

USA  
Sunflower Survey



Partnership of  
University, USDA & Industry

*2019*  
*NATIONAL*  
*SUNFLOWER*  
*ASSOCIATION*  
*SURVEY*

**Project Leaders:**

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with assistance from ***Jarrad Prasifka***, USDA-ARS, Fargo ND

# 2019 SUNFLOWER SURVEY - # FIELDS

- North Dakota - 84
- Minnesota - 6
- South Dakota - 29
- Kansas - 5
- Colorado - 5
- Nebraska - 4

**TOTAL - 133**



# 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

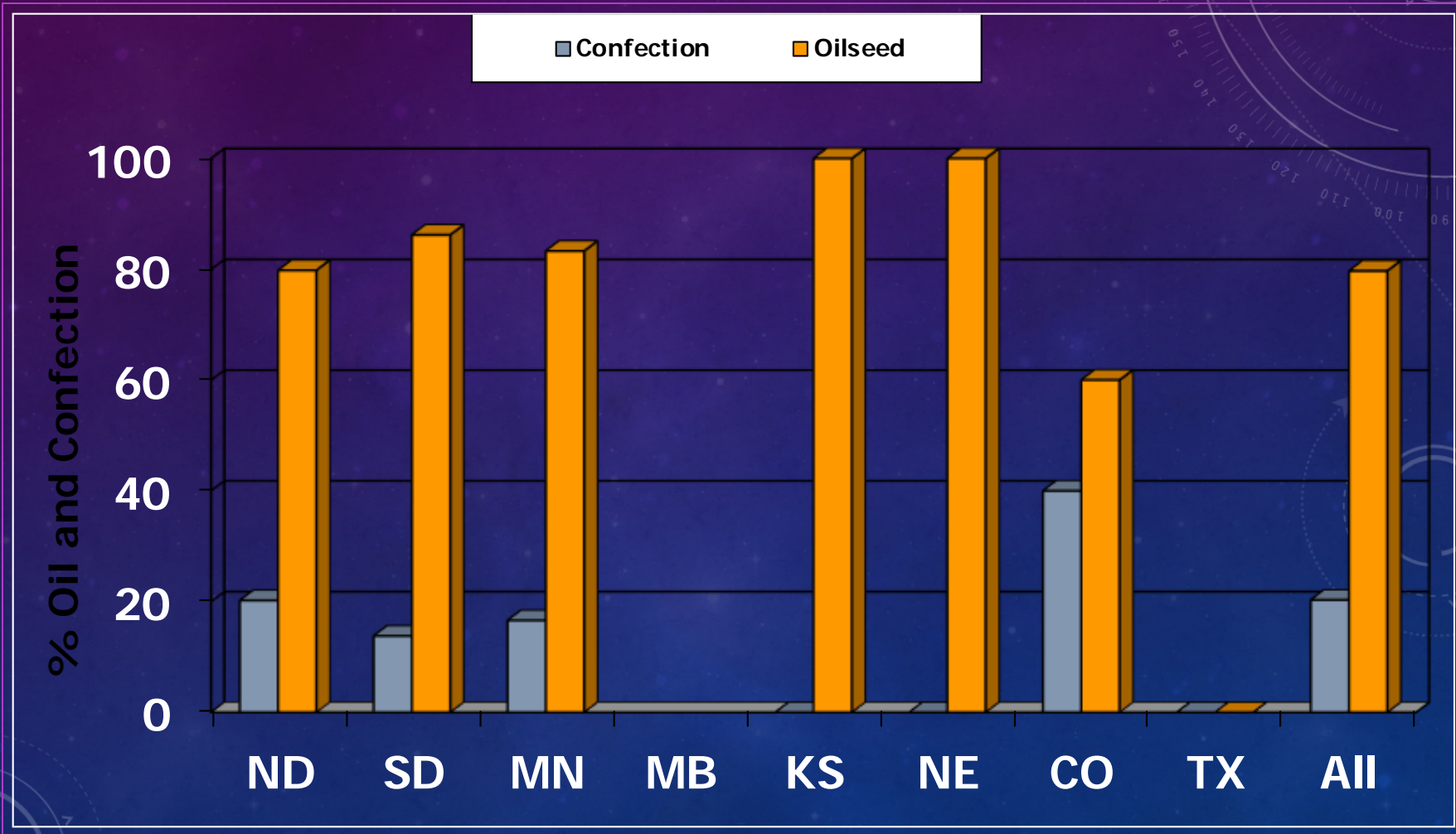
fields = **26,000 data points in one survey**

**14 surveys = > 325,000 pieces of data**

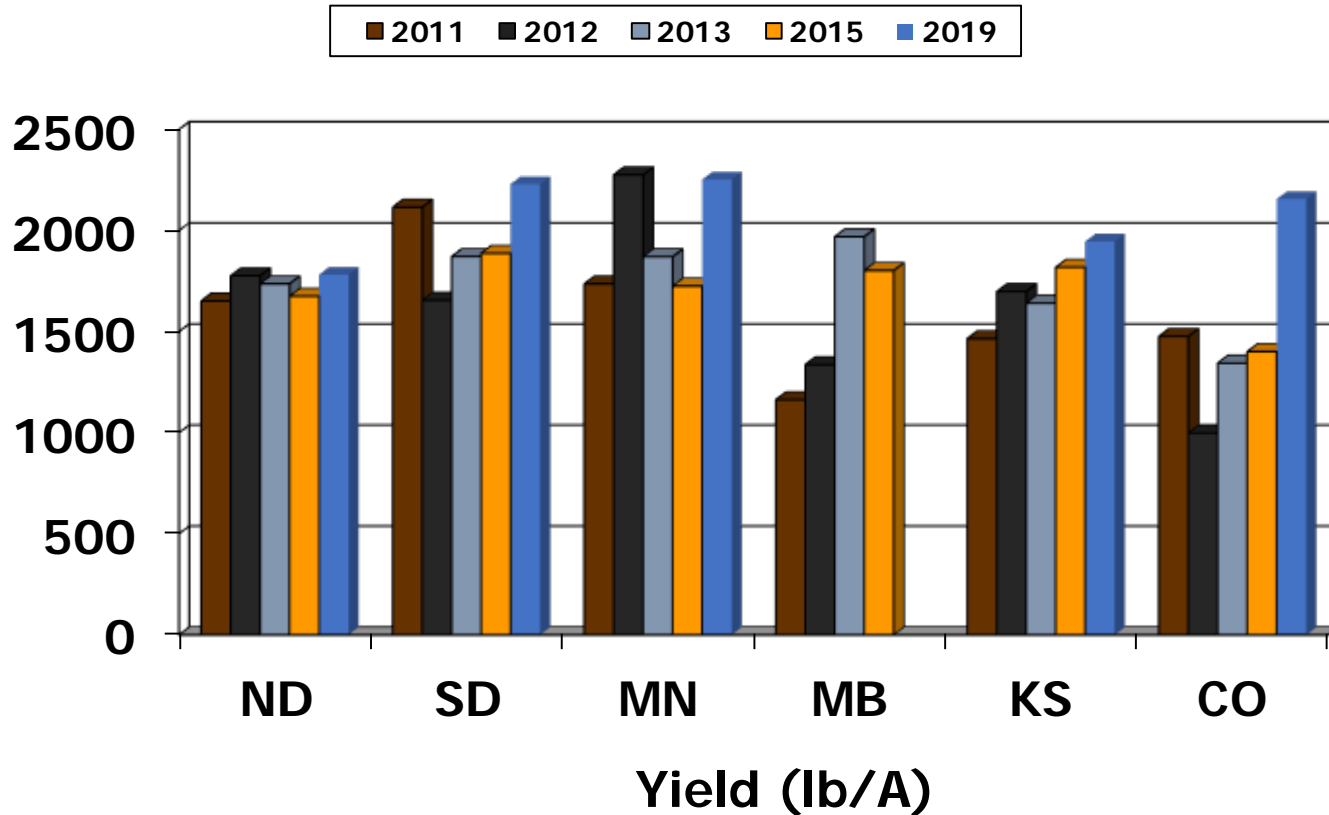
- The training for surveyors in North Dakota was expanded to 2 locations with trainings in Carrington and another in Dickinson
- This not only serves to make for skilled surveyors but also gives NDSU ANR agents an opportunity to get out into the field



# CONFECTION VS OILSEED (%) SUNFLOWER 2019 SURVEY



# SUNFLOWER YIELD (LB/A) 2011-2019



# 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 %





# 2019 #1 YIELD LIMITING FACTORS (133 FIELDS)

- **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 %



# 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 %



# 2019 #2 YIELD LIMITING FACTORS – (ALL 133 FIELDS)

- **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 %



# 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 %



# 2019 #1 YIELD LIMITING FACTORS - NORTH DAKOTA (84 FIELDS)

• <b>Disease</b>	<b>21 %</b>
• <b>Plant spacing</b>	<b>12 %</b>
• <b>Lodging</b>	<b>13%</b>
• Weeds	1%
• Birds	11%
• Insects	6%
• <b>Drought</b>	<b>1%</b>
• Hail	6%
• Uneven plant growth	0%
• <b>Other</b>	<b>15%</b>
• <b>No Problem</b>	<b>6%</b>





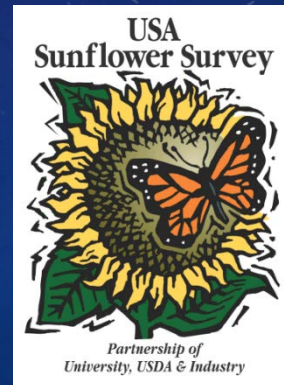
# 2015 #2 YIELD LIMITING FACTORS - NORTH DAKOTA (106 FIELDS)

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



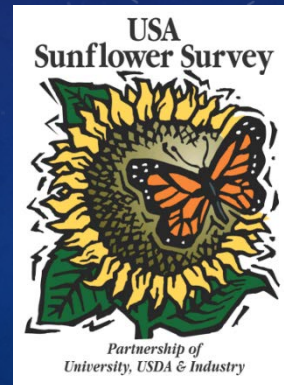
# 2017 #2 YIELD LIMITING FACTORS - NORTH DAKOTA (78 FIELDS)

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



# 2019 #2 YIELD LIMITING FACTORS - NORTH DAKOTA (84 FIELDS)

- **Disease** 18 %
- Plant spacing 12 %
- **Lodging** 14 %
- Drought 1 %
- Weeds 4 %
- Insects 10 %
- Birds 2 %
- Uneven plant growth 1 %
- Other 14 %
- **No Problem** 17 %



# 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 %

# 2019 # 1 AND #2

## YIELD LIMITING FACTORS SOUTH DAKOTA

### (29 FIELDS)



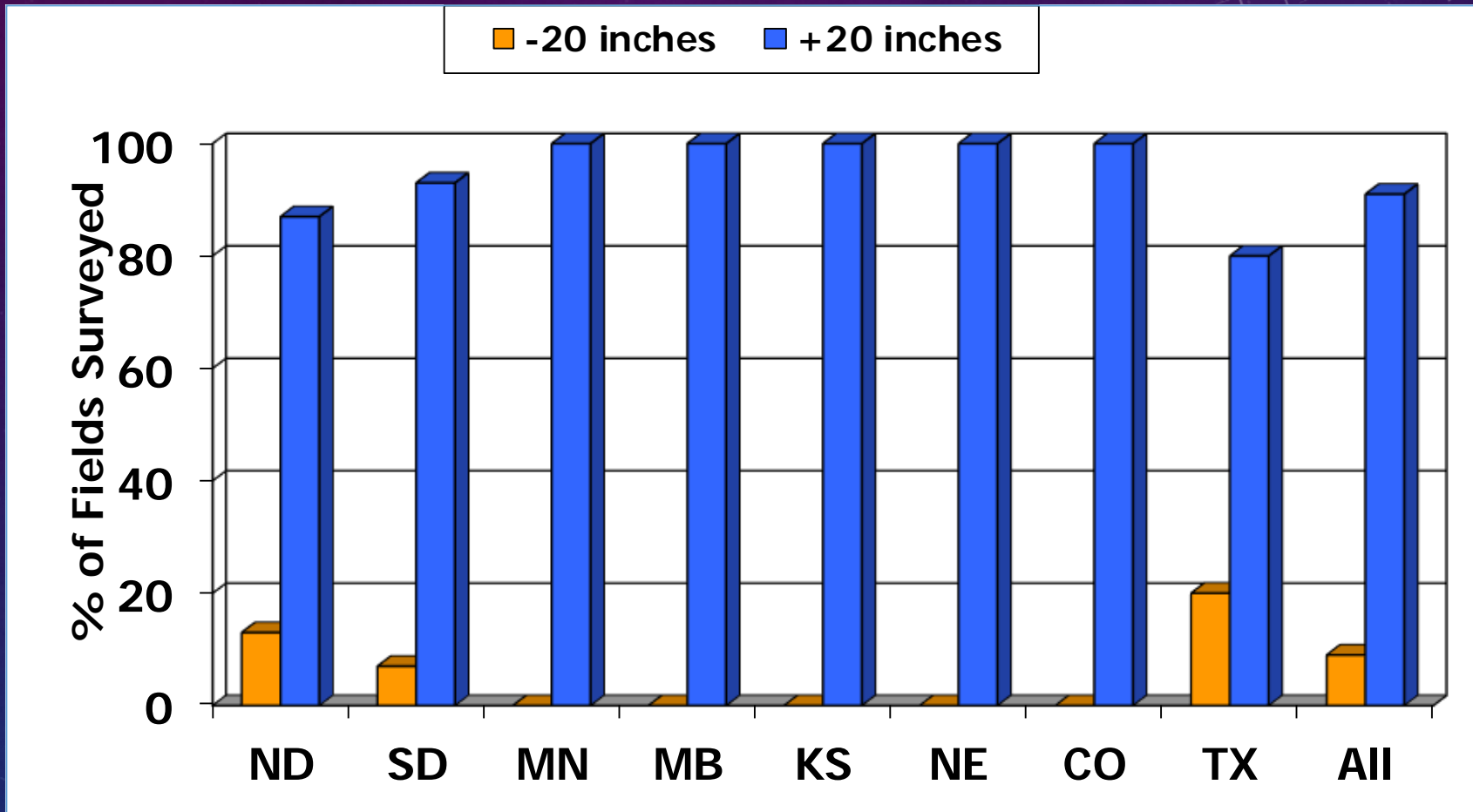
#### #1 Factor

- **Disease** 21 %
- **Plant Spacing** 28 %
- Lodging 3 %
- **Weeds** 3 %
- Birds 7 %
- Insects 10 %
- Drought 0 %
- Hail 3 %
- Uneven growth 3 %
- No problem 14 %

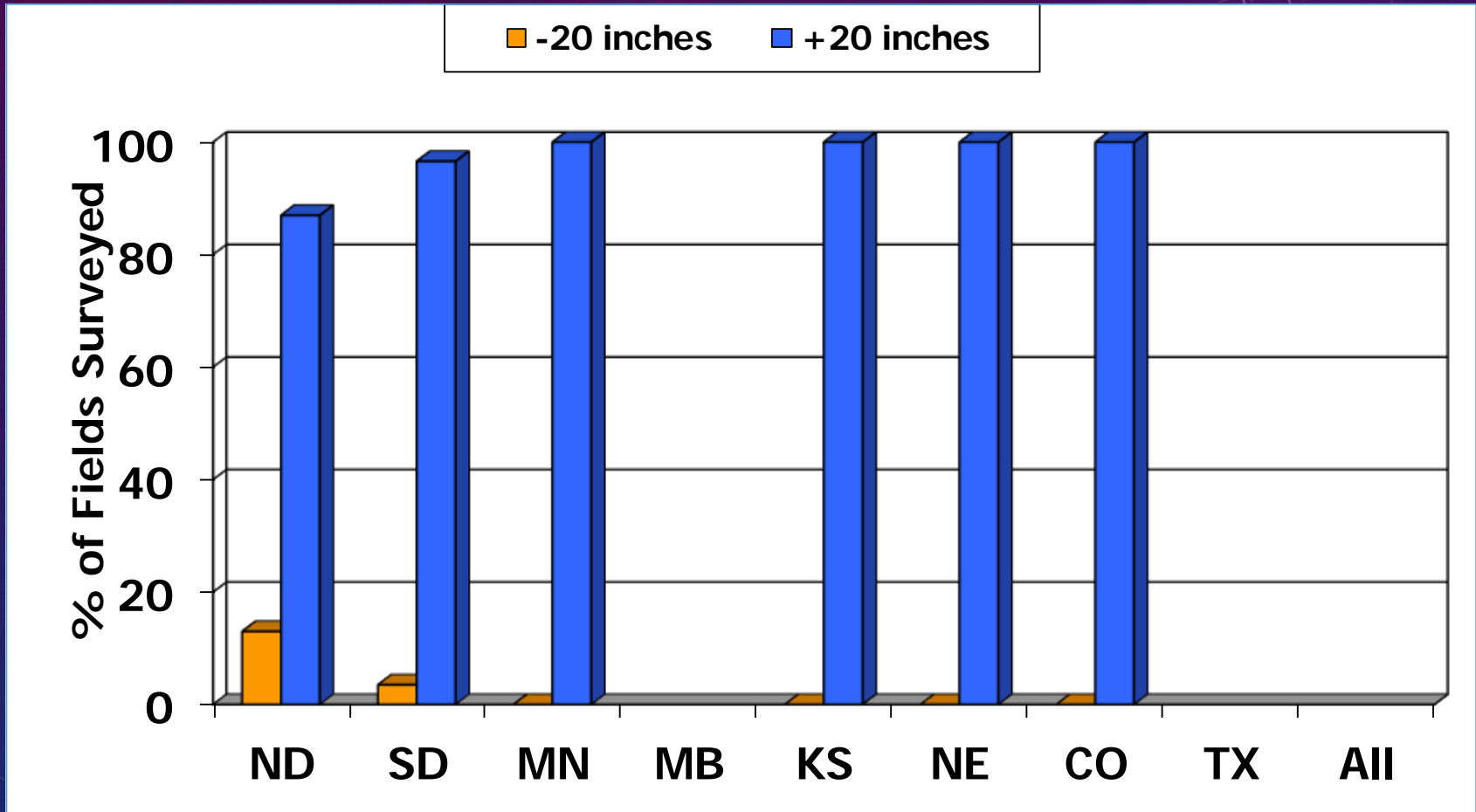
#### #2 Factor

- **Disease** 3 %
- **Plant spacing** 14 %
- Lodging 17 %
- Weeds 7 %
- Birds 0 %
- Insects 10 %
- Drought 0 %
- Hail 0 %
- Uneven growth 7 %
- **No Problem** 38 %

# ROW SPACING IN SUNFLOWER - 2017



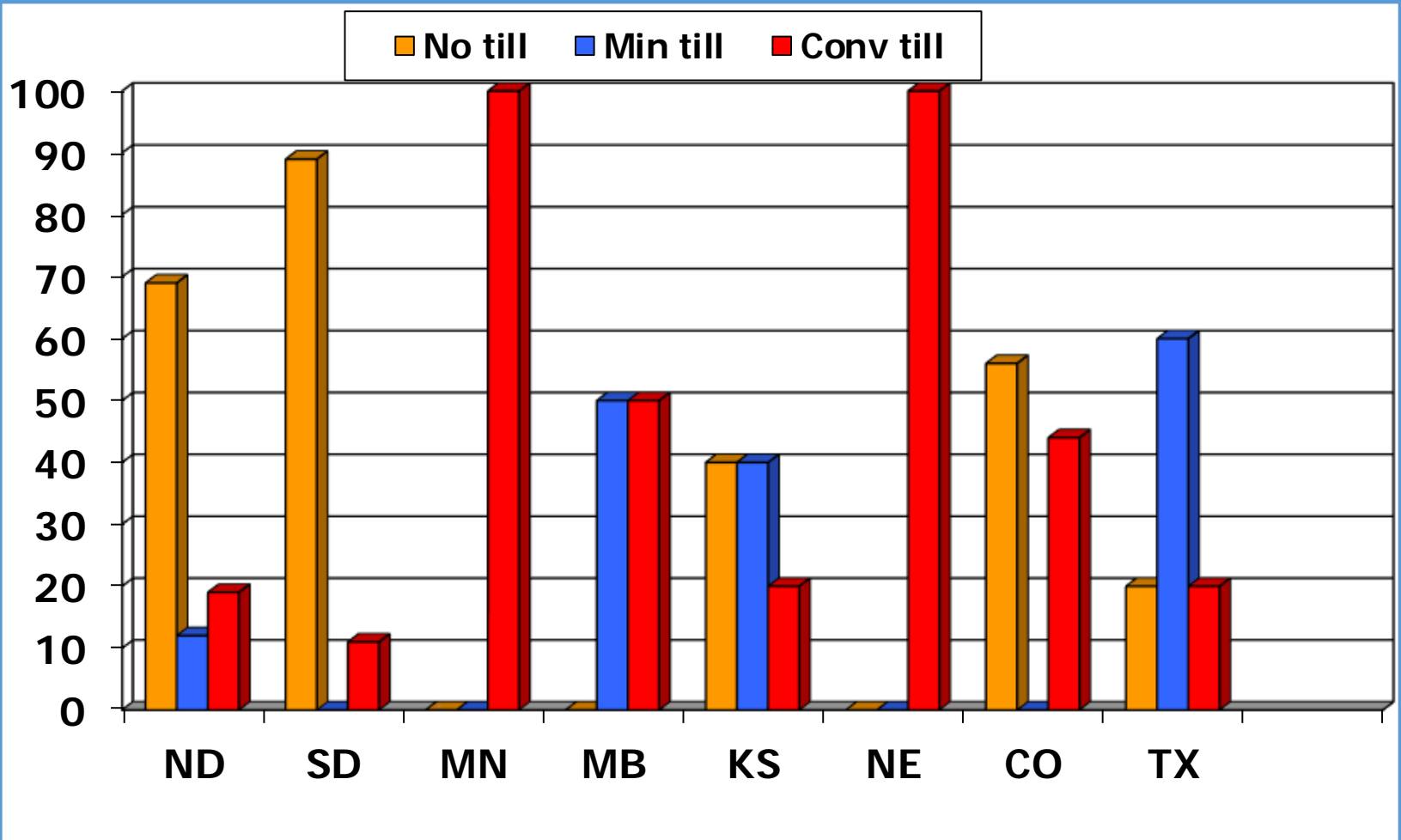
# ROW SPACING IN SUNFLOWER - 2019



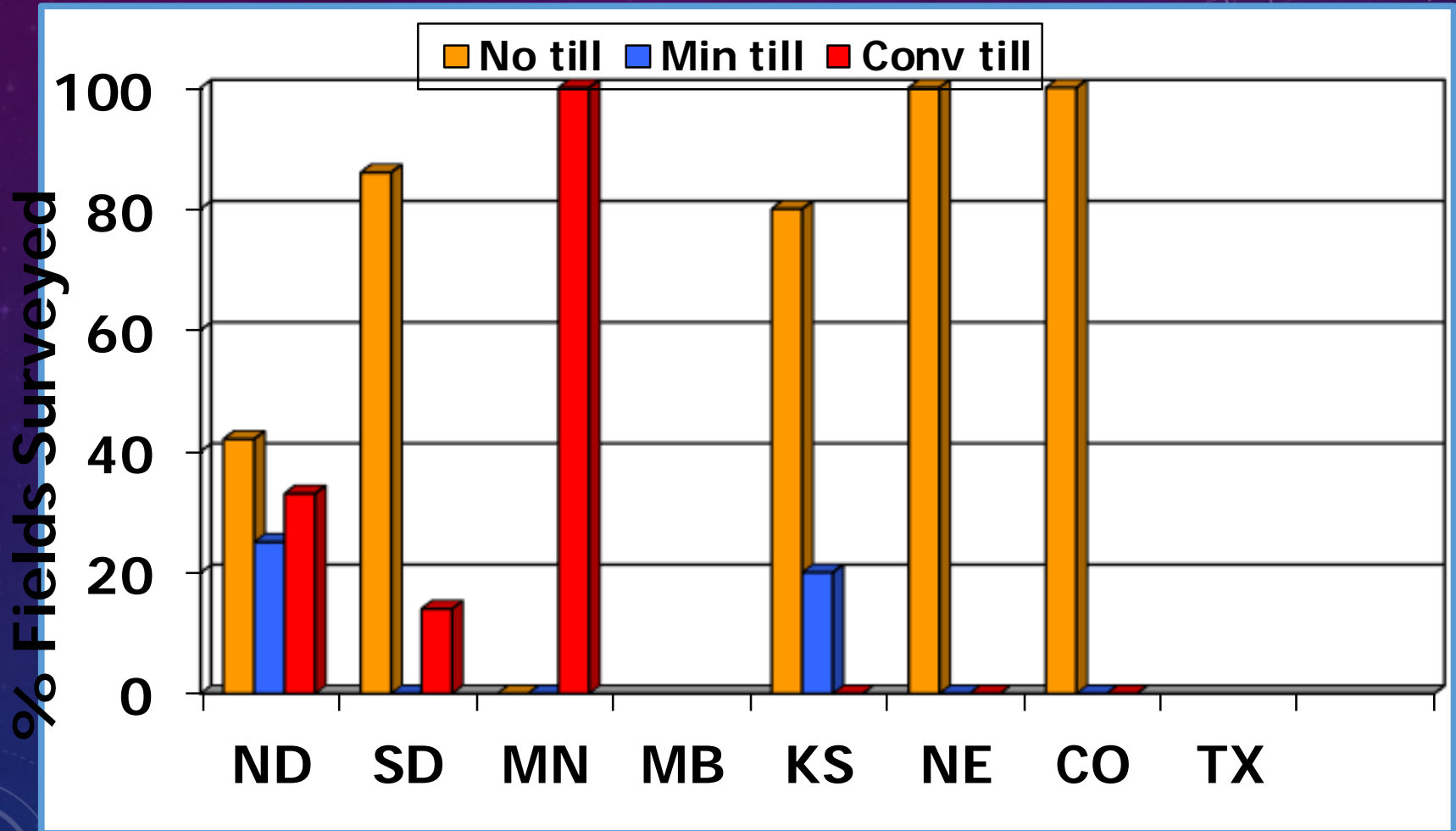


# TILLAGE IN SUNFLOWER - 2017

% Fields Surveyed



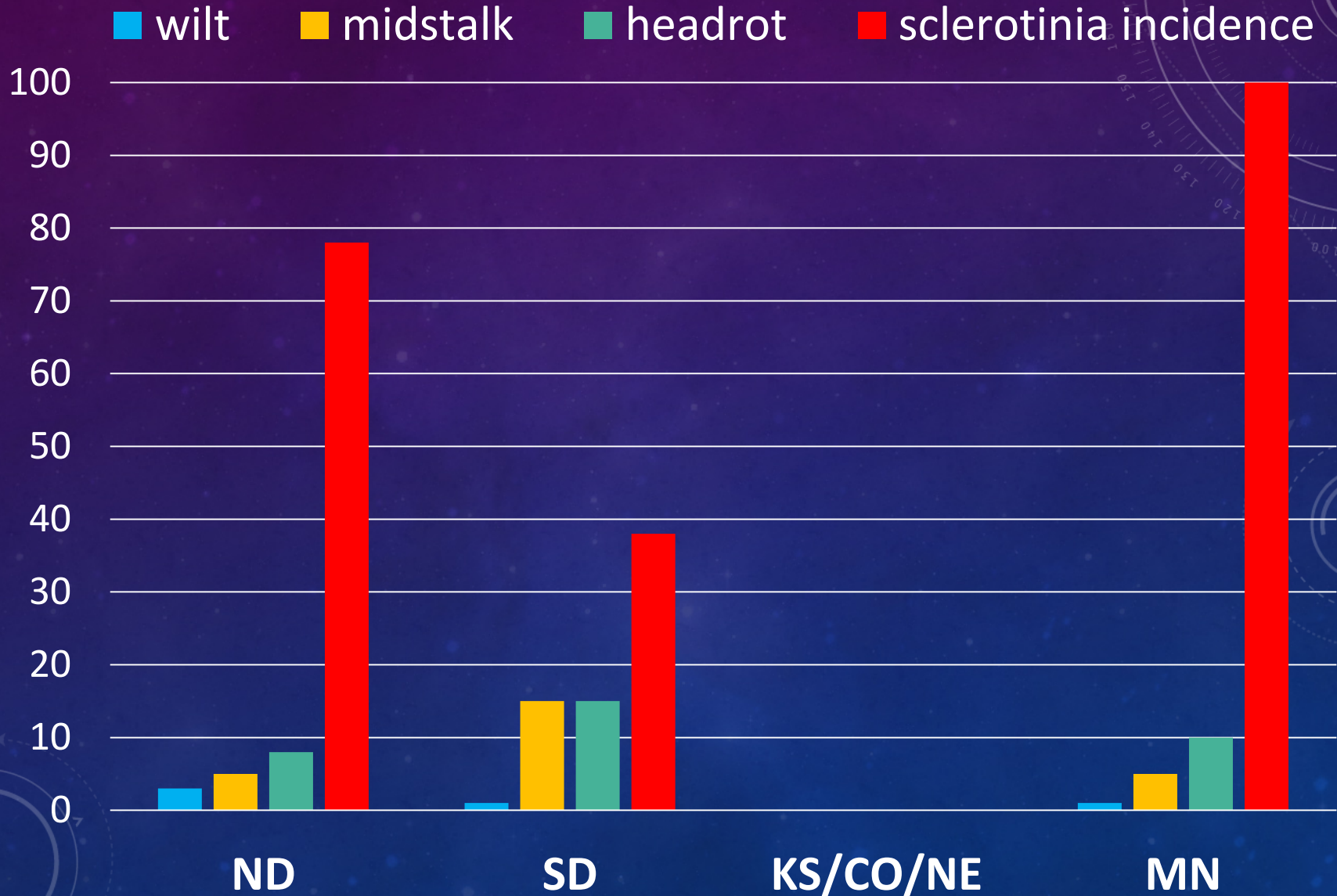
# TILLAGE IN SUNFLOWER - 2019



White mold/sclerotinia was much more prevalent this year than previous surveys



# Sclerotinia Severity and Incidence



# Phomopsis Severity and Incidence

■ Severity    ■ Incidence

