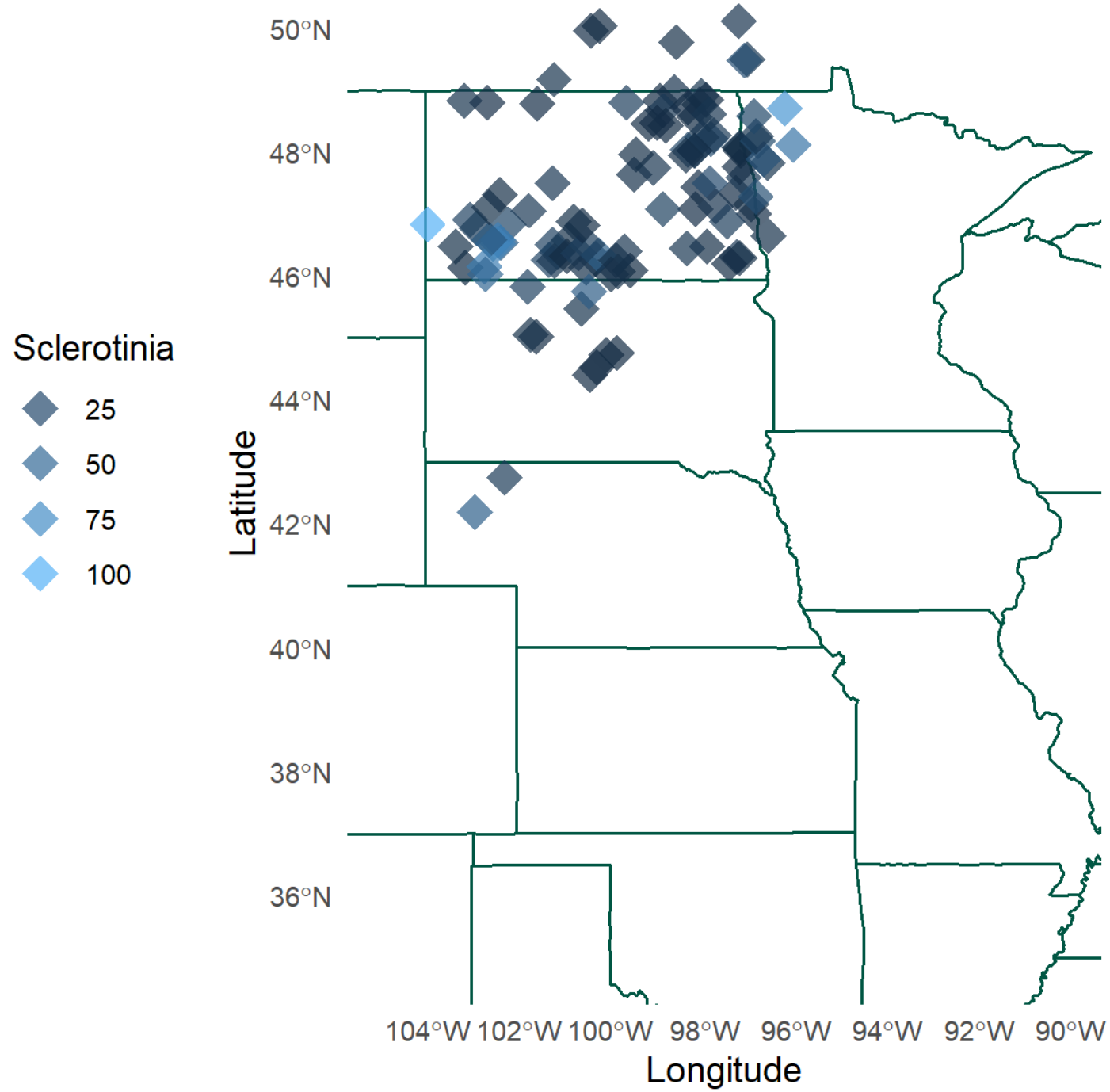
2019

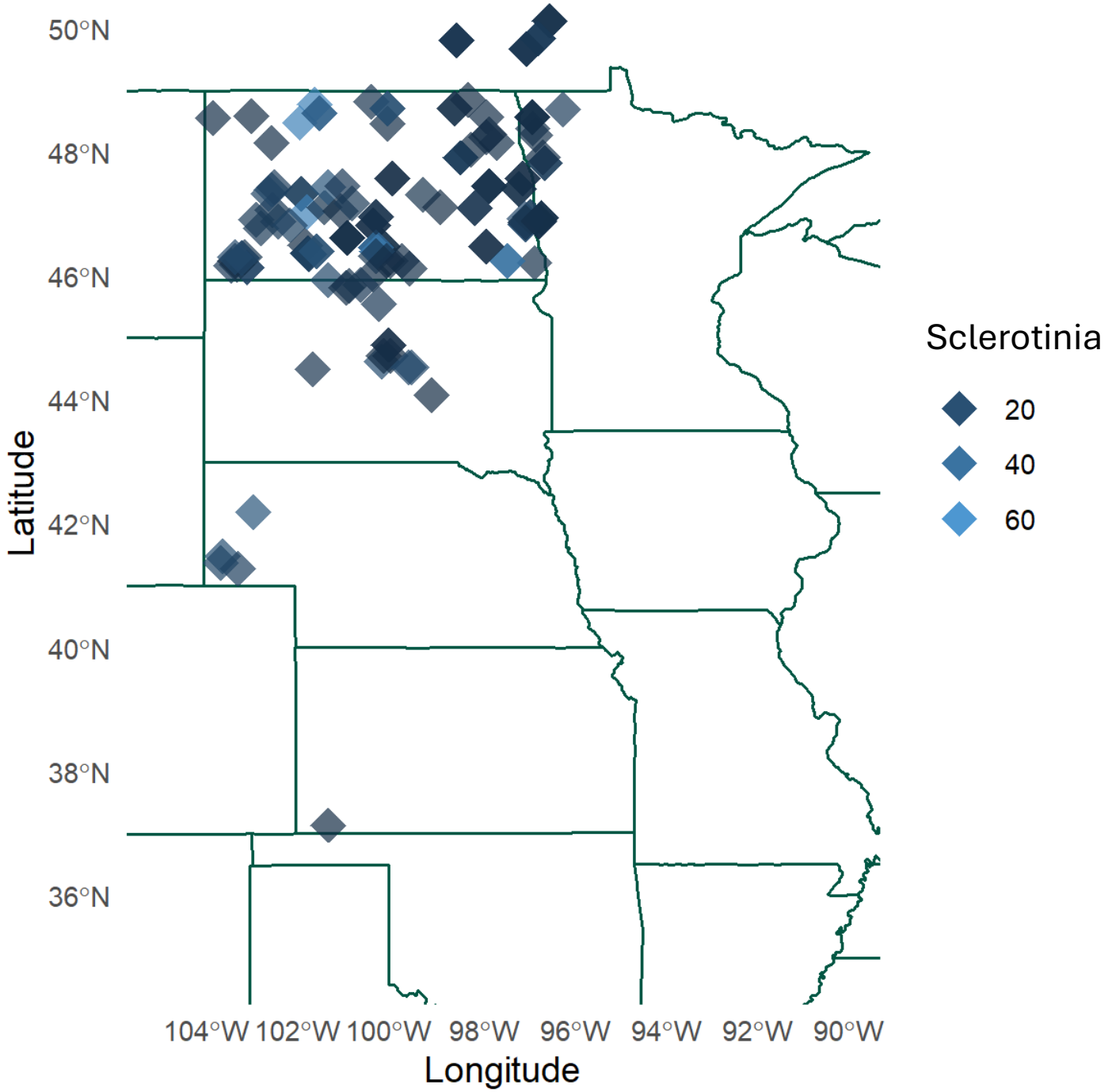
- **Disease 12 %**
- **Plant spacing in row 11 %**
- Lodging 13 %
- Weeds 5 %
- Birds 2 %
- Insects 9 %
- Drought 4 %
- Hail 6 %
- Uneven plant growth 2 %
- Other 10 %
- No Problem 27 %

NATIONAL SUNFLOWER SURVEY - Diseases

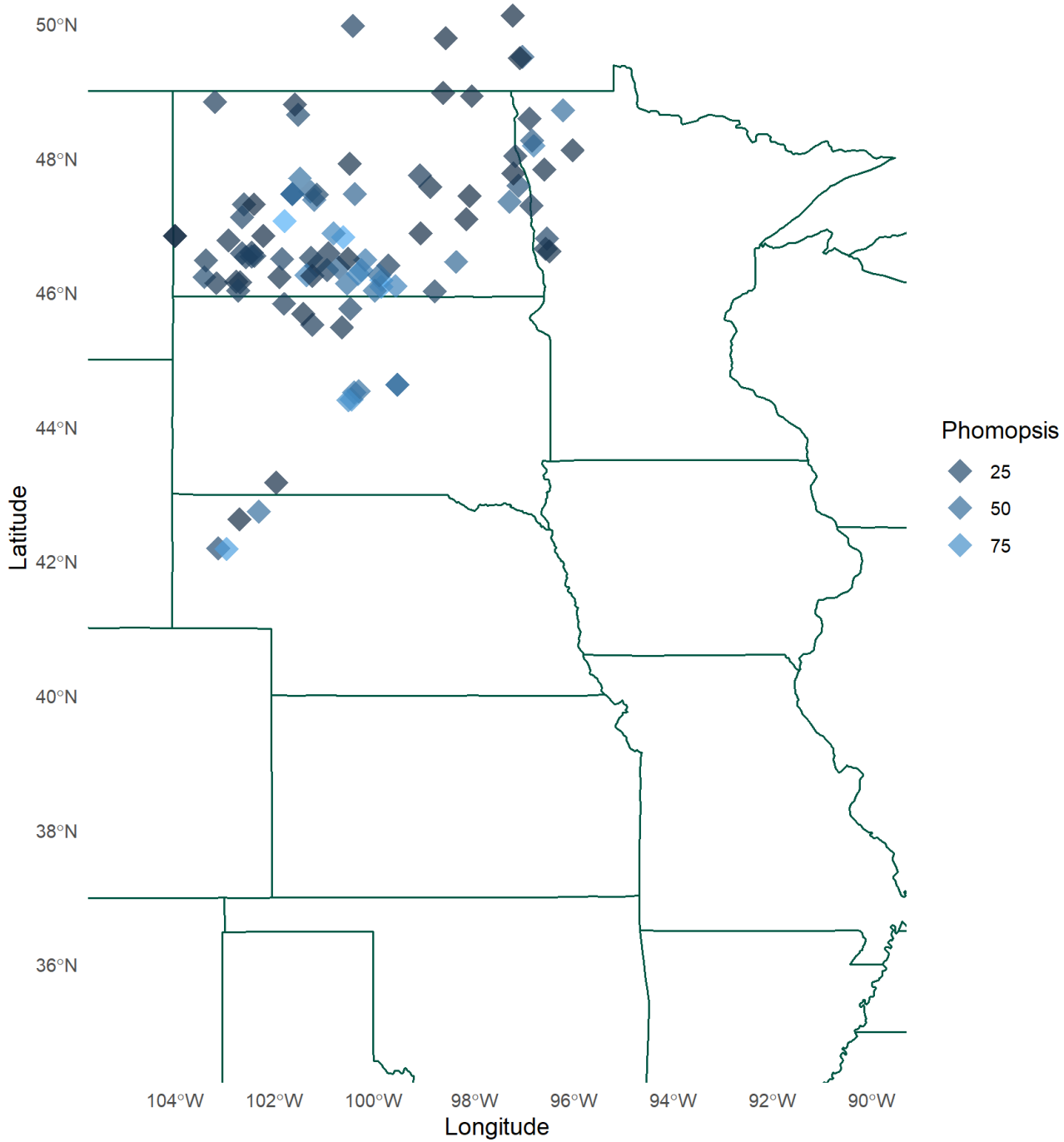
Diseases	Percentage
Phoma	70.8
Phomopsis	46.5
Sclerotinia-Head Rot	38.65
Rhizopus	23.5
Sclerotinia-Mid Stalk	17.85
Sclerotinia-Wilt	13.5
Verticillium	9.46
Charcoal.Rot	4.59
Downy.Mildew	3.785

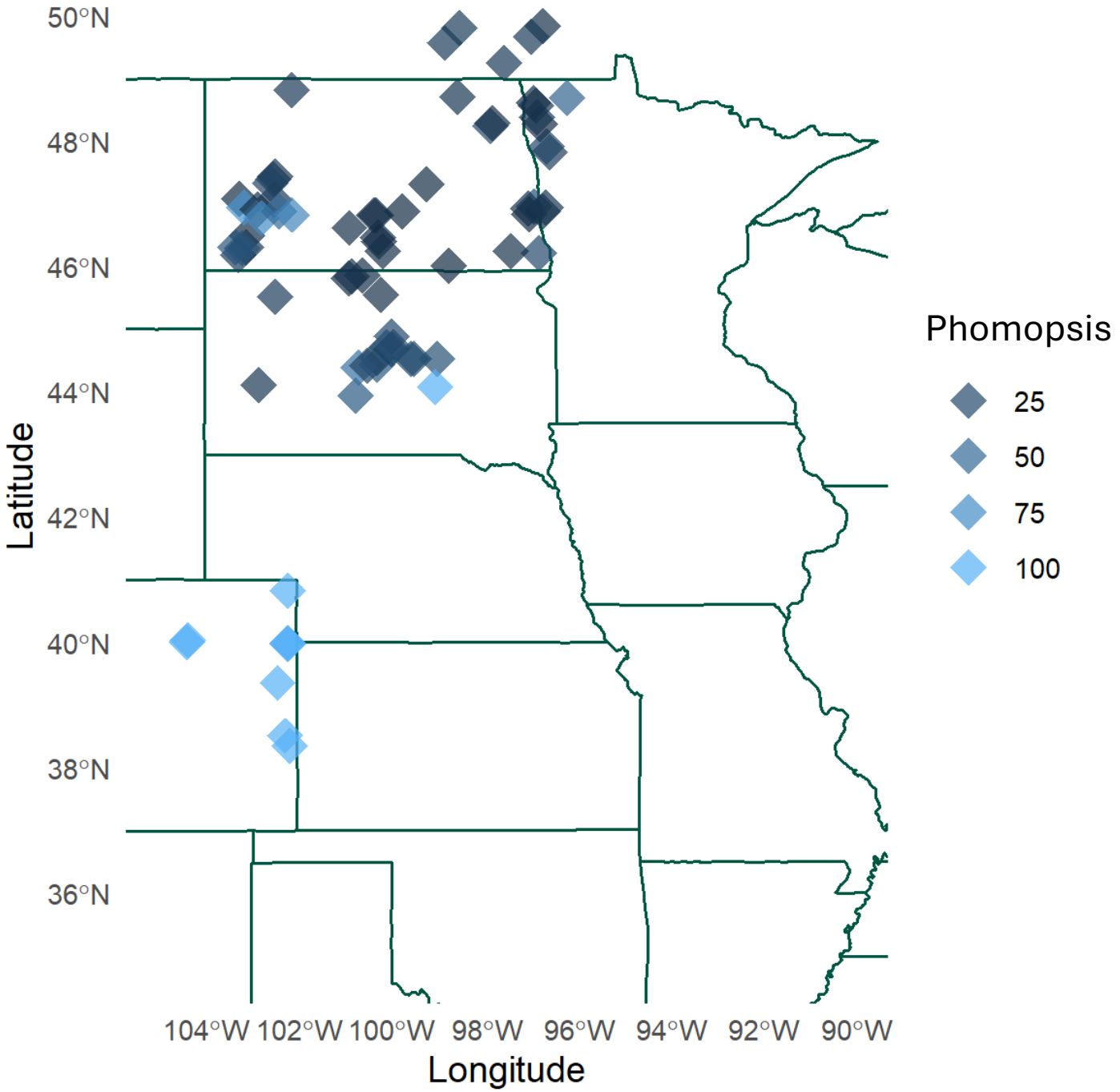

Lodging
20
40
60
50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude


Sclerotinia
25
50
75
100
50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude


50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Sclerotinia
20
40
60

2023


50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Phomopsis
25
50
75


50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Phomopsis
25
50
75
100

2023

NATIONAL SUNFLOWER SURVEY - PHOMOPSIS

- **440 stalks** from **109 fields** from six U.S. states (ND, SD, MN, NE, KS, KY)
  - ND – 24 counties (Cavalier, Stark, Barnes, Griggs, Emmons, Traill, Kidder, Foster, Ward, Pierce, Morton, Grant, Adams, Mercer, Foster, Griggs, Mercer, Emmons, Billings, Grant Forks, Bowman, Logan, Sioux, Slope)
  - SD – 8 counties (Stanley, Hyde, Hand, Hughes, Sully, Brookings, Ziebach, Bennet) -> **SD surveyed by Mathew's lab**
  - MN – 7 counties (Roseau, Wilkin, Polk, Marshall, Norman, Kittson, Clay)
  - NE – 2 counties (Sheridan, Boxbutte)
  - KS – 6 fields
  - KY – 1 field
- All stalks have been plated as of November 21, 2025.
- **Total *Phomopsis* isolates recovered to-date = 122.**

Anticipated timeline to complete the project – December 31, 2025.

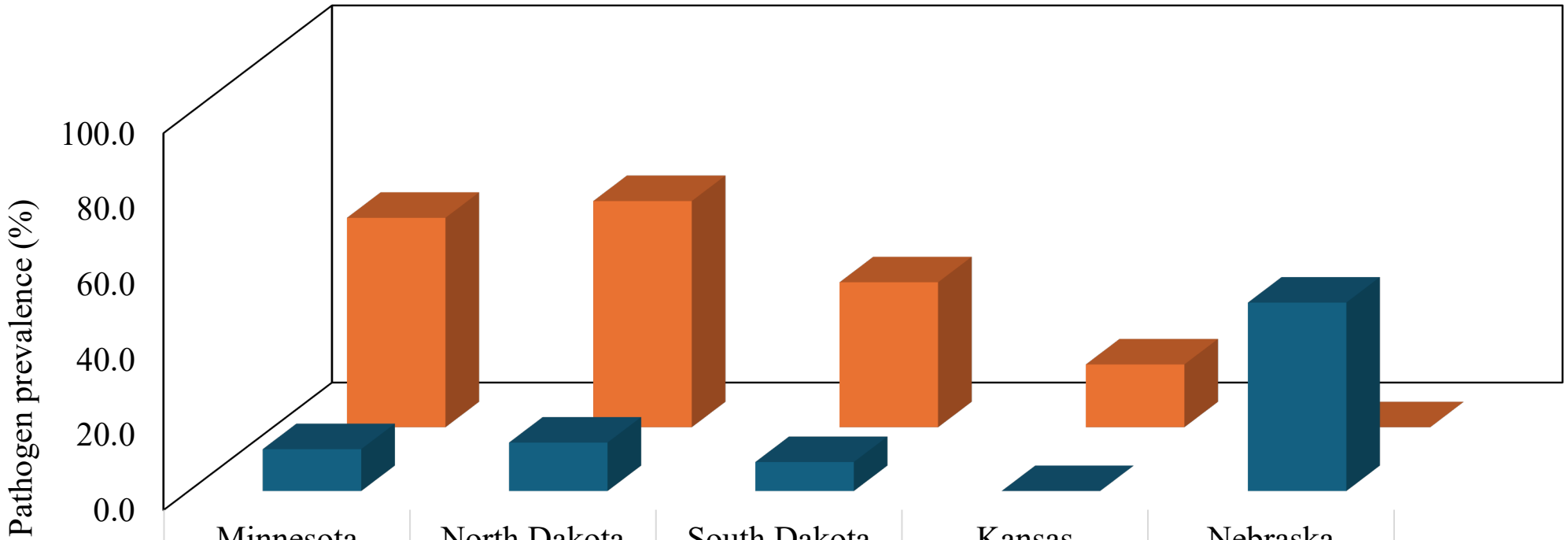
Sunflower survey - *Phomopsis*

- Average Phomopsis stem canker prevalence =

58.4% in 2025 (compared to 44% in 2023)

States	Average Disease Prevalence in 2025	Average Disease Prevalence in 2023
Minnesota	66% (*n*=9)	90.9% (*n*=11)
North Dakota	64.2% (*n*=70)	25.1% (*n*=127)
South Dakota	46% (*n*=13)	36.5% (*n*=52)
Kansas	16.6% (*n*=6)	0% (*n*=6)
Nebraska	50% (*n*=2)	0% (*n*=6)
Kentucky	0% (*n*=1)	----

Sunflower survey - *Phomopsis*



	Minnesota	North Dakota	South Dakota	Kansas	Nebraska
P. gulyae	11.1	12.9	7.7	0.0	50.0
P. helianthi	55.55555556	60	38.46153846	16.66666667	0

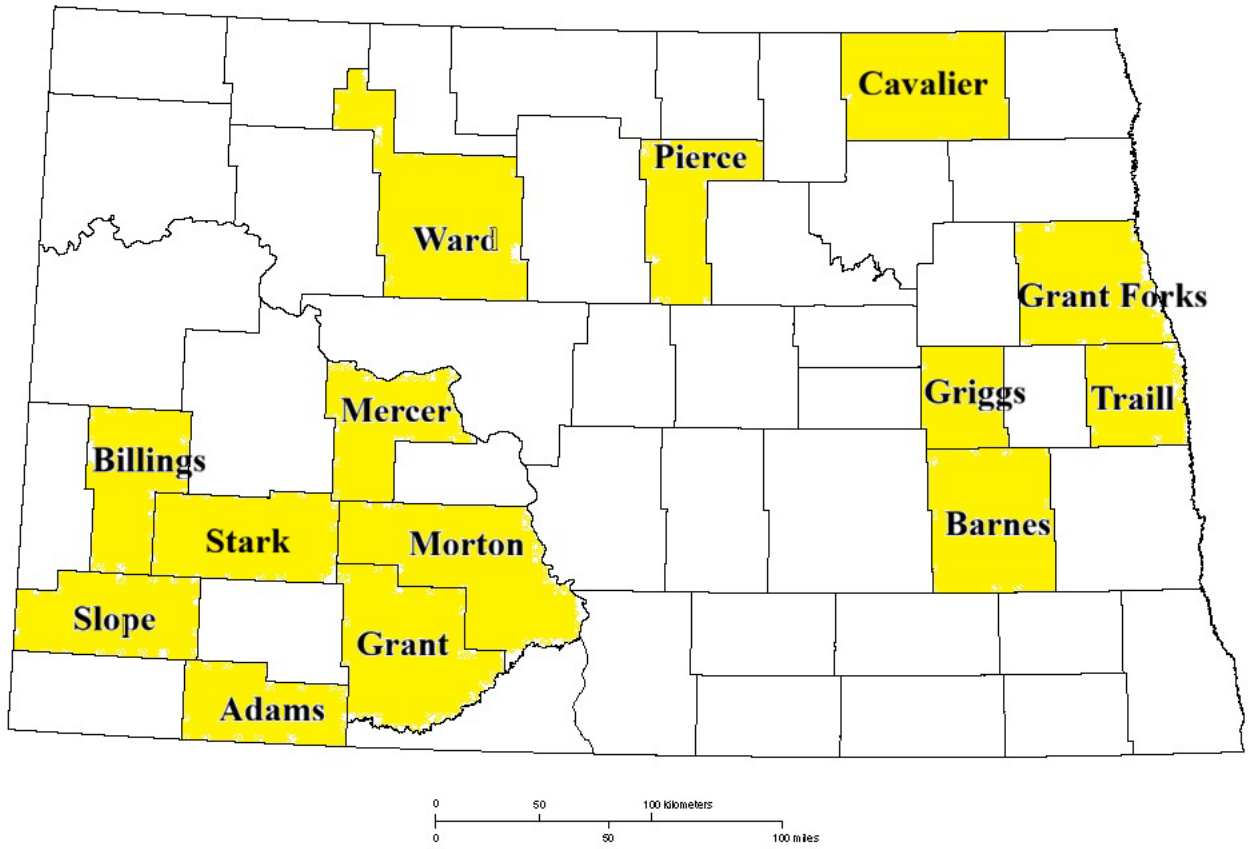
North Dakota

P. helianthi

- Cavalier
- Stark
- Morton
- Grant
- Adams
- Mercer
- Slope
- Grant Forks
- Billings
- Barnes
- Griggs
- Traill

P. gulyae

- Stark
- Morton
- Grant
- Adams
- Billings
- Ward
- Pierce



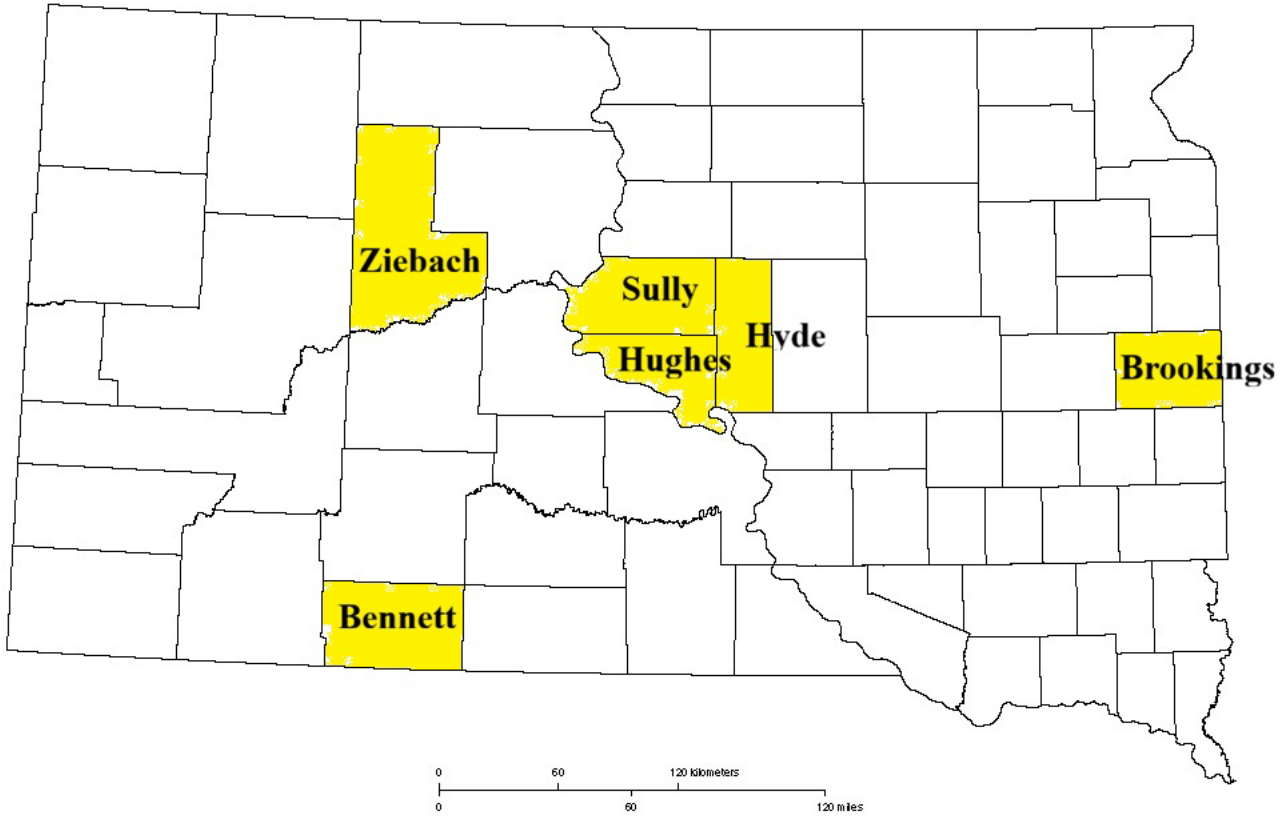
South Dakota

P. helianthi

- Hyde
- Hughes
- Sully
- Ziebach
- Bennett

P. gulyae

- Brookings



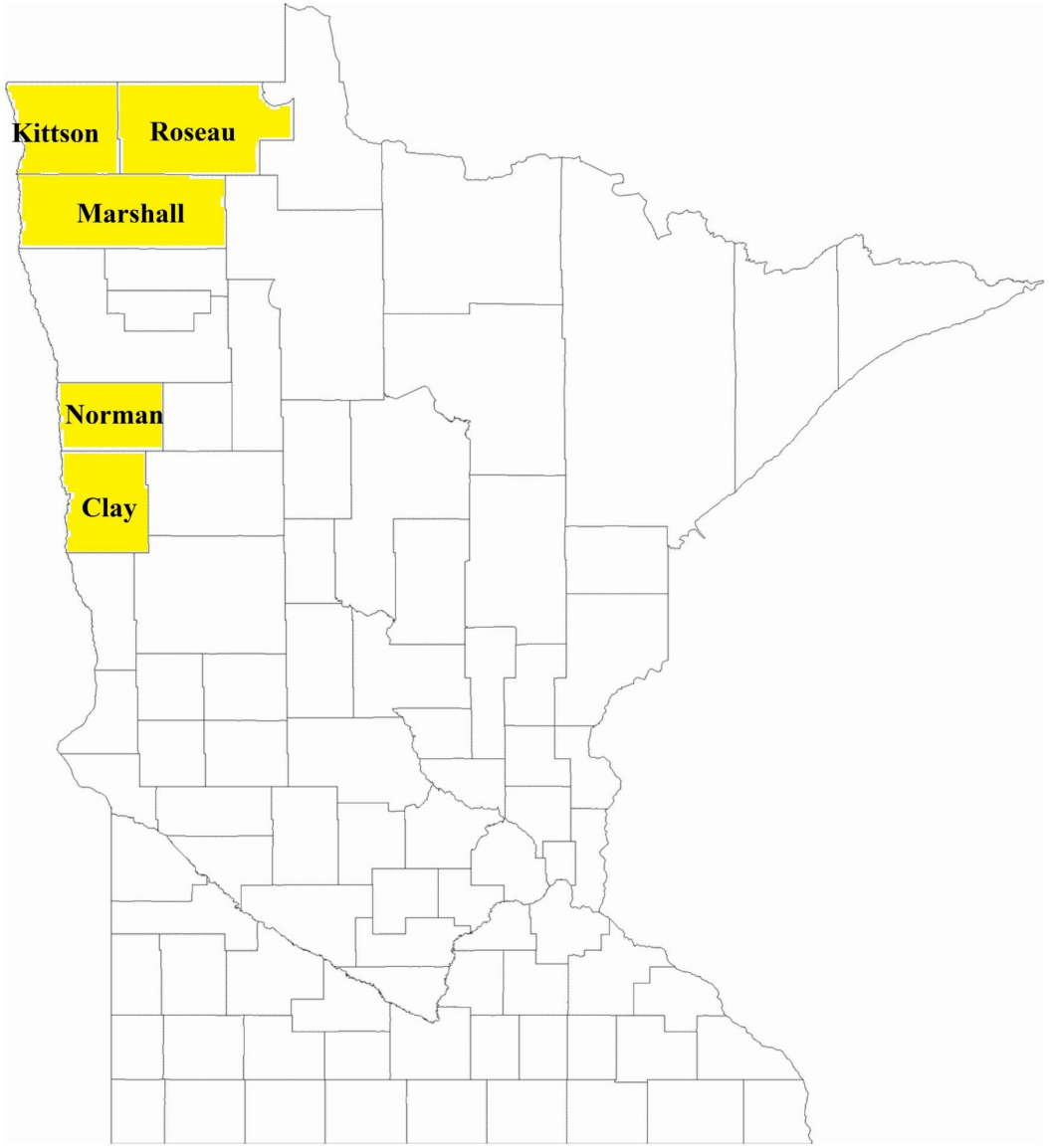
Minnesota

P. helianthi

- Roseau
- Marshall
- Kittson
- Clay

P. gulyae

- Norman

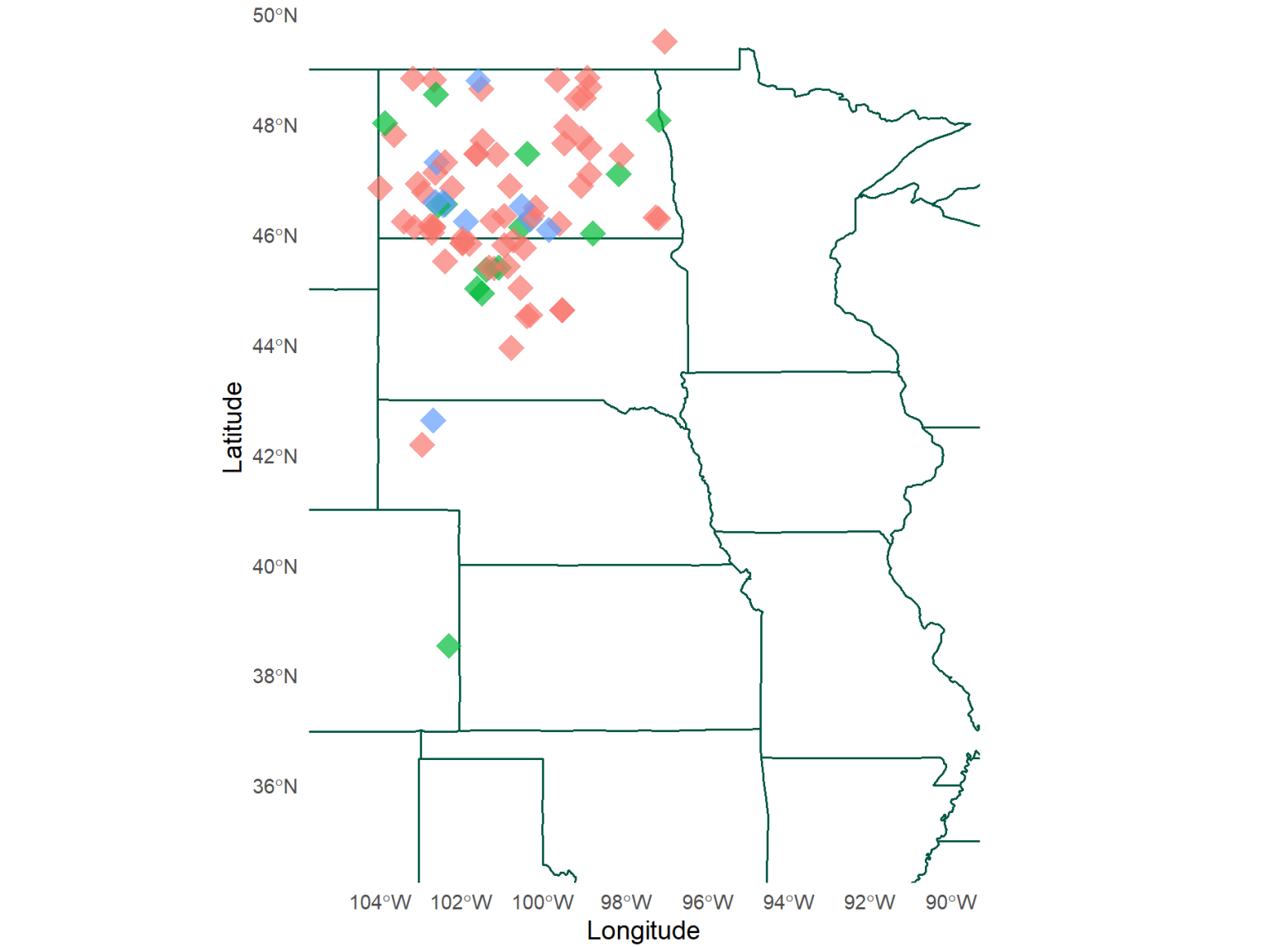


QoI Fungicide Resistance

- Total number of isolates screened = 60
- *P. helianthi* (*n*=47) and *P. gulyae* (*n*=13)
- No point mutations associated with QoI fungicide resistance detected

NATIONAL SUNFLOWER SURVEY - Weeds

Weed	Percentage
Kochia	44.9
Foxtail..Green	25.9
Redroot.Pigweed	18.4
Foxtail..Yellow	15.7
Canada.Thistle	14.6
Volunteer.Small.Grain	14.6
Volunteer.Corn	13
Field.Bindweed	9.19
Waterhemp	7.03
Barnyardgrass	6.49
Common.Ragweed	6.49
Lambsquarters	6.49
Cocklebur	5.41
Palmer.amaranth	5.41
Wild.Buckwheat	4.32
Horseweed	3.78
Foxtail.Barley	3.24
Wild.Oat	2.7
Biennial.Wormwood	2.16
Quackgrass	1.62
Wild.Sunflower	1.62
Nightshade	0.541
Powell.Amaranth	0.541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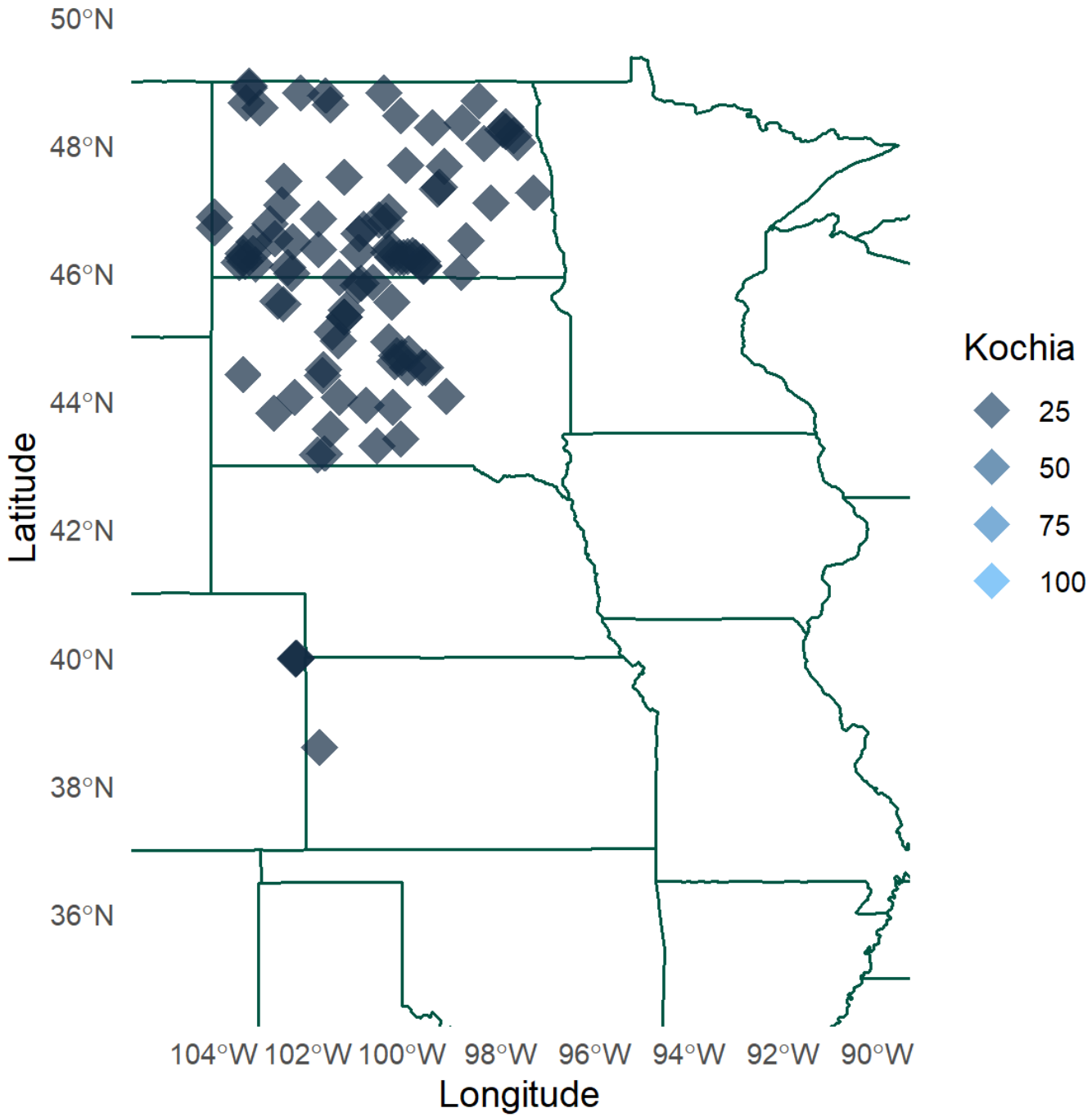
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Weed.Prevalence....Kochia
1 = light: Plant species found in field
2 = moderate: 1 plant per 1 ft of 30" row (3 grass weed plants per each species)
3 = heavy: more than 1 plant per 1 ft of 30" row (greater than 3 grass weed plants per each species)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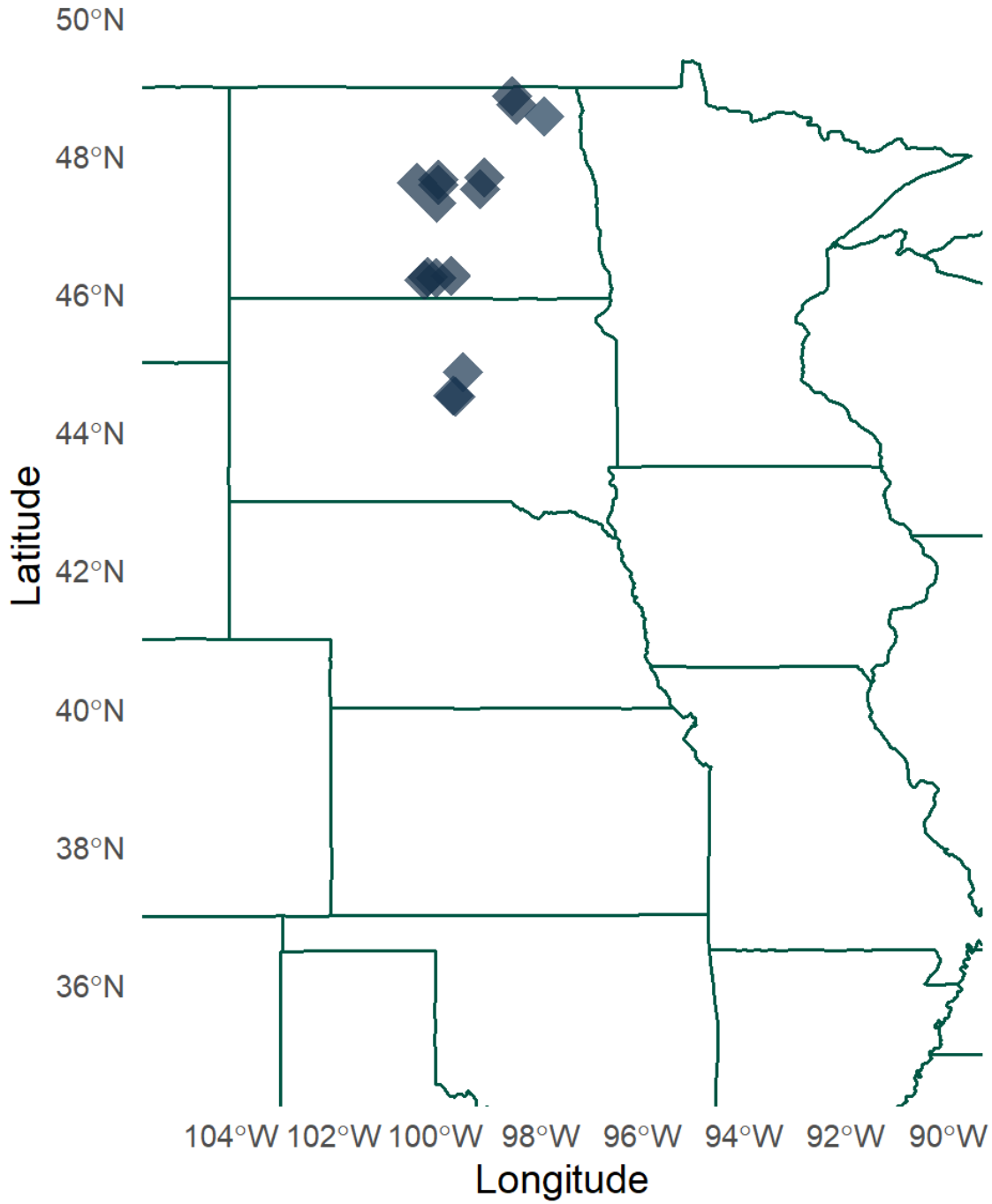
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Kochia
25
50
75
100

2023


50°N
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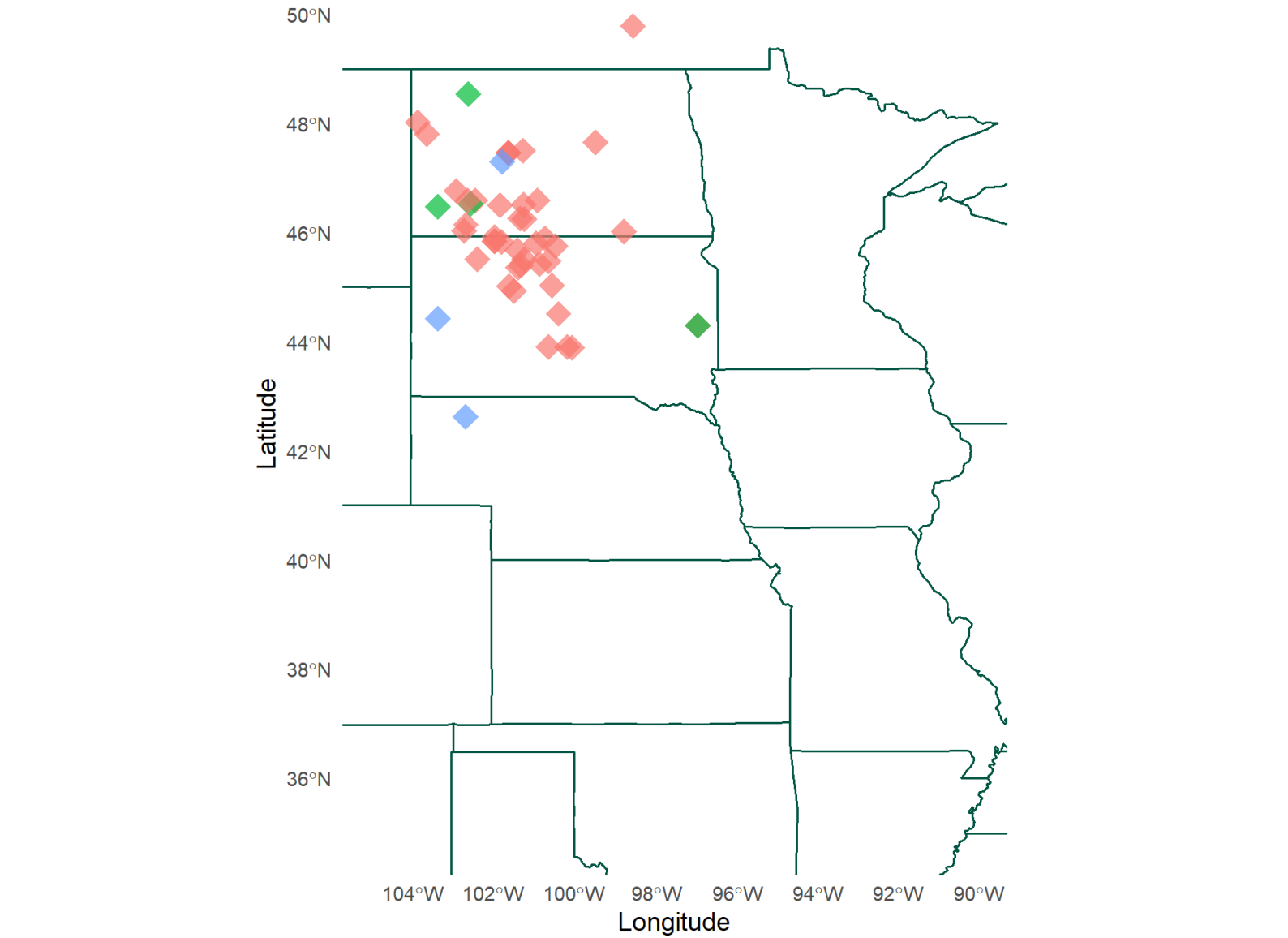
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude

2021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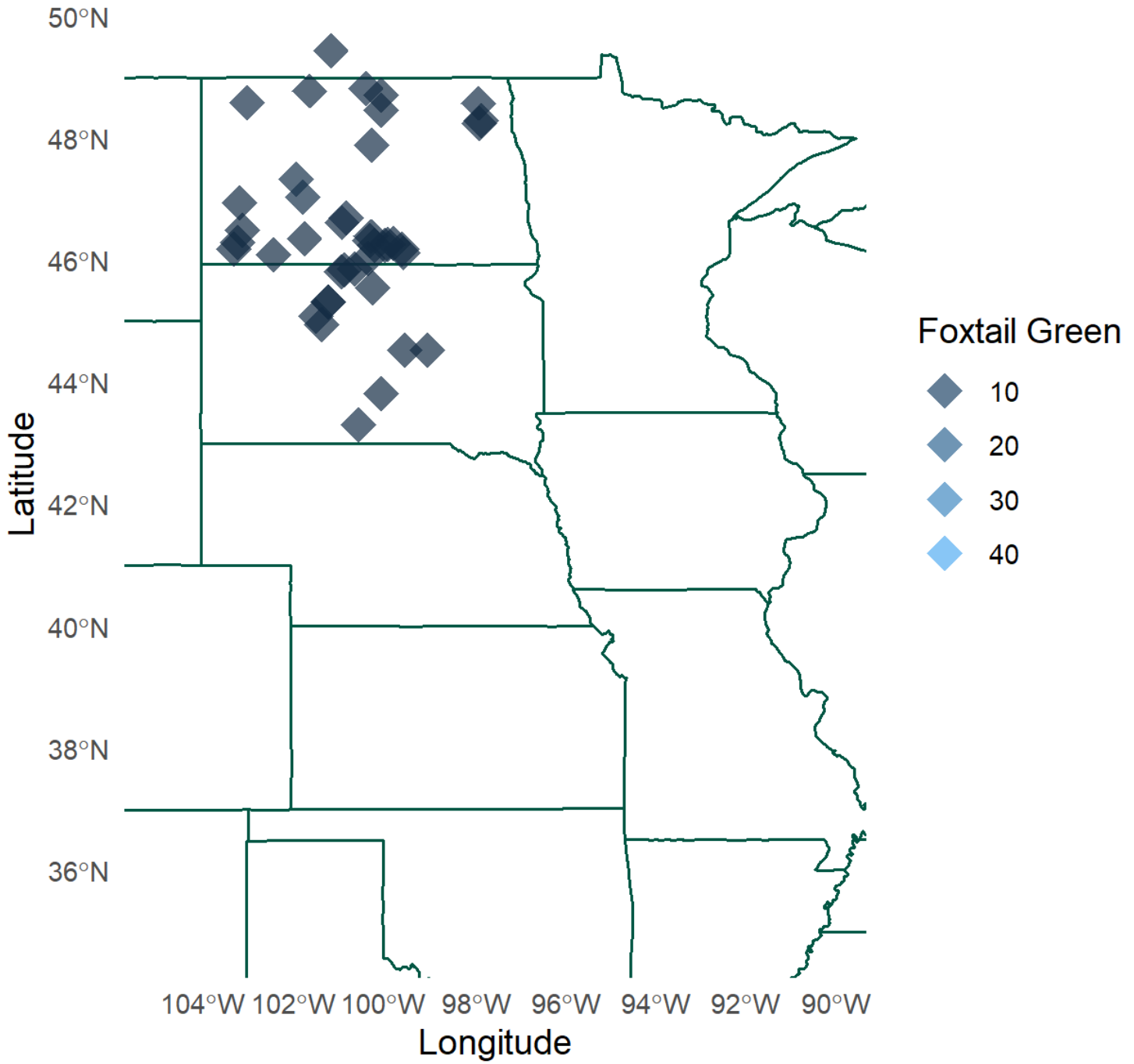
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
1 = light: Plant species found in field
2 = moderate: 1 plant per 1 ft of 30" row (3 grass weed plants per each species)
Weed.Prevalence....Foxtail..Green
3 = heavy: more than 1 plant per 1 ft of 30" row (greater than 3 grass weed plants per each sp


50°N
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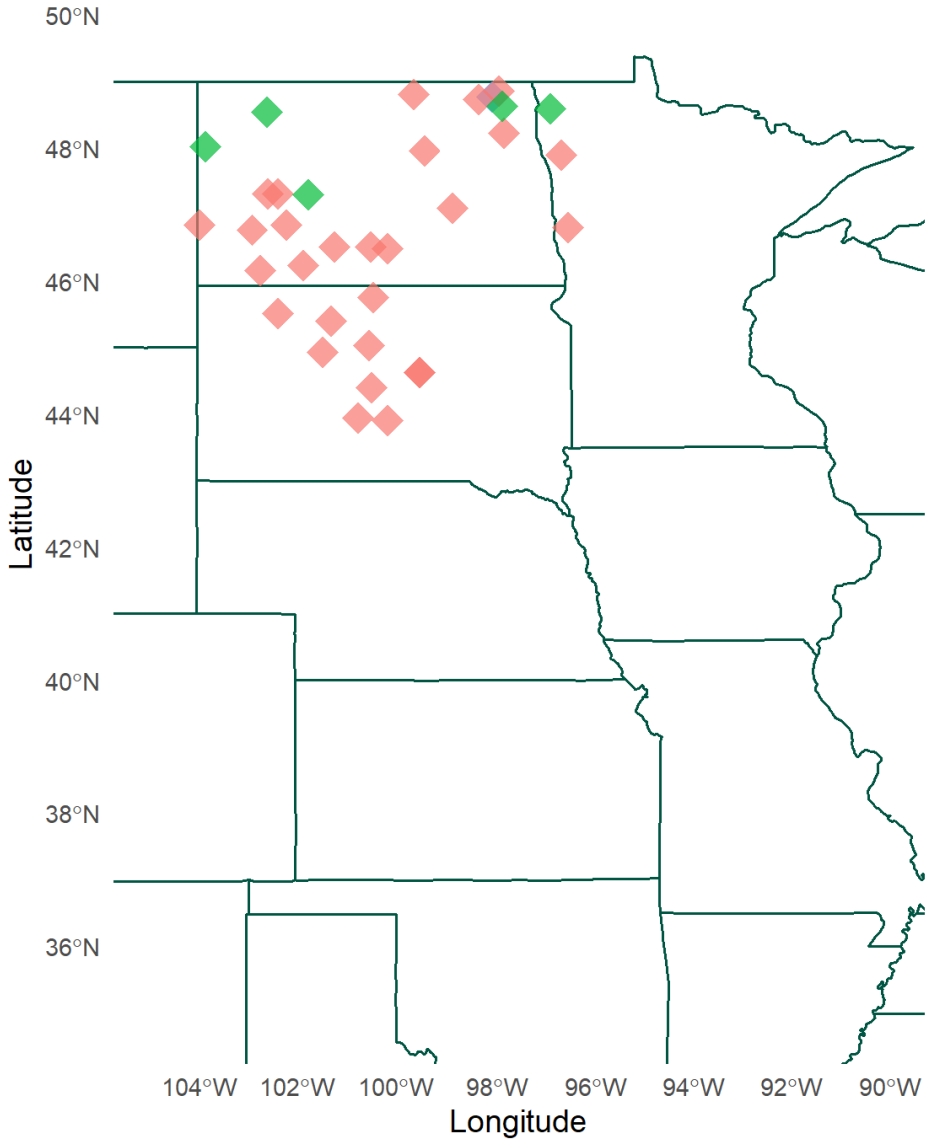
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
Foxtail Green
10
20
30
40

2023



Weed.Prevalence....Redroot.Pigweed

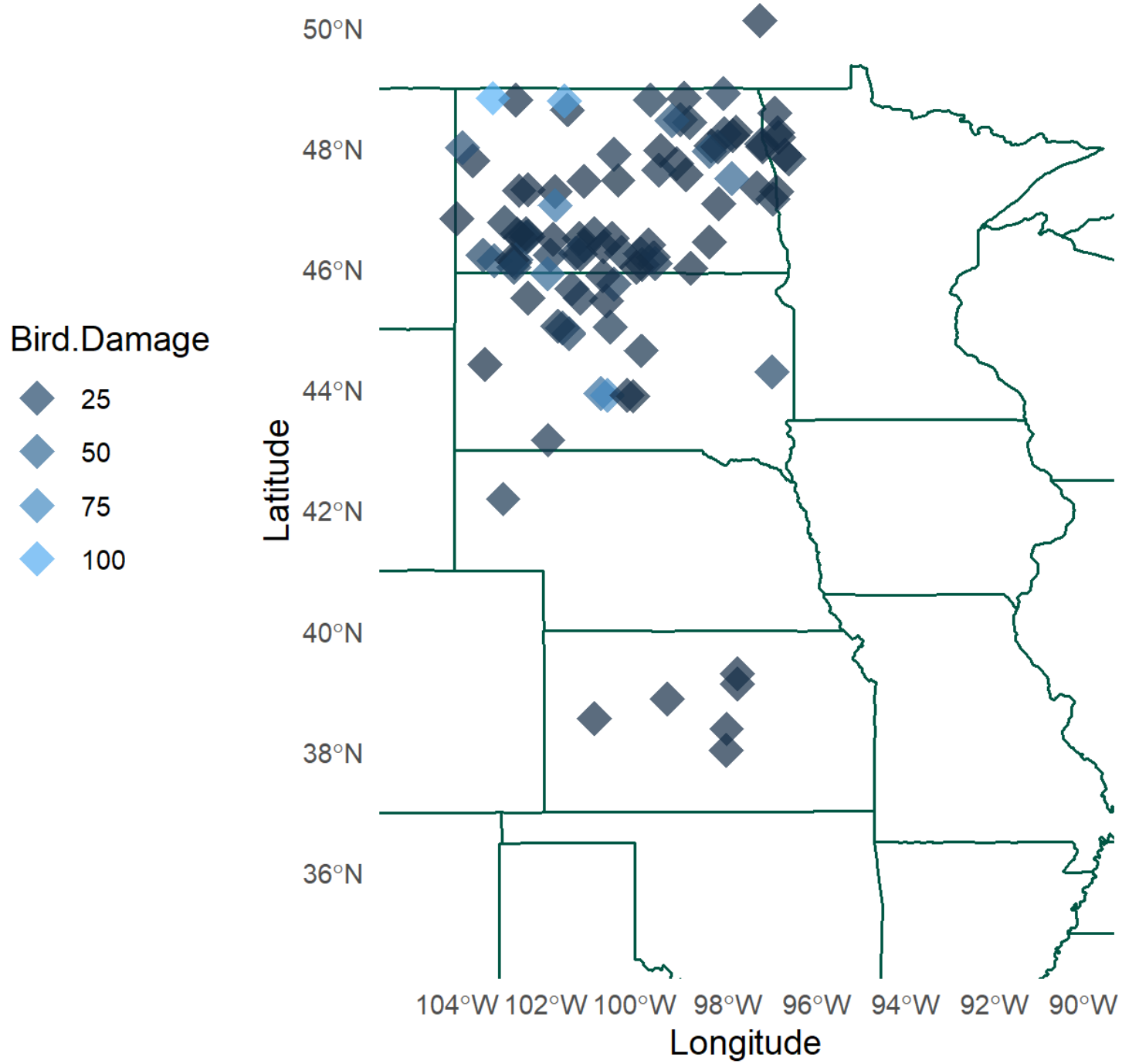
1 = light: Plant species found in field

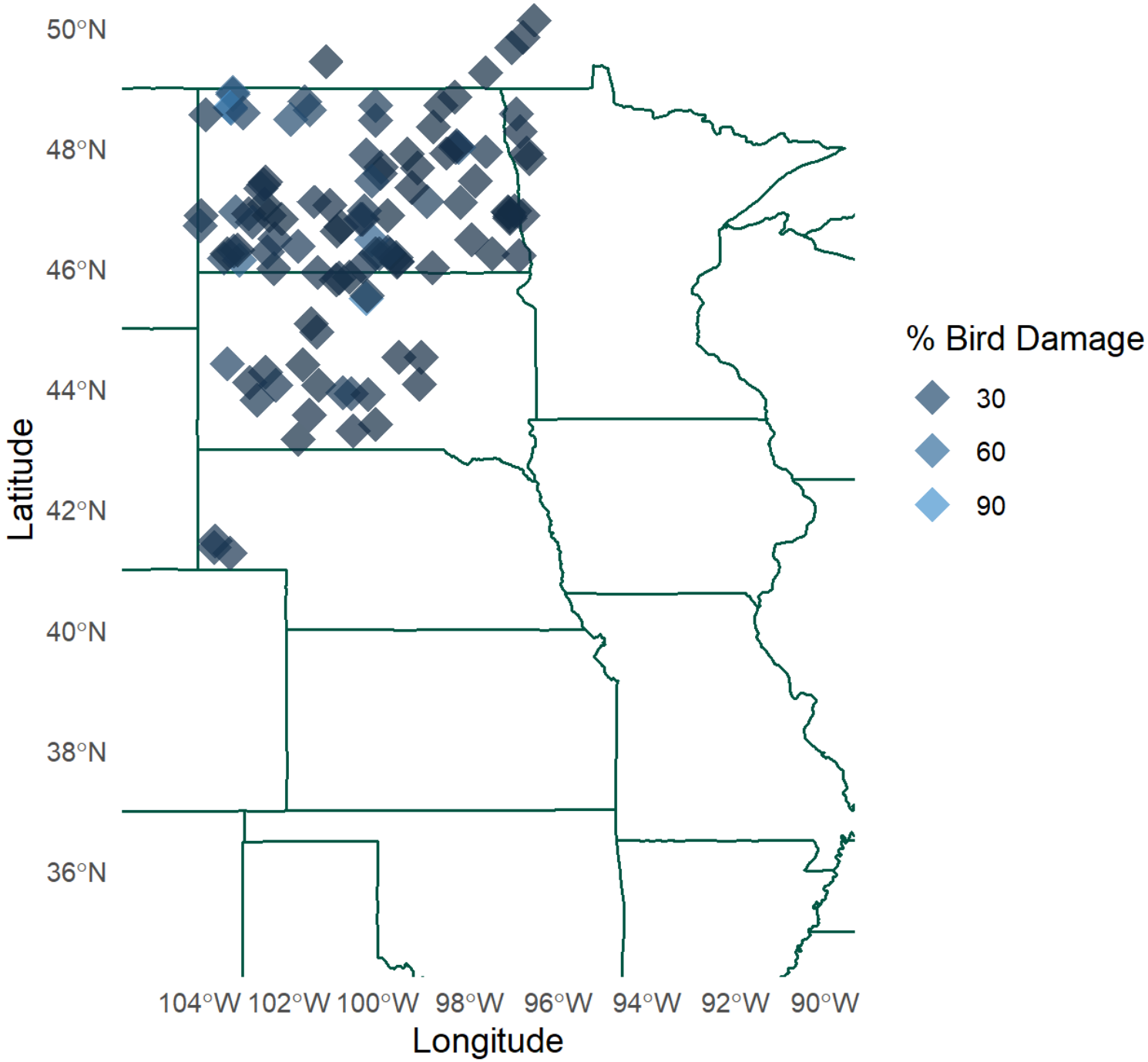
2 = moderate: 1 plant per 1 ft of 30" row (3 grass weed plants per each species)

3 = heavy: more than 1 plant per 1 ft of 30" row (greater than 3 grass weed plants per each

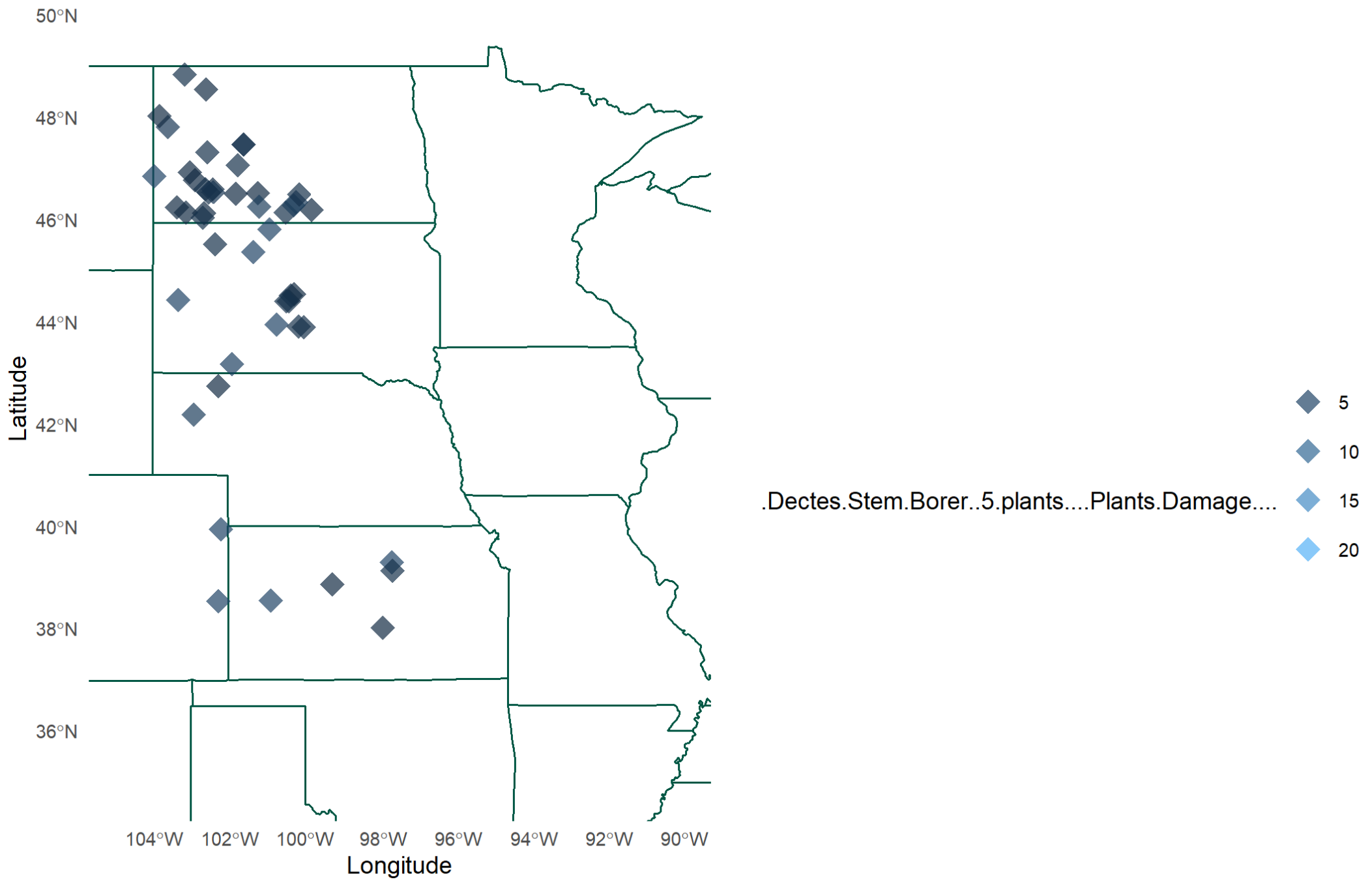
NATIONAL SUNFLOWER SURVEY - Insects

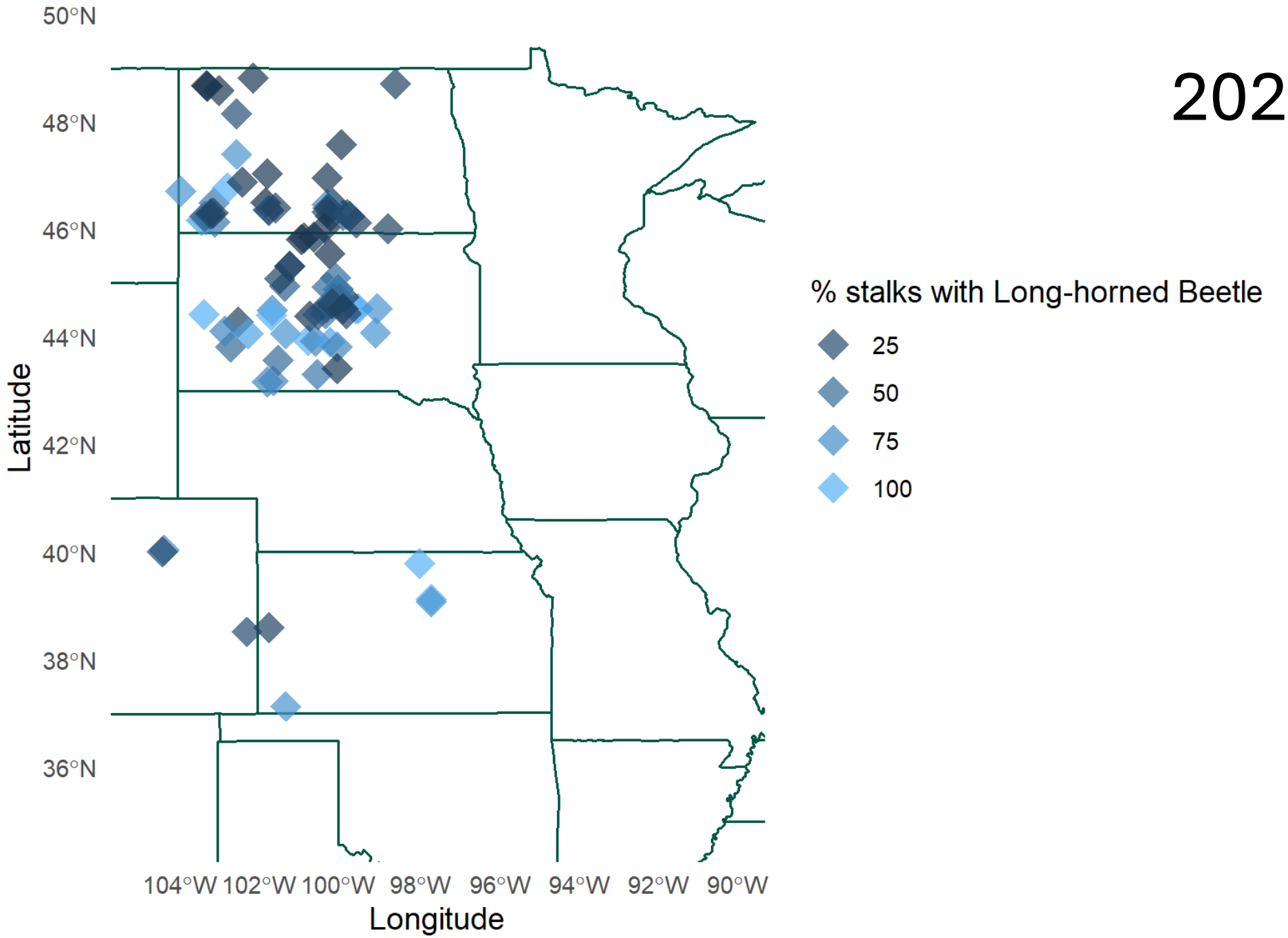
Insects and Bird	Percentage
Bird Damage	34%
Seed Maggot Damage	11%
Bud Moth Damage	8%
Midge Damage	8%
Long-Horned Beetle	14%


Bird.Damage
25
50
75
100
50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude

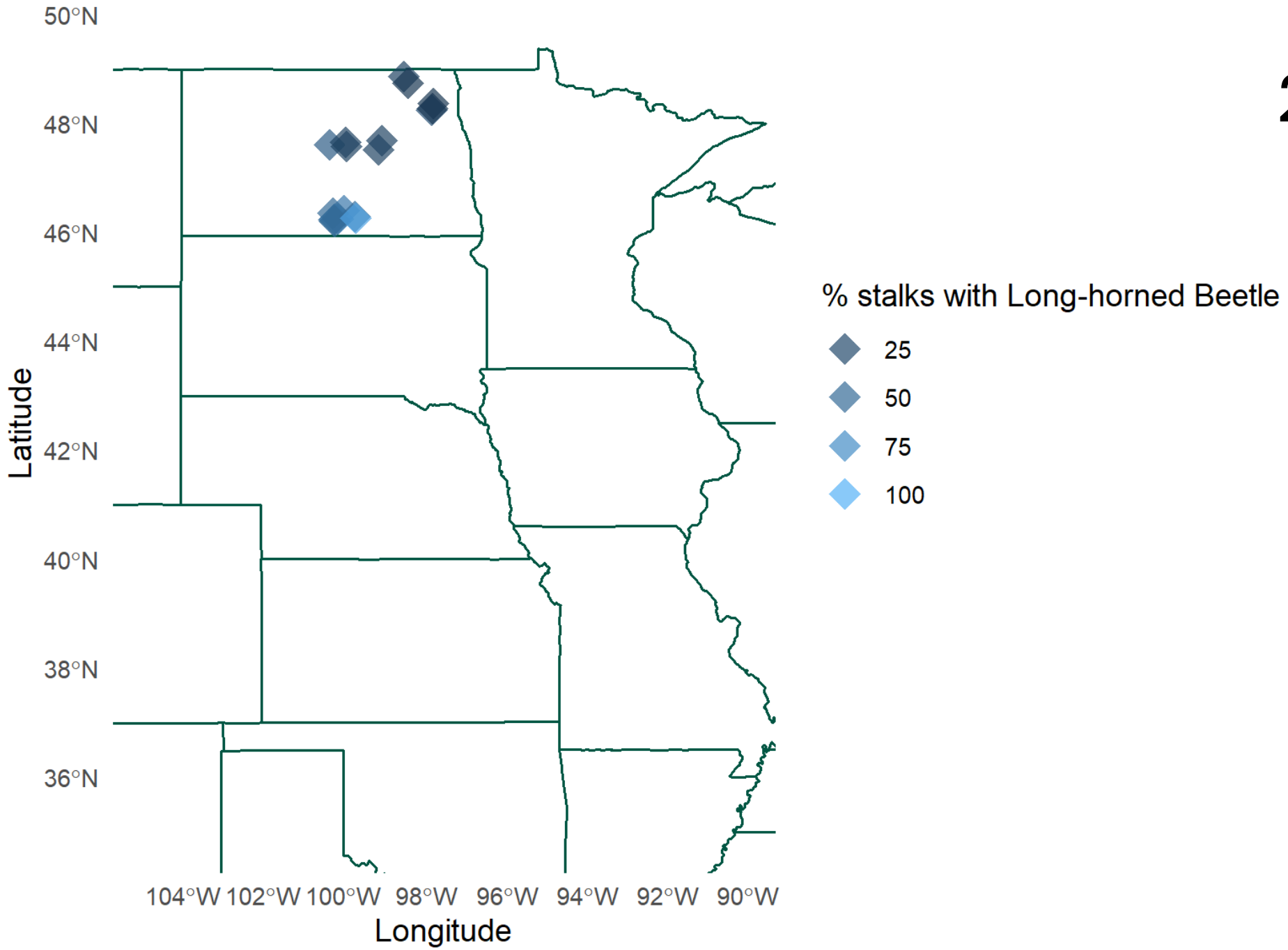

50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
% Bird Damage
30
60
90

2023

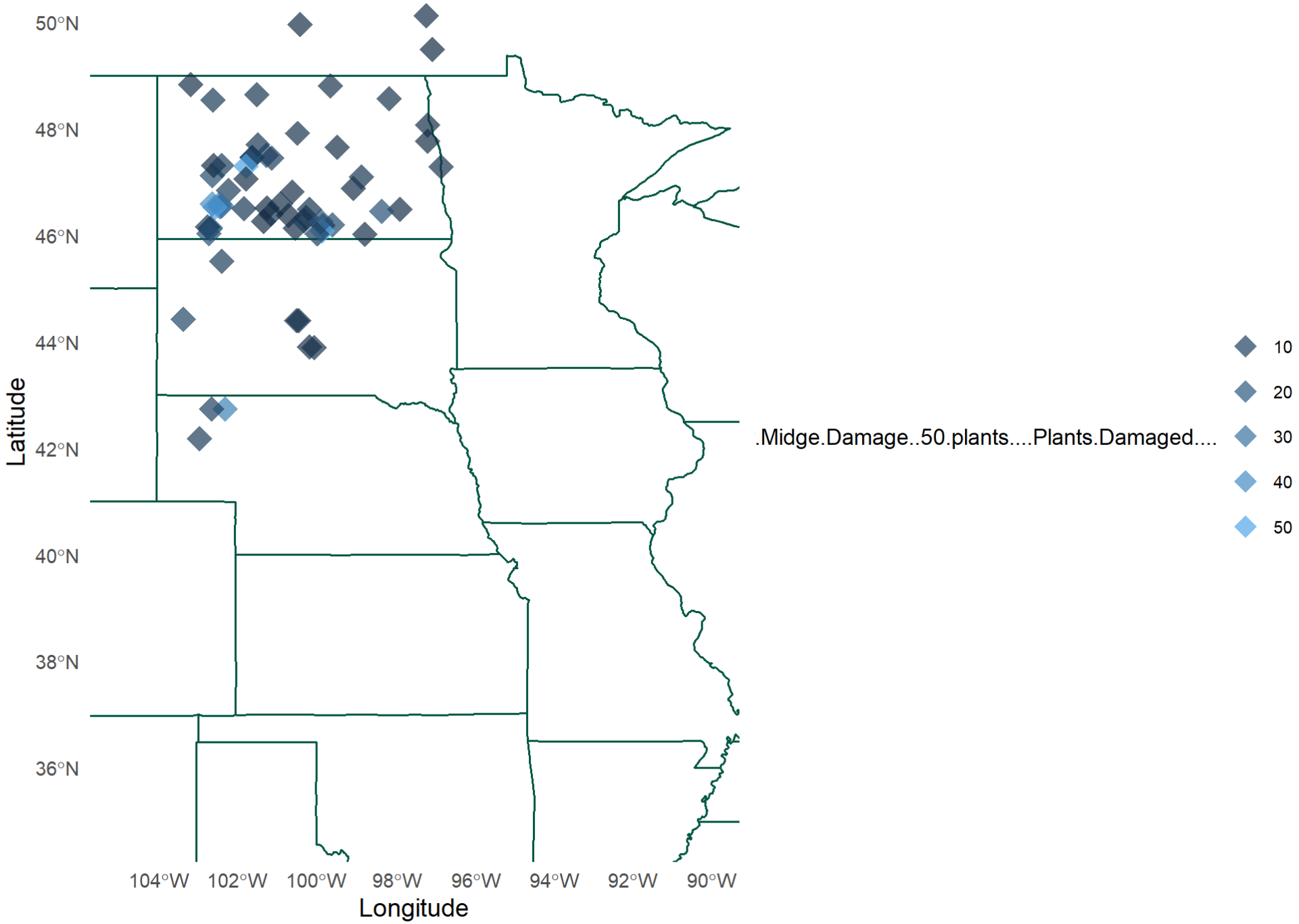

50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
.Dectes.Stem.Borer..5.plants....Plants.Damage....
5
10
15
20


50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
% stalks with Long-horned Beetle
25
50
75
100

2023


50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
% stalks with Long-horned Beetle
25
50
75
100

2021


50°N
48°N
46°N
44°N
42°N
40°N
38°N
36°N
Latitude
104°W
102°W
100°W
98°W
96°W
94°W
92°W
90°W
Longitude
.Midge.Damage..50.plants....Plants.Damaged....
10
20
30
40
50

GETTING IT RIGHT

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From 8.30 am to noon CST
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National Sunflower Association
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