

USA
Sunflower Survey



Partnership of
University, USDA & Industry

2017
NATIONAL
SUNFLOWER
ASSOCIATION
SURVEY

Project Leaders:

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NDSU Plant Science Department

USA Sunflower Survey



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Yield and Management Practices

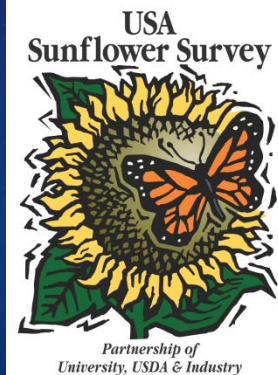
Ryan Buetow, Extension Agronomist, Dickinson

2017 SUNFLOWER SURVEY - # FIELDS

- North Dakota - 78
- Minnesota - 8
- South Dakota - 55
- Kansas - 5
- Colorado - 9
- Nebraska - 6
- Manitoba - 6
- Texas - 5



TOTAL - 172



2017 SUNFLOWER SURVEY TEAMS

- North Dakota 14 teams
- South Dakota 6 teams
- Minnesota 1 team
- Colorado 1 team
- Kansas 1 team
- Nebraska 1 team
- Texas 1 team
- Manitoba 1 team
- Texas 1 team

Total

27 teams





SURVEY FORMAT

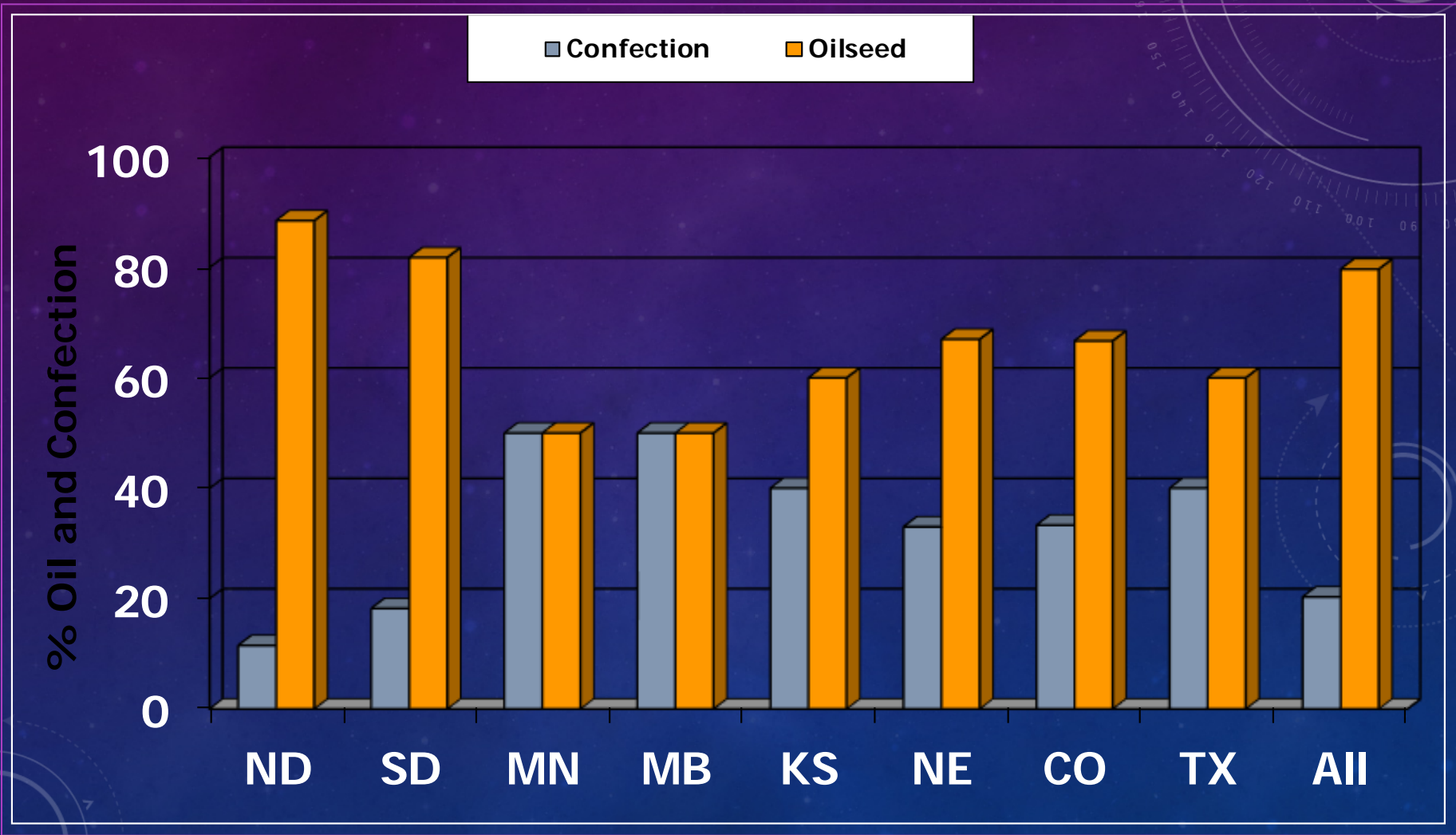
1. **Yield components** (Plant population, head diameter, seed seed, % good seed, % center set, bird damage) = six components
2. **Agronomic info** (eight components)
3. **Weed assessment** (30 weeds)
4. **Diseases** - incidence and severity on 10 diseases
5. **Insect and bird damage** = In-field assessment and lab exam of seed samples – 10 components
6. **Two sites examined per field**

THUS.... $(6 + 8 + 30 + 10 + 10) \times 2 = 128$ observations /field x 201

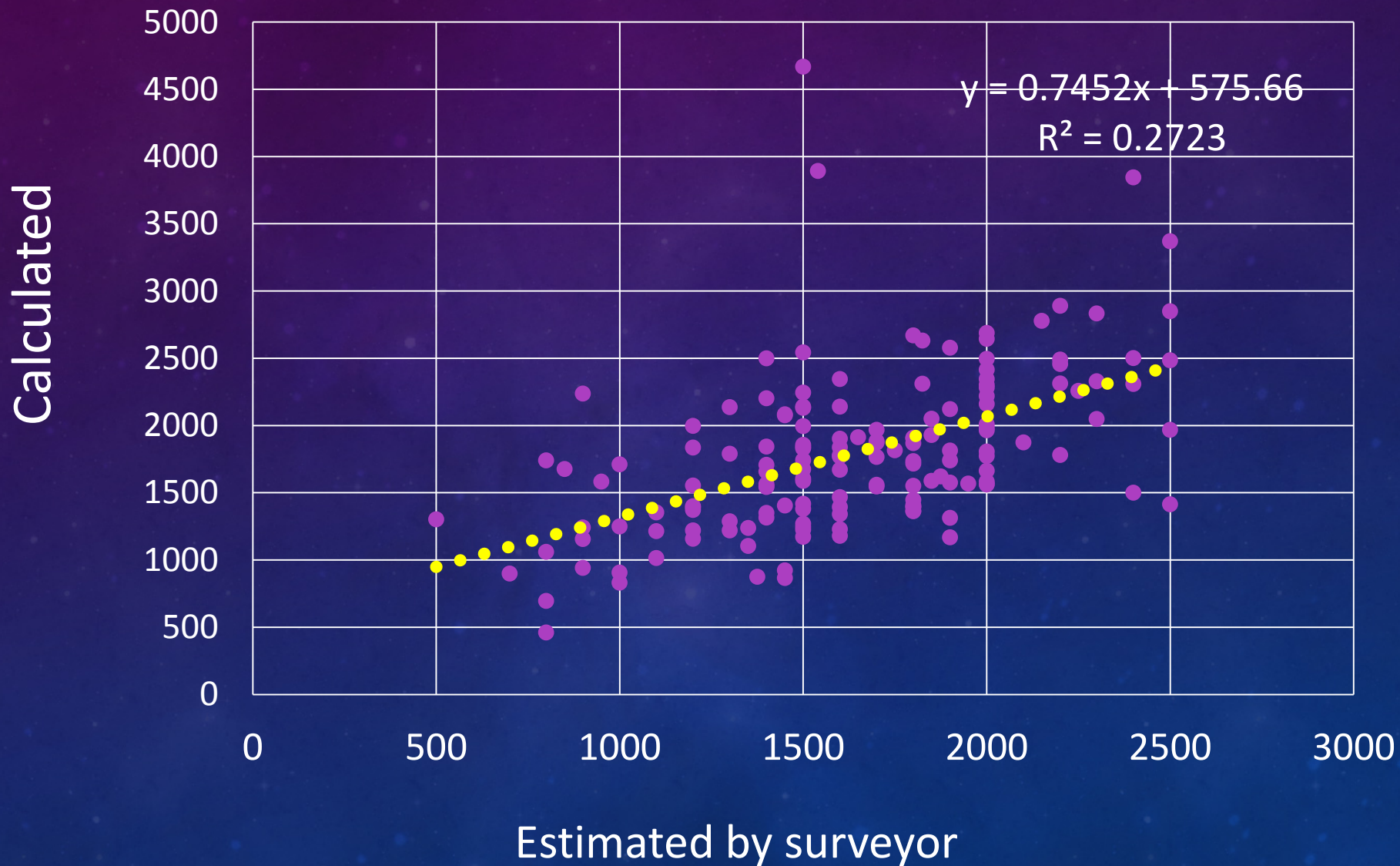
fields = **26,000 data points in one survey**

14 surveys = > 325,000 pieces of data

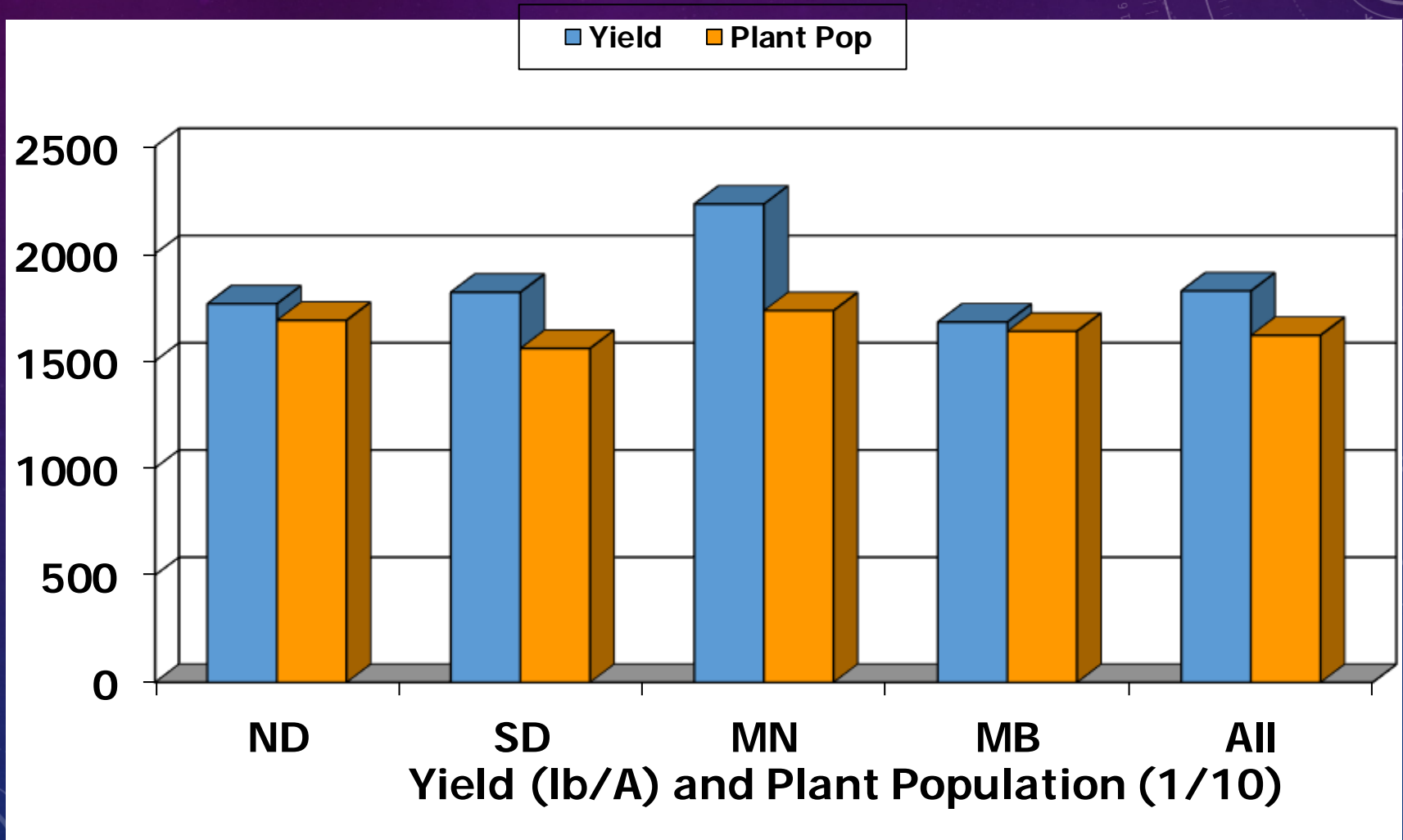
CONFECTION VS OILSEED (%) SUNFLOWER 2017 SURVEY



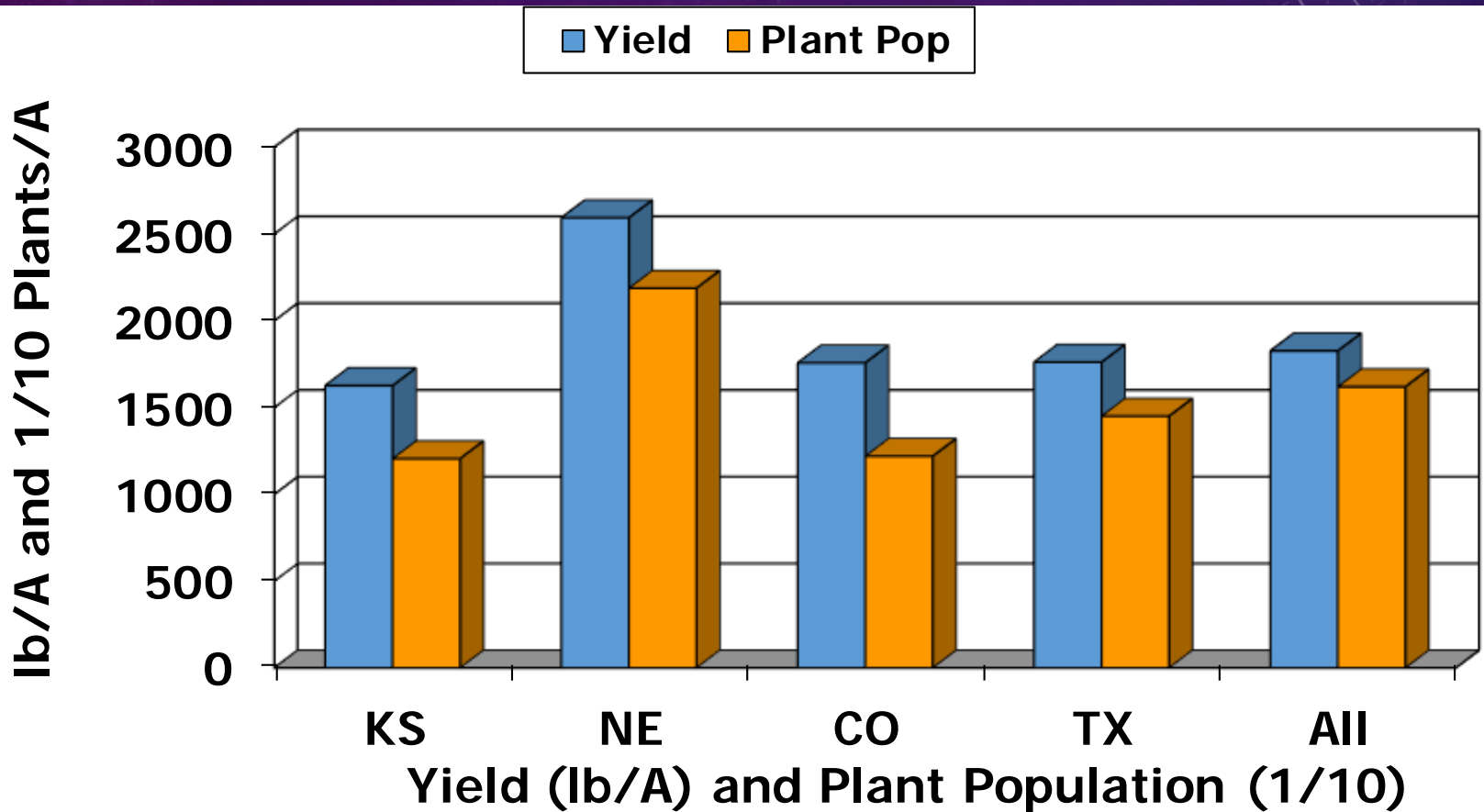
2017 SURVEYOR ESTIMATED & CALCULATED YIELD



SUNFLOWER YIELD & PLANT POPULATION: 2017

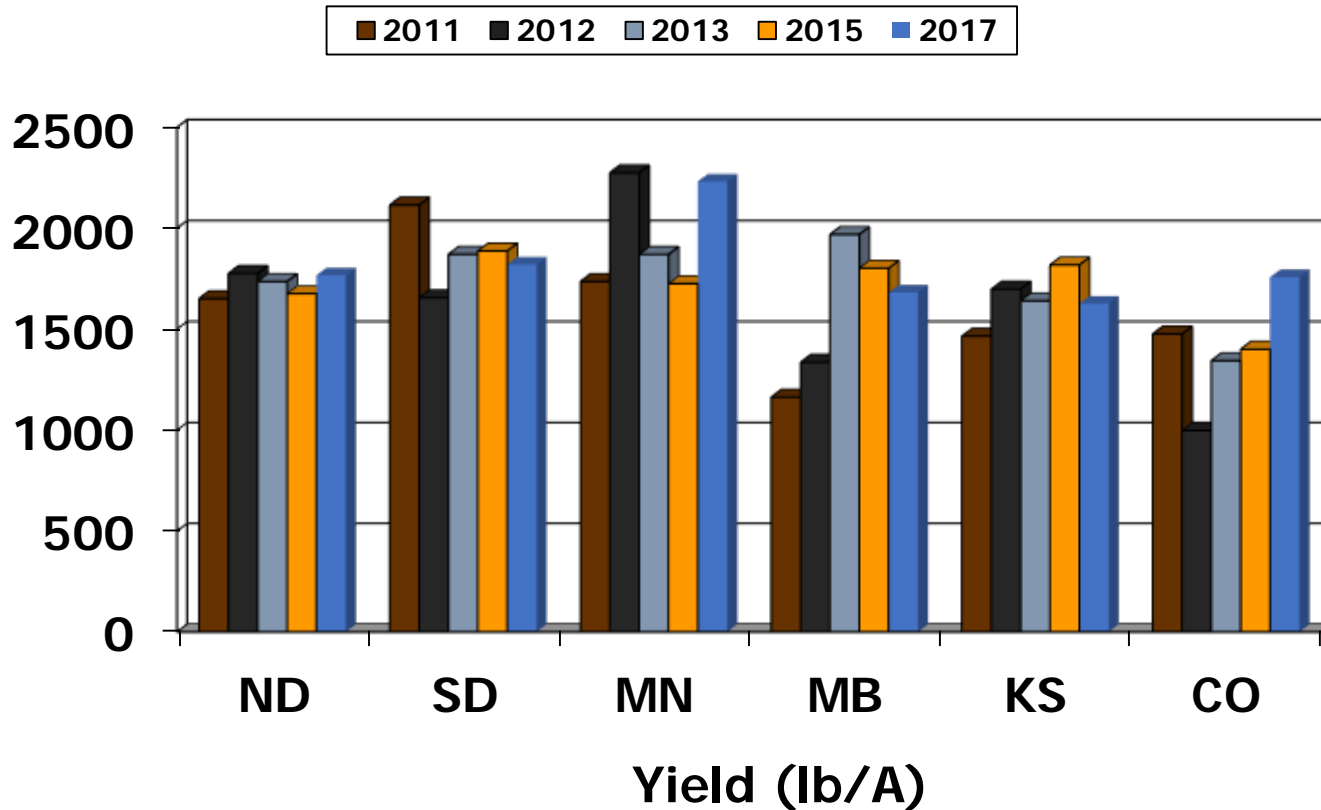


SUNFLOWER YIELD & PLANT POPULATION: 2017



SUNFLOWER YIELD (LB/A)

2011-2017



2013 #1 YIELD LIMITING FACTORS (209 FIELDS)

- **Disease** 17%
- **Plant spacing in row** 26%
- **Lodging** 10%
- **Weeds** 4%
- **Birds** 6%
- **Insects** 1%
- **Drought** 15%
- **Hail** 1%
- **Uneven plant growth** 2%
- **Other** 7%
- **No Problem** 11%



2015 #1 YIELD LIMITING FACTORS (201 FIELDS)

- **Disease** 24 %
- **Plant spacing in row** 13 %
- Lodging 8 %
- Weeds 8 %
- Birds 7 %
- Insects 4 %
- **Drought** 11 %
- Uneven plant growth 4 %
- Other 9 %
- **No Problem** 11 %



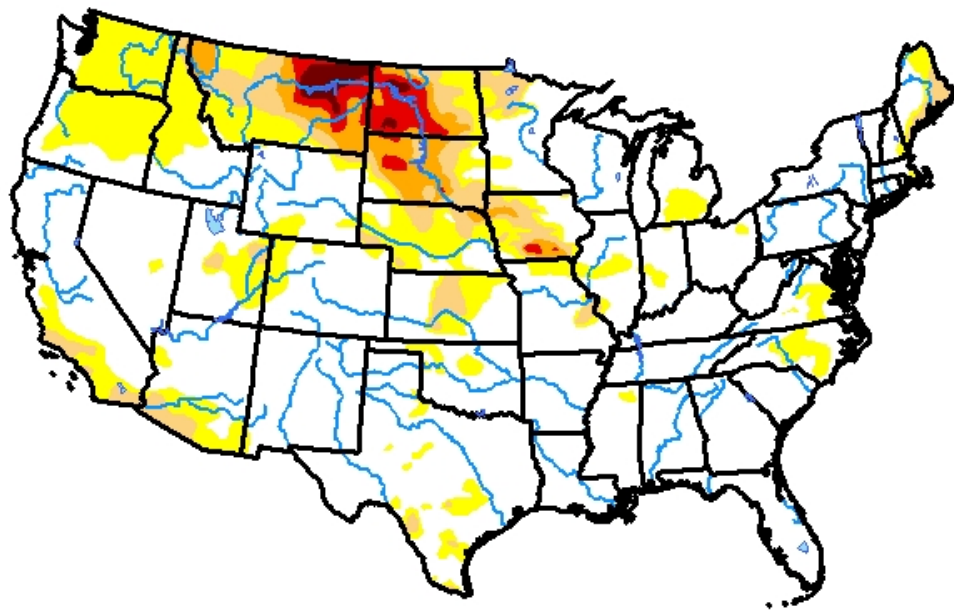
2017 #1 YIELD LIMITING FACTORS (172 FIELDS)

- **Disease** 11 %
- **Plant spacing in row** 19 %
- Lodging 3 %
- Weeds 8 %
- Birds 4 %
- Insects 2 %
- **Drought** 31 %
- Uneven plant growth 2 %
- Other 9 %
- **No Problem** 9 %



U.S. Drought Monitor Continental U.S. (CONUS)

August 15, 2017
(Released Thursday, Aug. 17, 2017)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	71.95	28.05	11.31	5.33	2.45	0.70
Last Week <i>08-08-2017</i>	70.23	29.77	11.24	5.38	2.37	0.76
3 Months Ago <i>05-16-2017</i>	83.42	16.58	5.61	1.38	0.43	0.00
Start of Calendar Year <i>01-03-2017</i>	53.89	46.11	22.53	8.63	3.15	0.96
Start of Water Year <i>09-27-2016</i>	53.60	46.40	18.96	8.10	3.20	1.16
One Year Ago <i>08-16-2016</i>	52.72	47.28	19.86	7.71	2.91	1.11

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

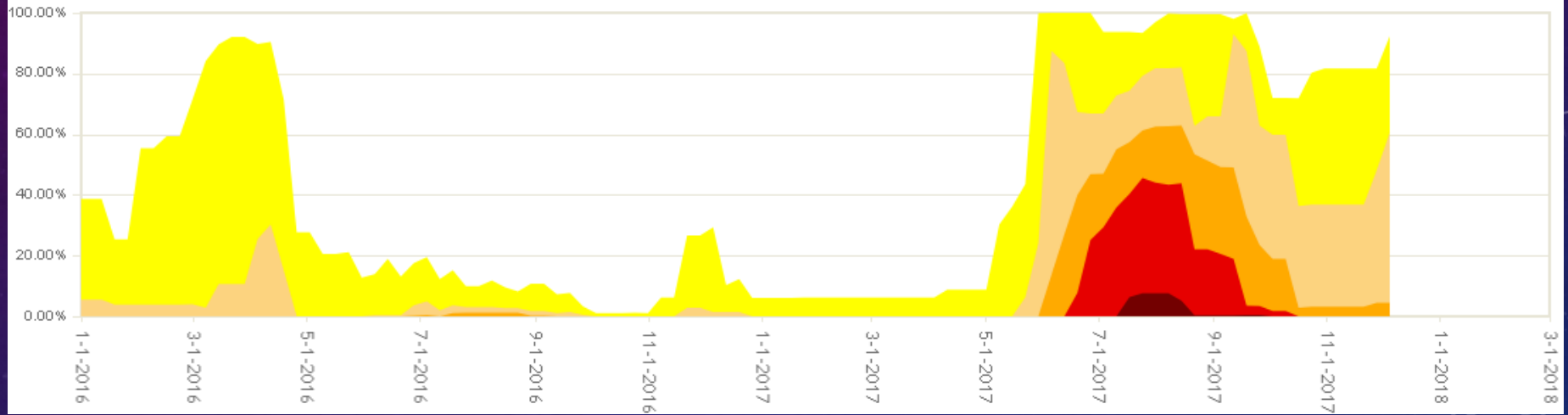
Author:

Jessica Blunden
NCEI/NOAA



<http://droughtmonitor.unl.edu/>

North Dakota Percent Area





PLANT SPACING WITHIN ROW



2015 #2 YIELD LIMITING FACTORS – (ALL 201 FIELDS)

- **Disease** 13 %
- Plant spacing in row 9 %
- Lodging 9 %
- Weeds 9 %
- Birds 5 %
- Insects 5 %
- Drought 4 %
- Hail 2 %
- Uneven plant growth 1 %
- Other 6 %
- **No Problem** 37 %



2017 #2 YIELD LIMITING FACTORS – (ALL 172 FIELDS)

- **Disease** 10 %
- Plant spacing in row 17 %
- Lodging 5 %
- Weeds 6 %
- Birds 2 %
- Insects 4 %
- Drought 9 %
- Hail 5 %
- Uneven plant growth 6 %
- Other 6 %
- **No Problem** 30 %



2015 #1 YIELD LIMITING FACTORS - NORTH DAKOTA (106 FIELDS)

- **Disease** 24 %
- **Plant spacing** 10 %
- **Lodging** 12 %
- Weeds 2 %
- Birds 8 %
- Insects 3 %
- **Drought** 10 %
- Hail 0%
- Uneven plant growth 2 %
- **Other** 15 %
- **No Problem** 13 %



2017 #1 YIELD LIMITING FACTORS - NORTH DAKOTA (78 FIELDS)

- **Disease** 17 %
- **Plant spacing** 10 %
- **Lodging** 3%
- Weeds 12%
- Birds 9 %
- Insects 1 %
- **Drought** 32 %
- Hail 3%
- Uneven plant growth 3 %
- **Other** 6 %
- **No Problem** 5 %



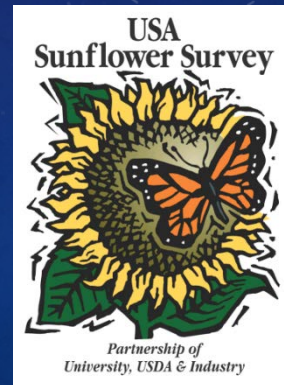
2015 #2 YIELD LIMITING FACTORS - NORTH DAKOTA (106 FIELDS)

- **Disease** 10 %
- Plant spacing 6 %
- **Lodging** 11 %
- Drought 3 %
- Weeds 6 %
- Insects 4 %
- Birds 4 %
- Uneven plant growth 2 %
- Other 8 %
- **No Problem** 47 %



2017 #2 YIELD LIMITING FACTORS - NORTH DAKOTA (78 FIELDS)

- **Disease** 10 %
- Plant spacing 18 %
- **Lodging** 4 %
- Drought 10 %
- Weeds 6 %
- Insects 3 %
- Birds 4 %
- Uneven plant growth 8 %
- Other 10 %
- **No Problem** 22 %





2015 # 1 AND #2

YIELD LIMITING FACTORS SOUTH DAKOTA

(52 FIELDS)



#1 Factor

- **Disease** 21 %
- **Plant Spacing** 23 %
- Lodging 4 %
- **Weeds** 15 %
- Birds 6 %
- Insects 8 %
- Drought 8 %
- Hail 0%
- Uneven growth 10 %
- No problem 6 %

#2 Factor

- **Disease** 15 %
- **Plant spacing** 13 %
- Lodging 8 %
- Weeds 4 %
- Birds 0%
- Insects 10 %
- Drought 8 %
- Hail 4 %
- Uneven growth 2 %
- **No Problem** 25 %

2017 # 1 AND #2

YIELD LIMITING FACTORS SOUTH DAKOTA (55 FIELDS)



#1 Factor

- **Disease** 9 %
- **Plant Spacing** 24 %
- Lodging 4 %
- **Weeds** 0 %
- Birds 0 %
- Insects 2 %
- Drought 40 %
- Hail 4 %
- Uneven growth 4 %
- No problem 7 %

#2 Factor

- **Disease** 6 %
- **Plant spacing** 18 %
- Lodging 7 %
- Weeds 6 %
- Birds 0%
- Insects 6 %
- Drought 13 %
- Hail 7 %
- Uneven growth 6 %
- **No Problem** 29 %

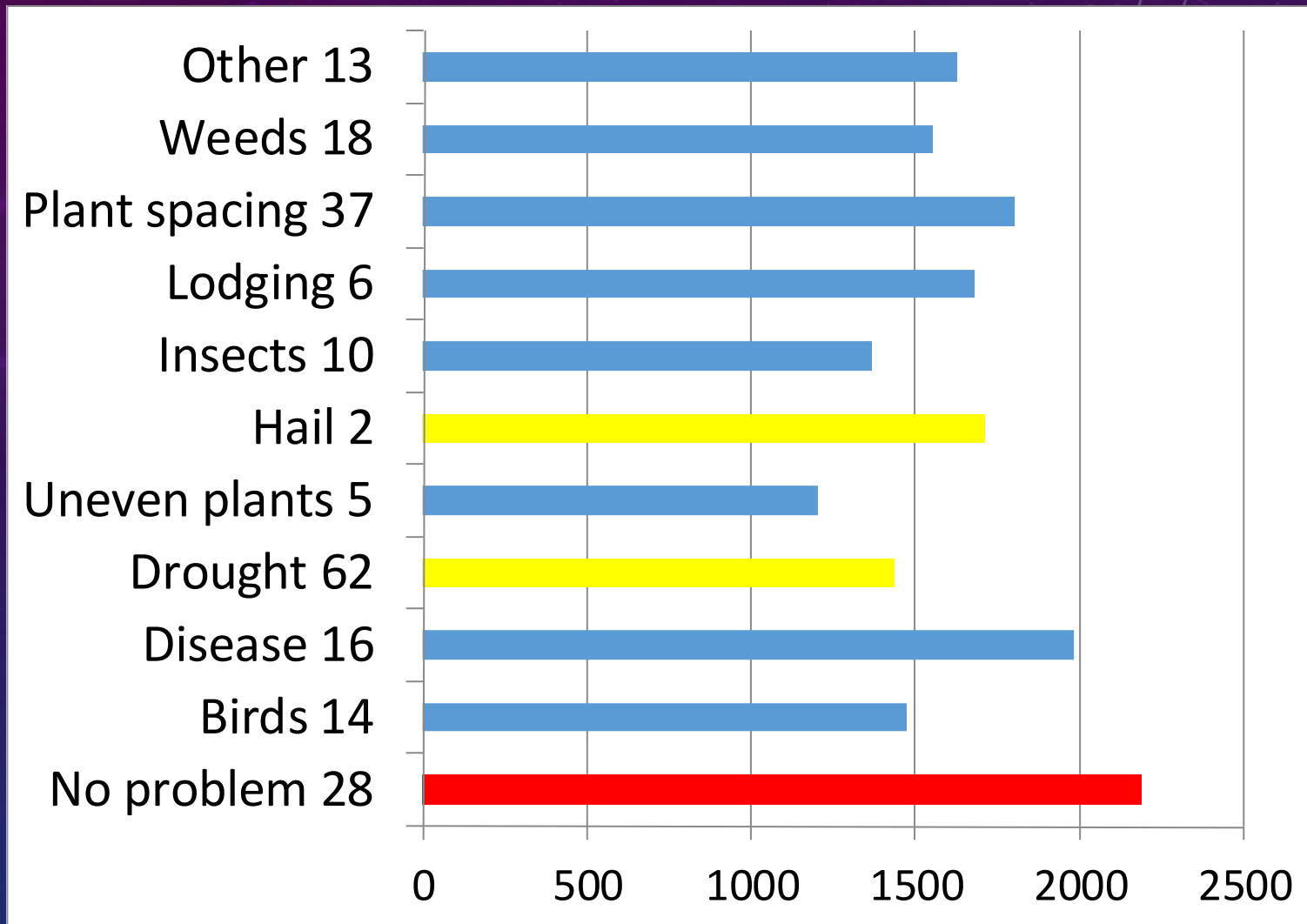
Most # 1 Limiting Factors 2011 - 2017

Sunflower Surveys

	2011	2012	2013	2015	2017	5 yr AV.
Plant Spacing	18	18	26	13	32	21
Diseases	18	7	17	24	19	17
Drought	8	29	15	11	53	23
No Problem	14	13	11	11	16	13
Weeds	8	8	4	8	13	8

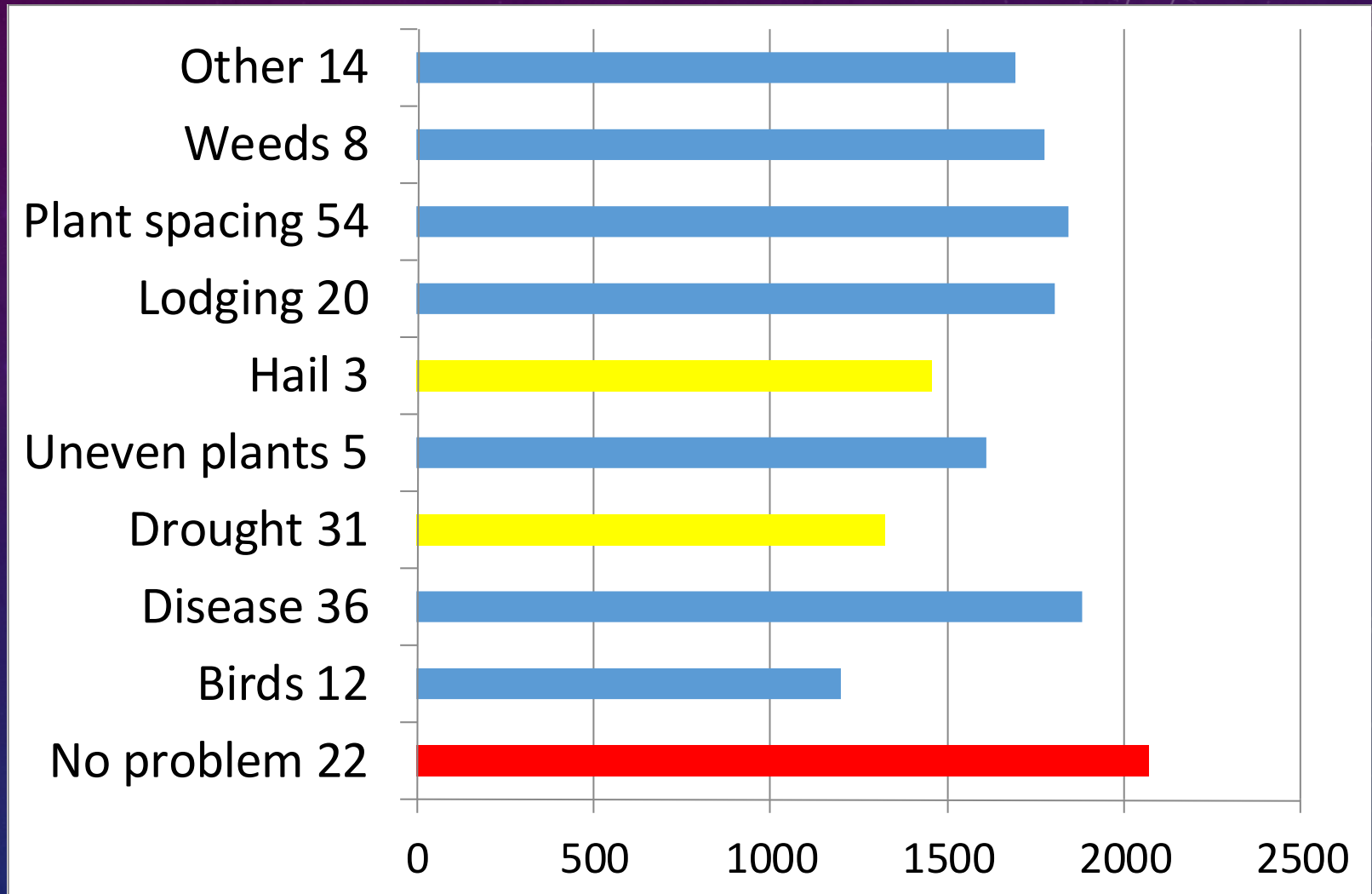
¹Based on 155 fields in 2011, 211 (2012), 209 (2013), 201 (2015) and 172 (2017) = 948 total over five years.

YIELD LIMITING FACTOR AND YIELD 2012



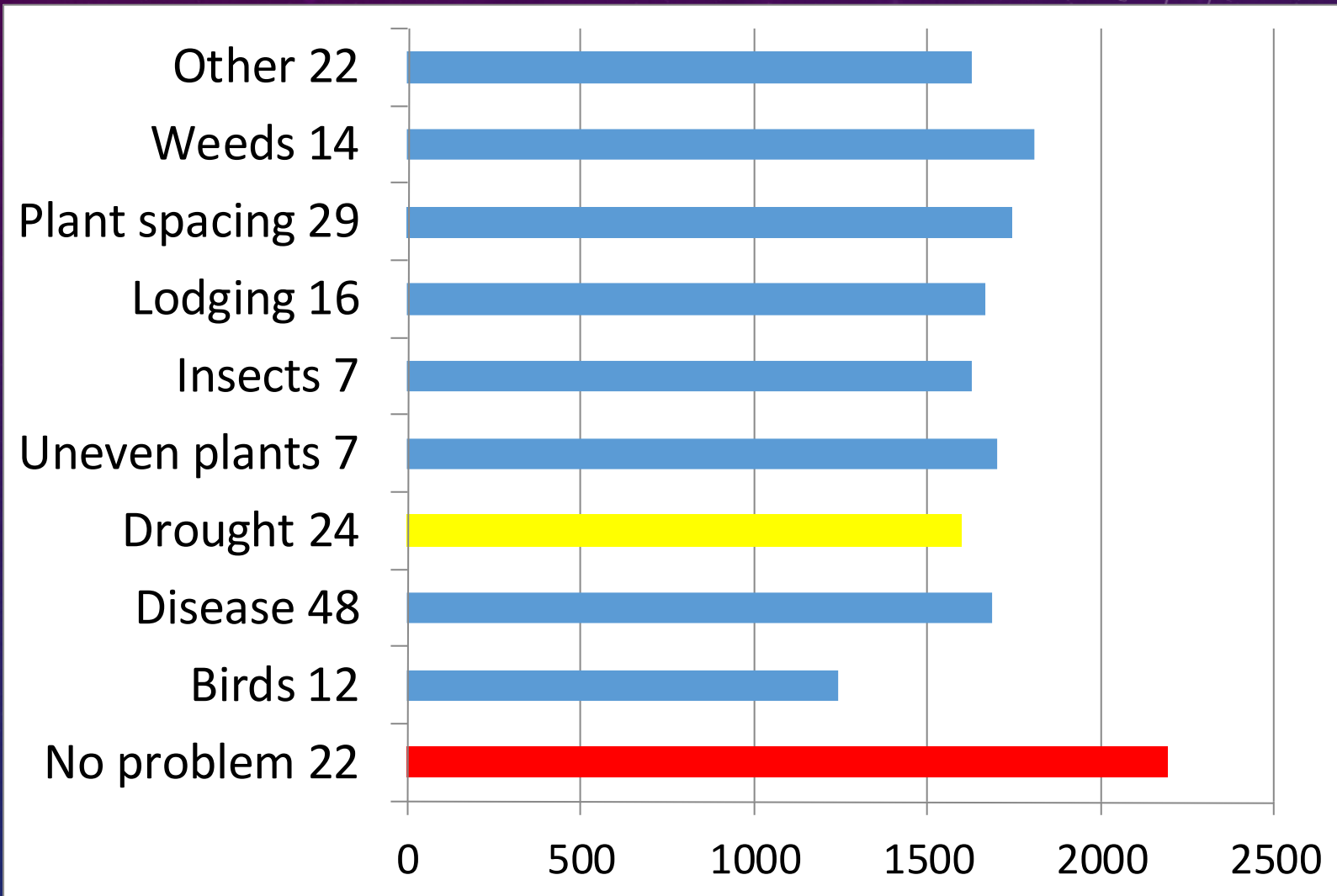
“No Problem” yield = 2188 #/A. Average of all other problems = 1524 #/A or -30%.

YIELD LIMITING FACTOR AND YIELD 2013



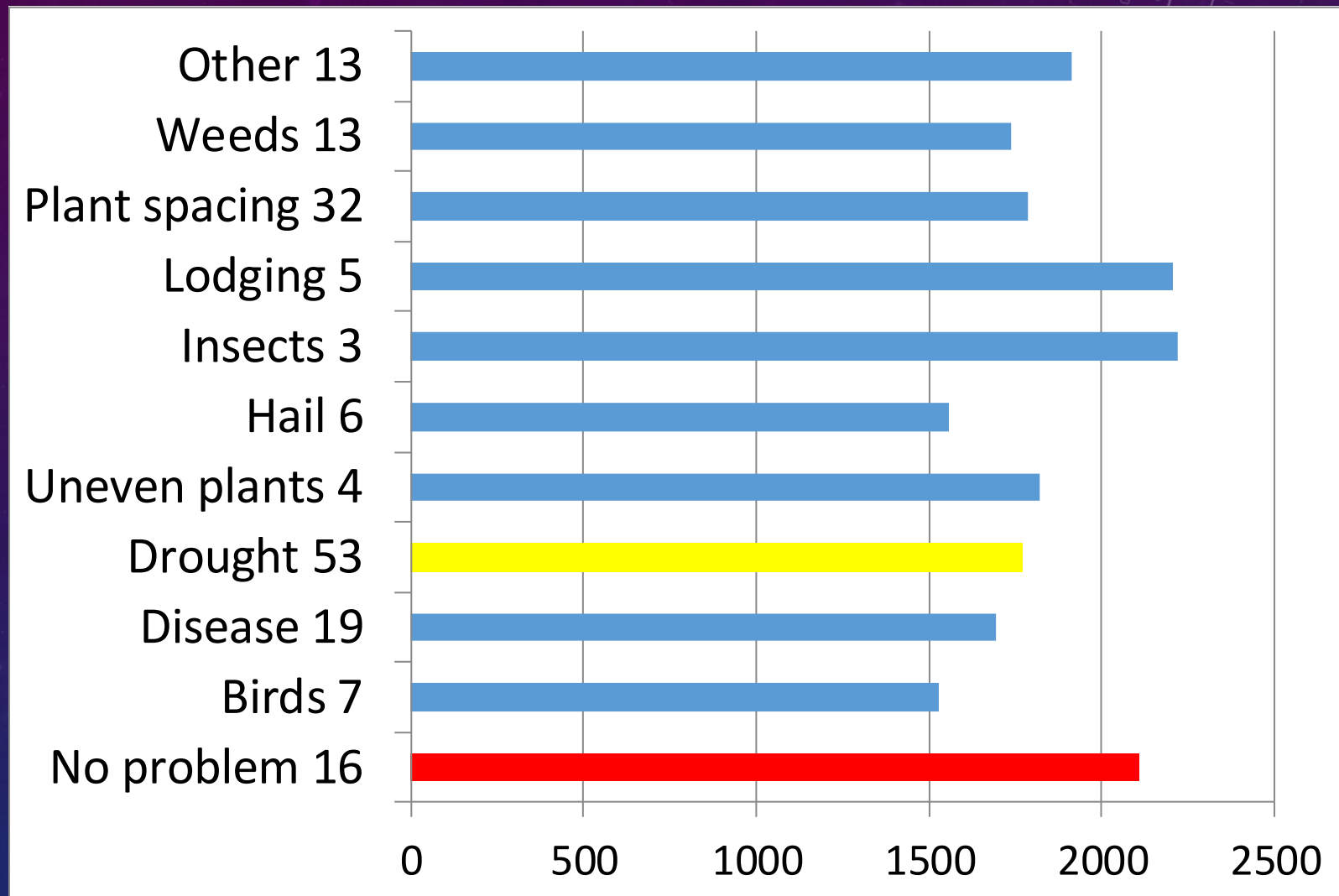
“No Problem” yield = 2070 #/A. Average all other problems = 1607 #/A or -22% yield.

YIELD LIMITING FACTOR AND YIELD 2015



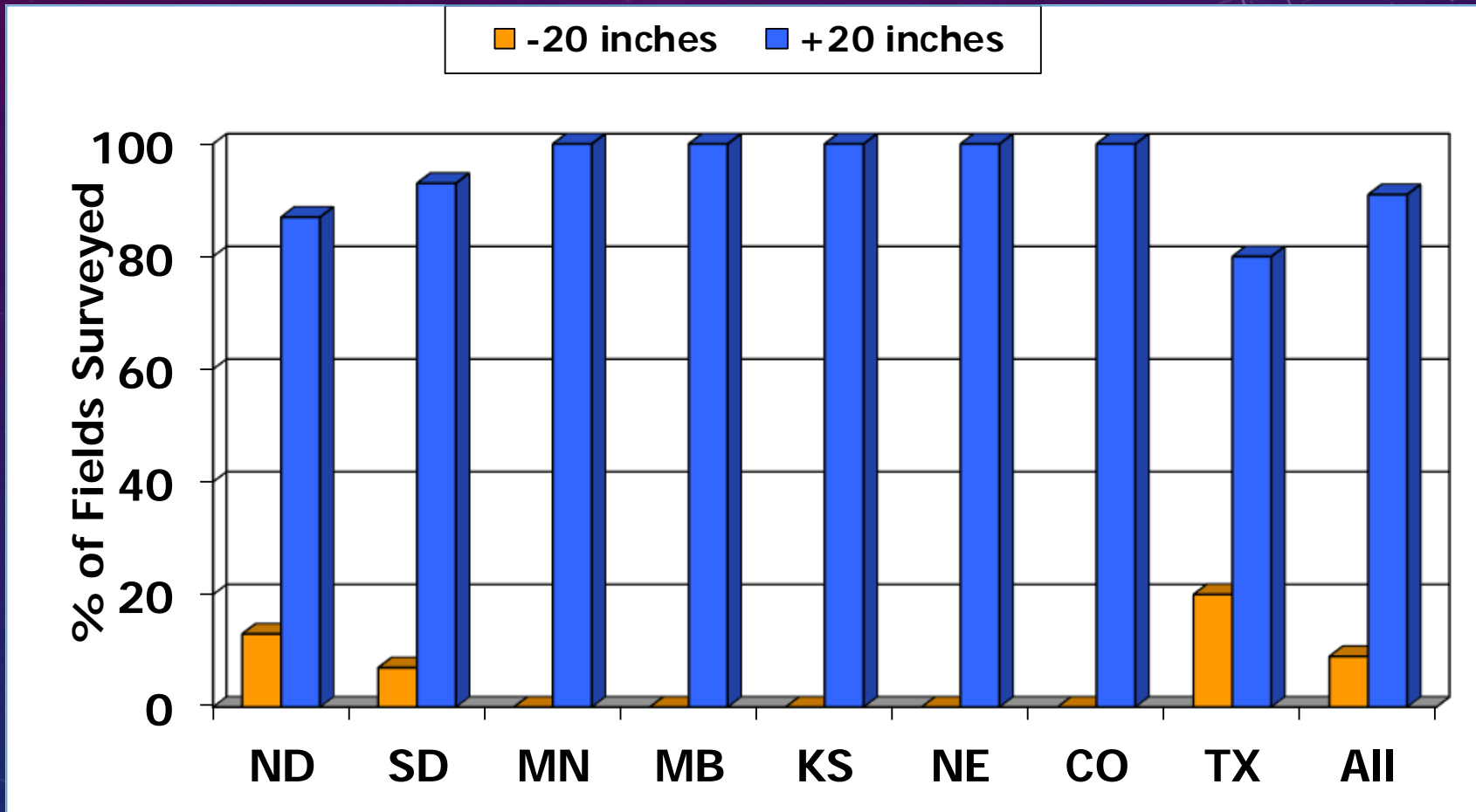
"No Problem" Yield = 2193 #/A. Average all other problems = 1634 #/A or -25%.

YIELD LIMITING FACTOR AND YIELD 2017

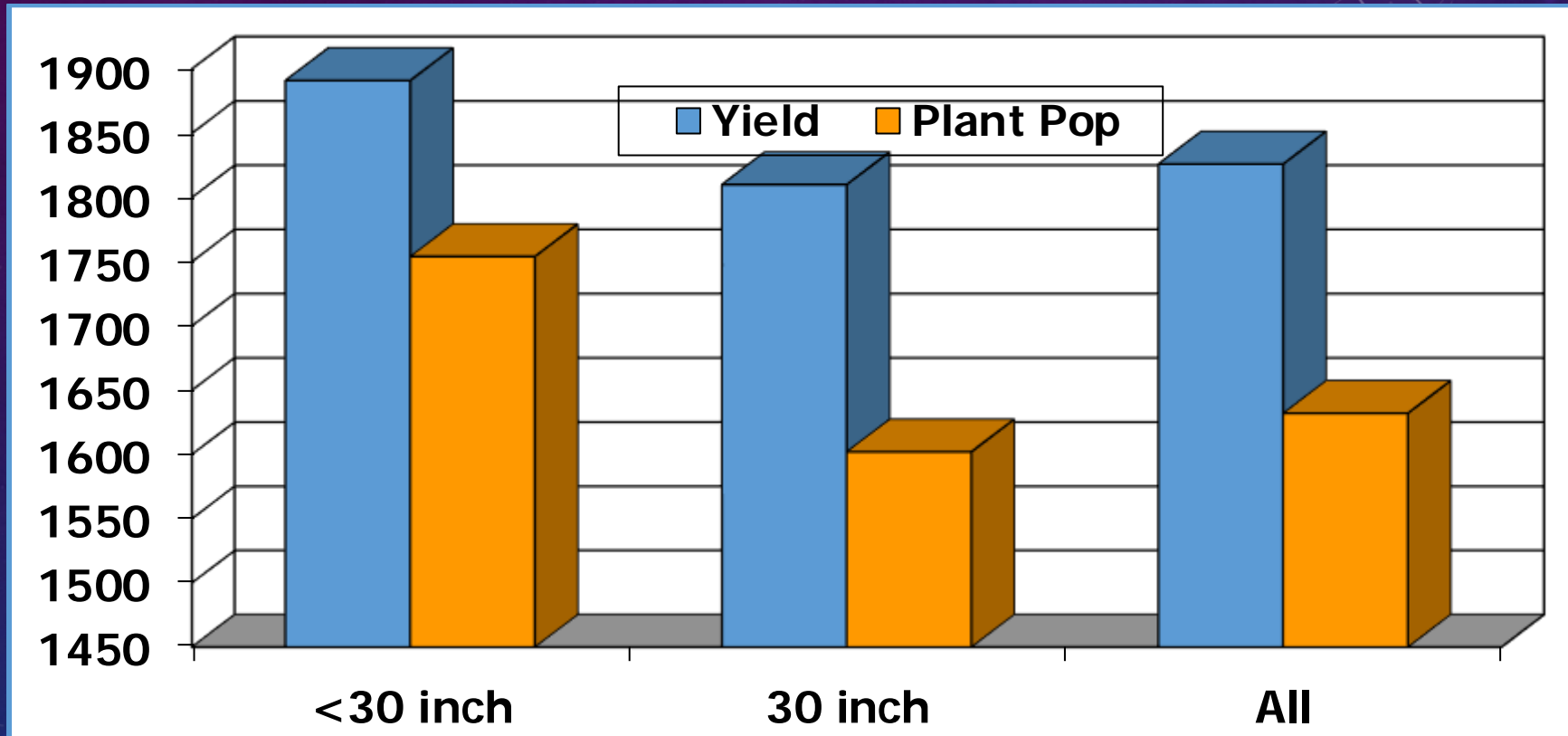


"No Problem" Yield = 2110 #/A. Average all other problems = 1778 #/A or -16%.

ROW SPACING IN SUNFLOWER - 2017

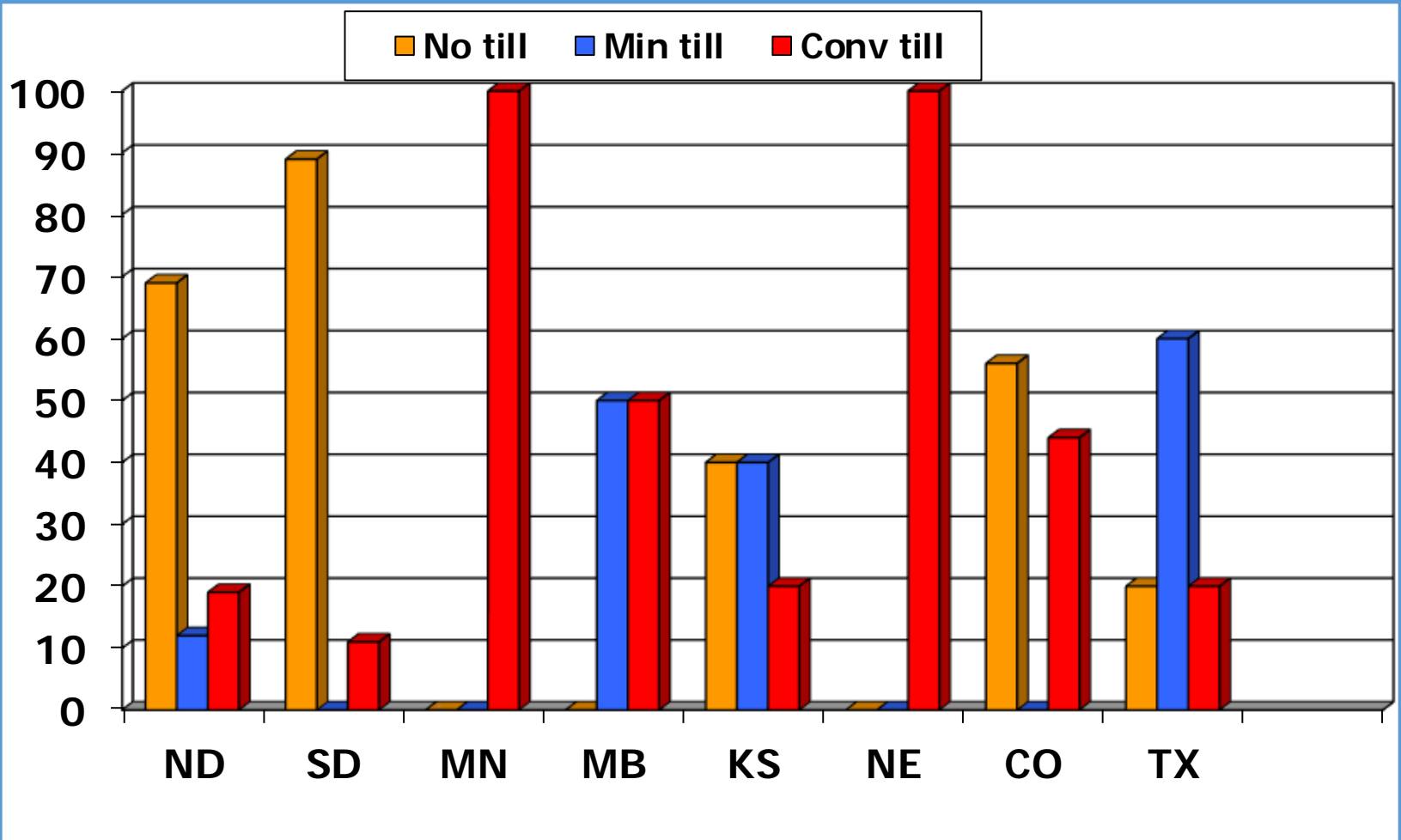


2017 SUNFLOWER YIELD & PLANT POPULATION WITH ROW SPACING

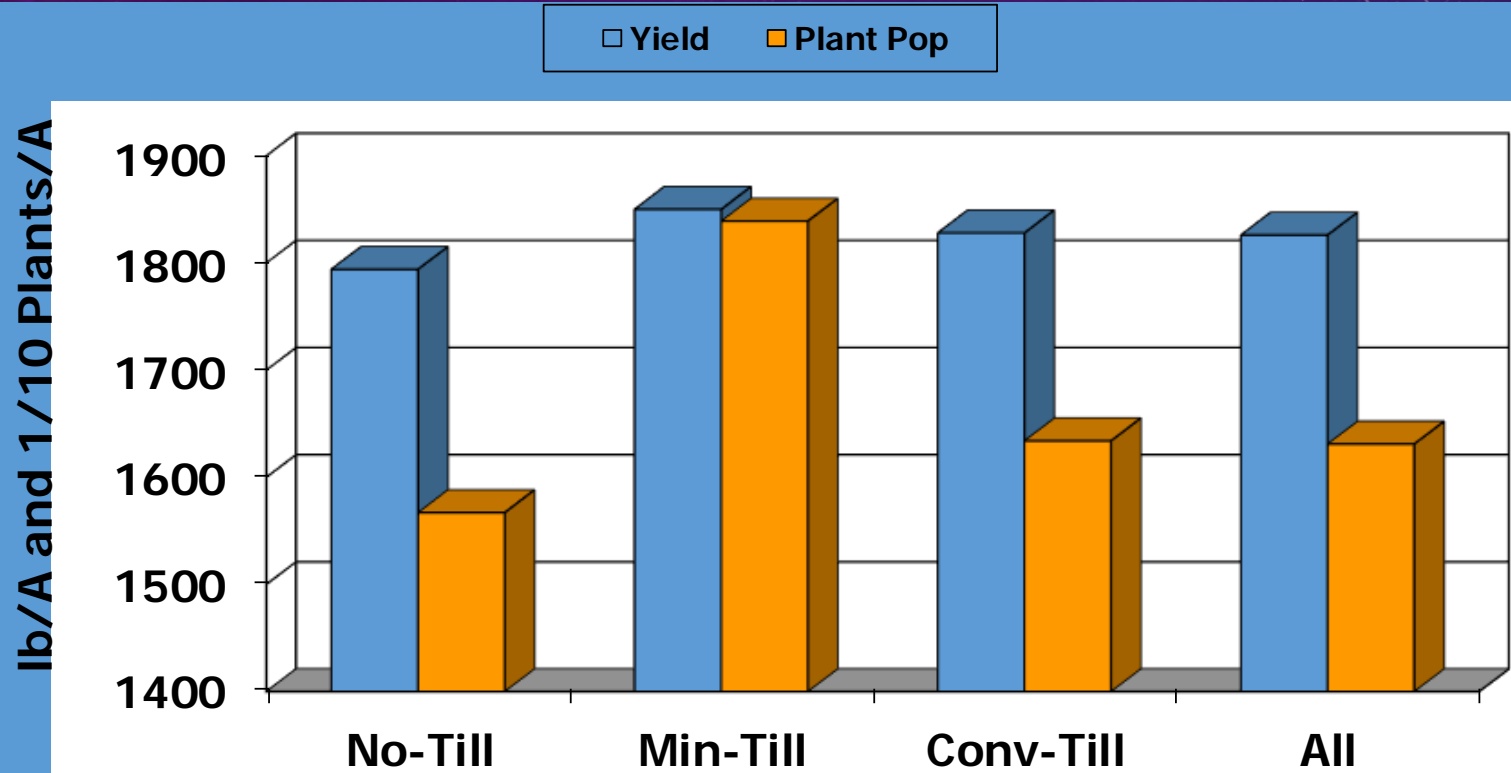


TILLAGE IN SUNFLOWER - 2017

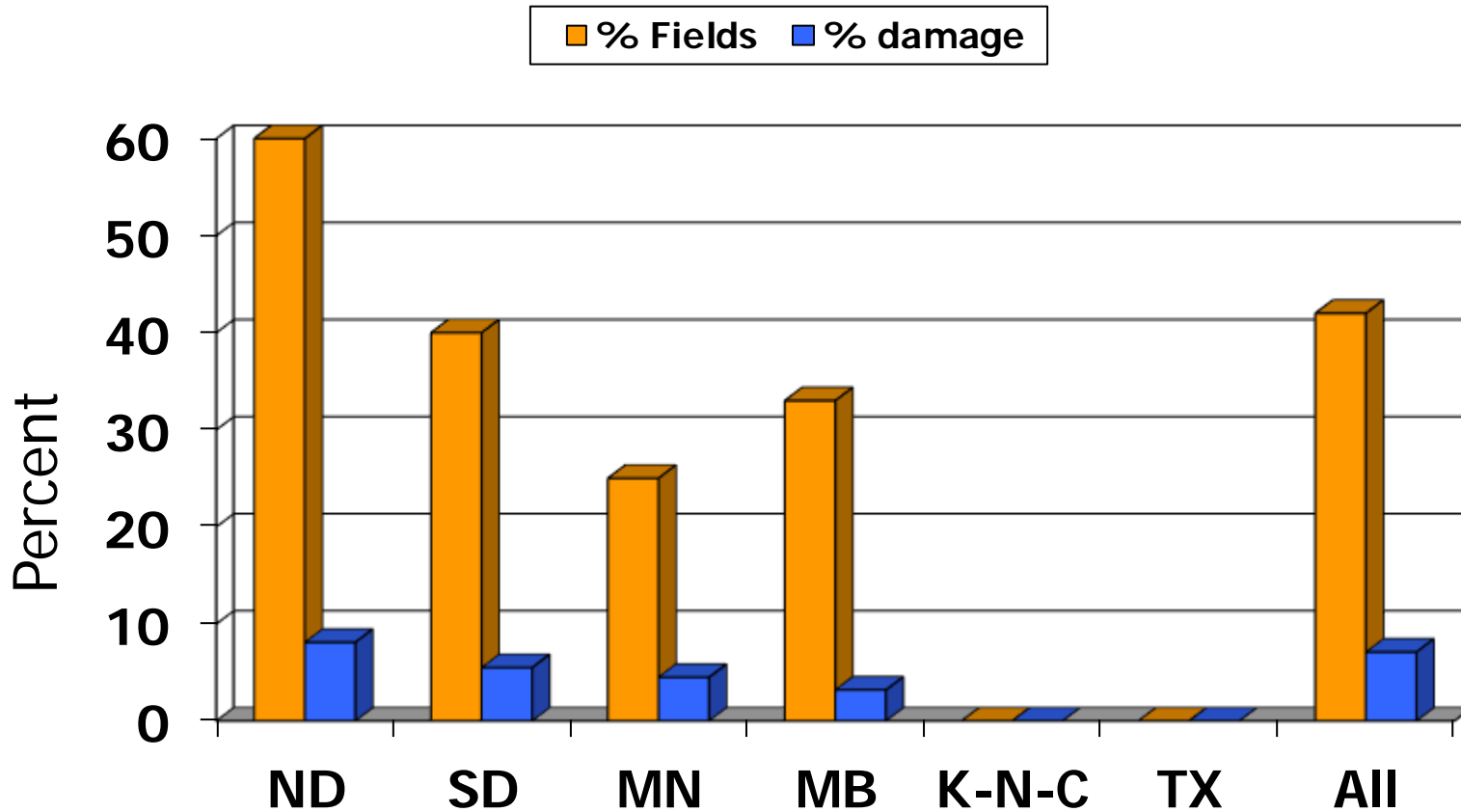
% Fields Surveyed



2017 SUNFLOWER YIELD AND PLANT POPULATION VS TILLAGE



BIRD DAMAGE INCIDENCE AND SEVERITY IN SUNFLOWER 2017



Thank you

