

USA
Sunflower Survey



*Partnership of
University, USDA & Industry*

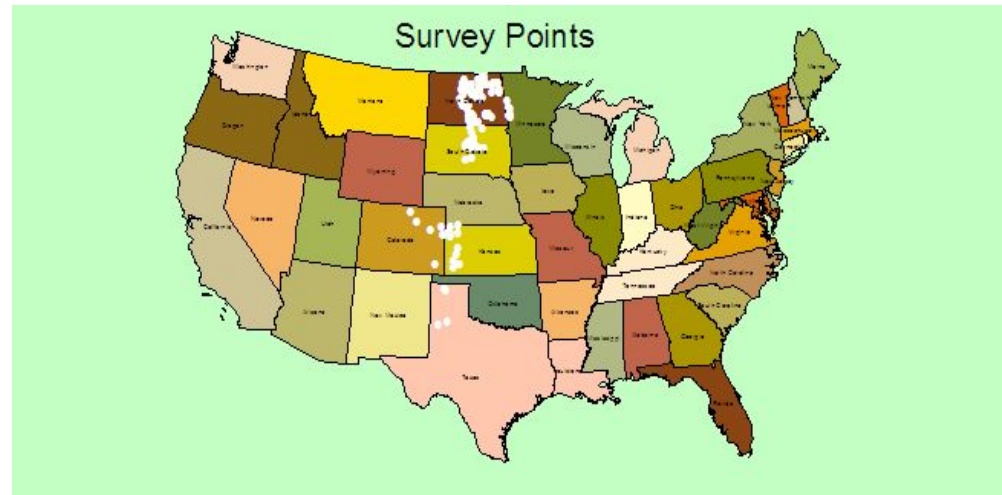
2012 National Sunflower Association Survey

Project Leader:

**Hans Kandel Extension Agronomist
NDSU Crop Science Department**

2012 Sunflower Survey - # Fields

- North Dakota - 97
- Minnesota - 10
- South Dakota - 54
- Kansas - 5
- Colorado - 7
- Nebraska - 4
- Manitoba - 11
- Texas - 8
- Vermont - 15



TOTAL - 211



2012 Sunflower Survey

(Approximately one field stop per 10,000 Acres)

- 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
- Fields in 2012 - 211*

*Highest # Surveyed



2012 Sunflower Crop Survey Teams

- North Dakota 10 teams
- South Dakota 8 teams
- Minnesota 2 teams
- Colorado 1 team
- Kansas 1 team
- Nebraska 1 team
- Texas 1 team
- Manitoba 1 team
- Vermont 1 team
- Texas 1 team

Total of 27 teams



2012 Sunflower Yield and Management Practices

Team # _____ County _____ Field # _____ Oil (1) _____ Conf (2) _____.

GPS North _____ GPS West _____ Dryland (1) _____ Irrigated (2) _____.

		Plants / Pop.	Head Diameter	Seed Size	% Good Seed	Center Seed Set	Previous Crop
Yield Data:							
1st count							
2nd count							
Average							

Calculation:

2450 x	_____ x	_____ x	_____ x	_____ x	_____ x	_____ =	
	Plant Population multiplier	Head Diameter multiplier	Seed Size multiplier	% Good Seed	Center Seed Set	Bird Damage Multiplier	Est. Yield

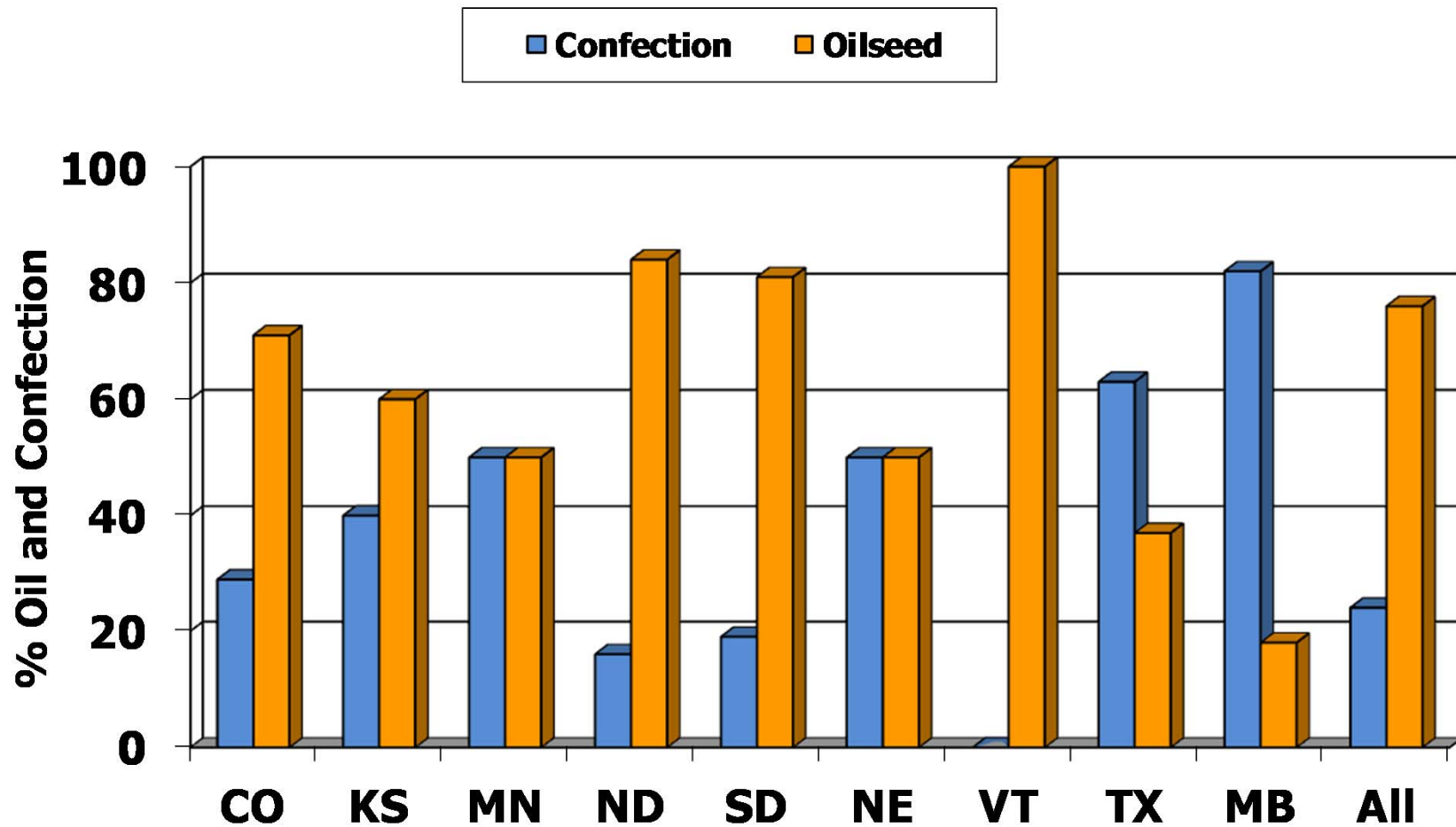
Management Practices:	Row Spacing	20" or less - 1 _____	21" or Greater - 2 _____
	No-till - 1 _____	Min-till - 2 _____	Conv-till- 3 _____



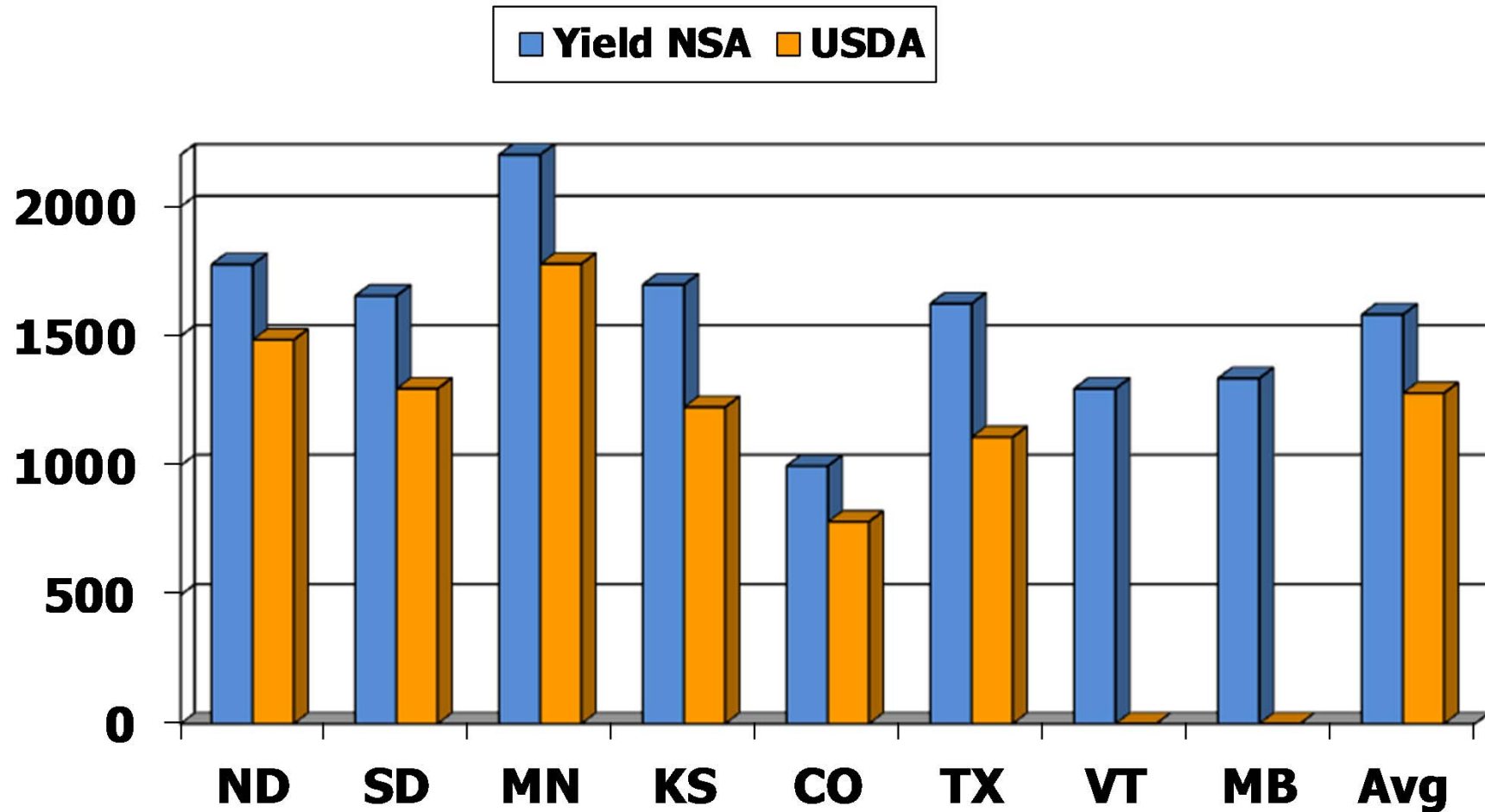
Counting plants per acre



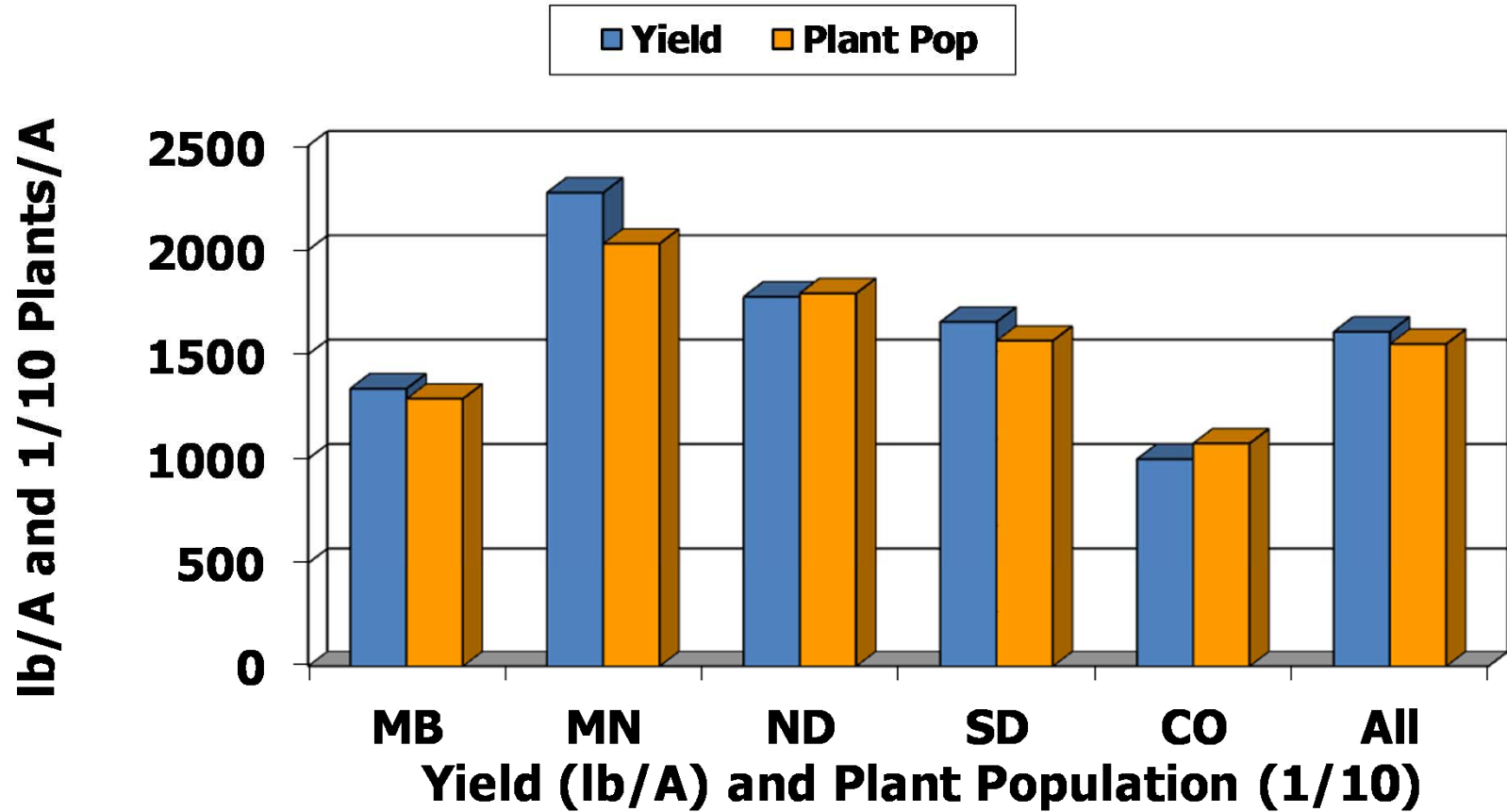
% Confection and Oilseed Sunflower-2012 Survey



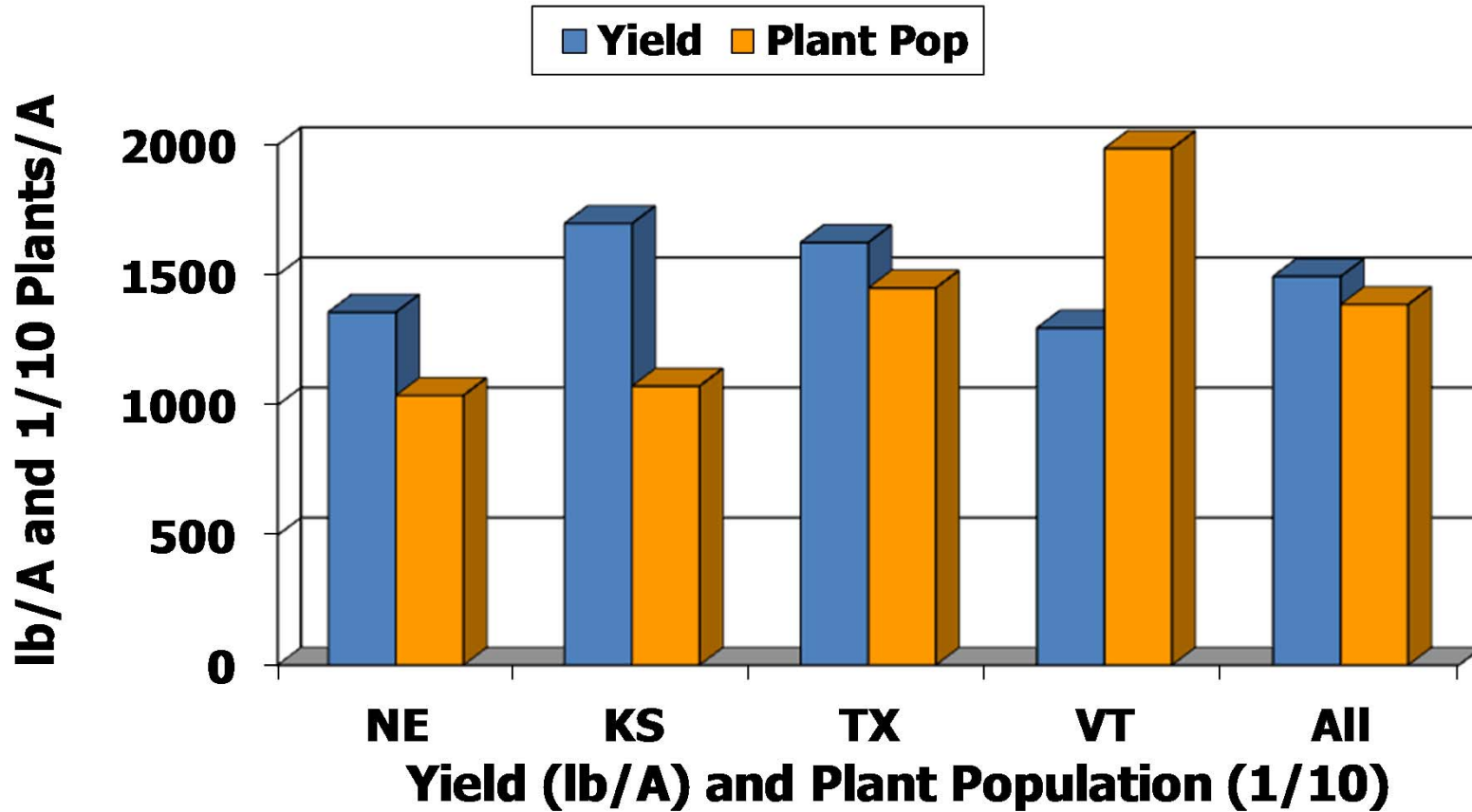
NSA estimate vs. Ag Statistic 2012



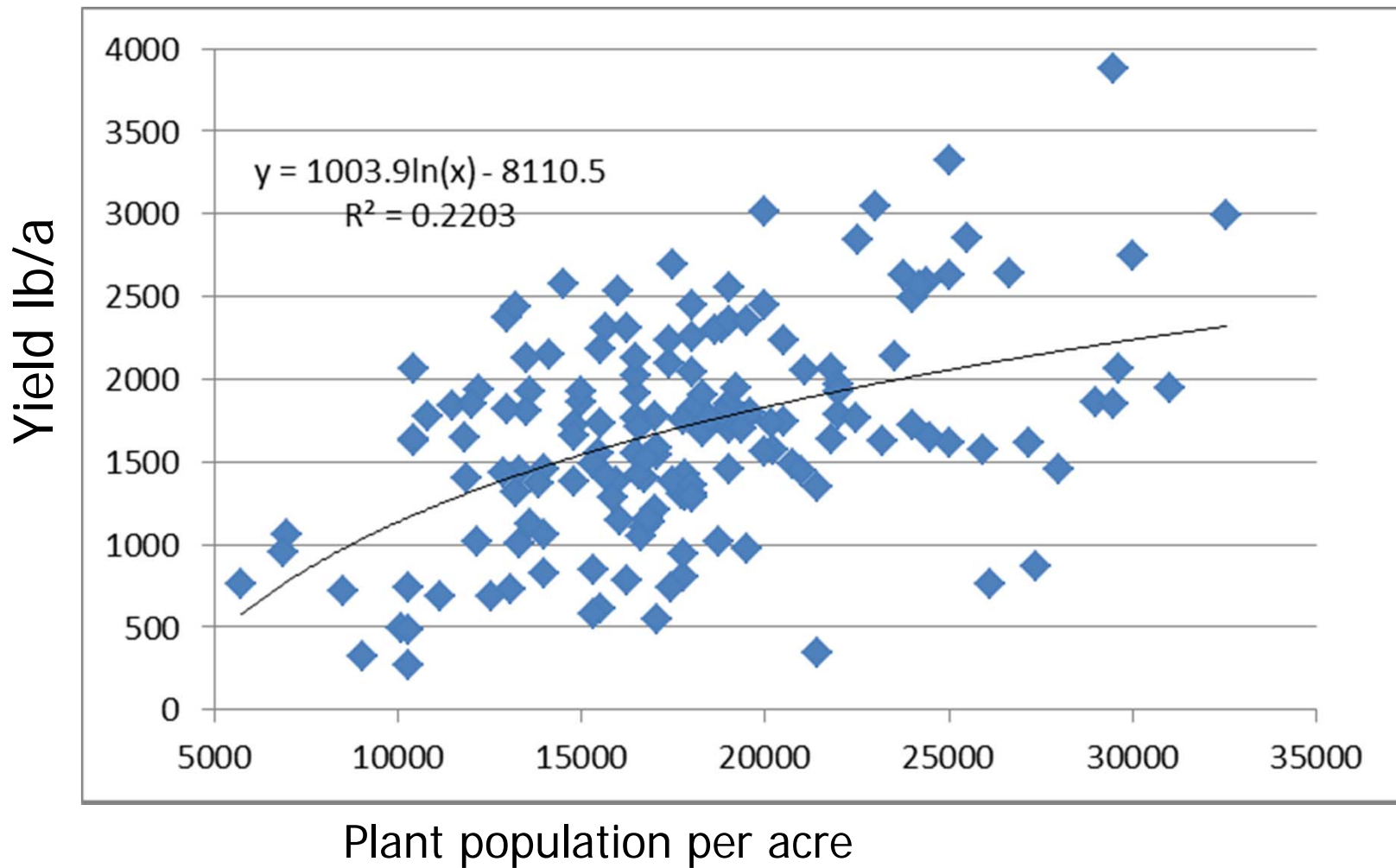
Sunflower Yield and Plant Population: 2012



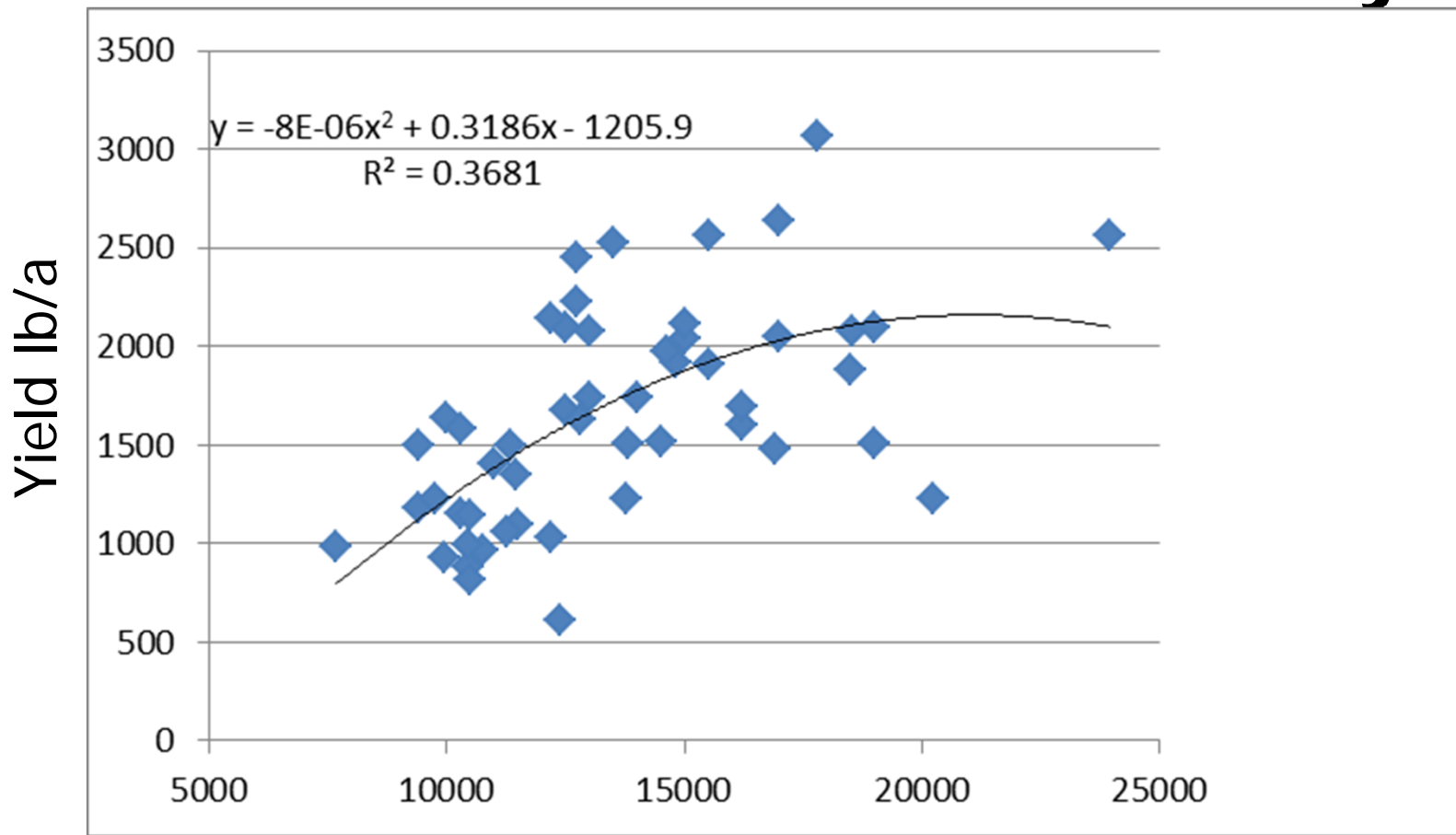
Sunflower Yield and Plant Population: 2012



2012 Yield vs. Plant Population Oil Sunflower only



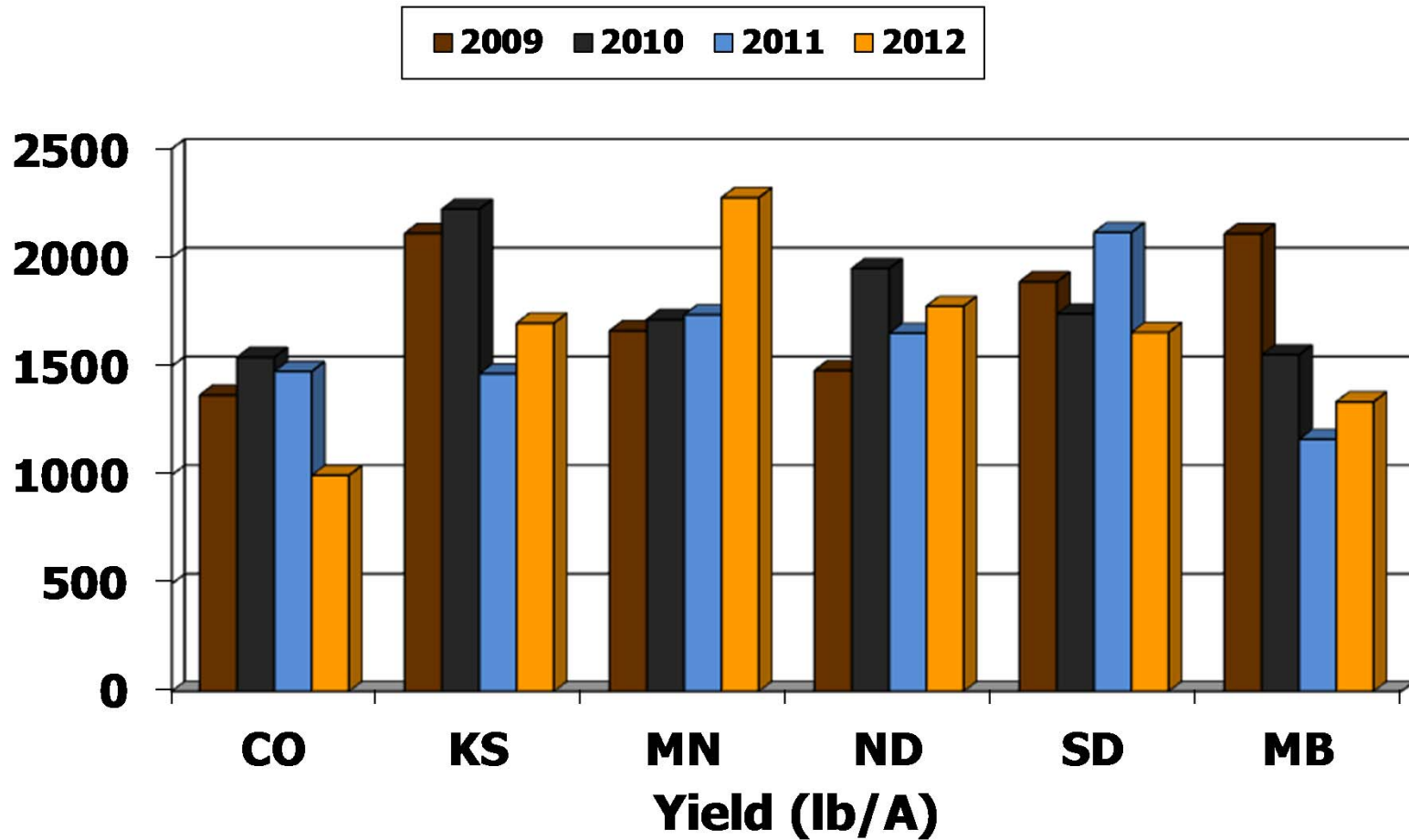
2012 Yield vs. Plant Population Confection Sunflower only



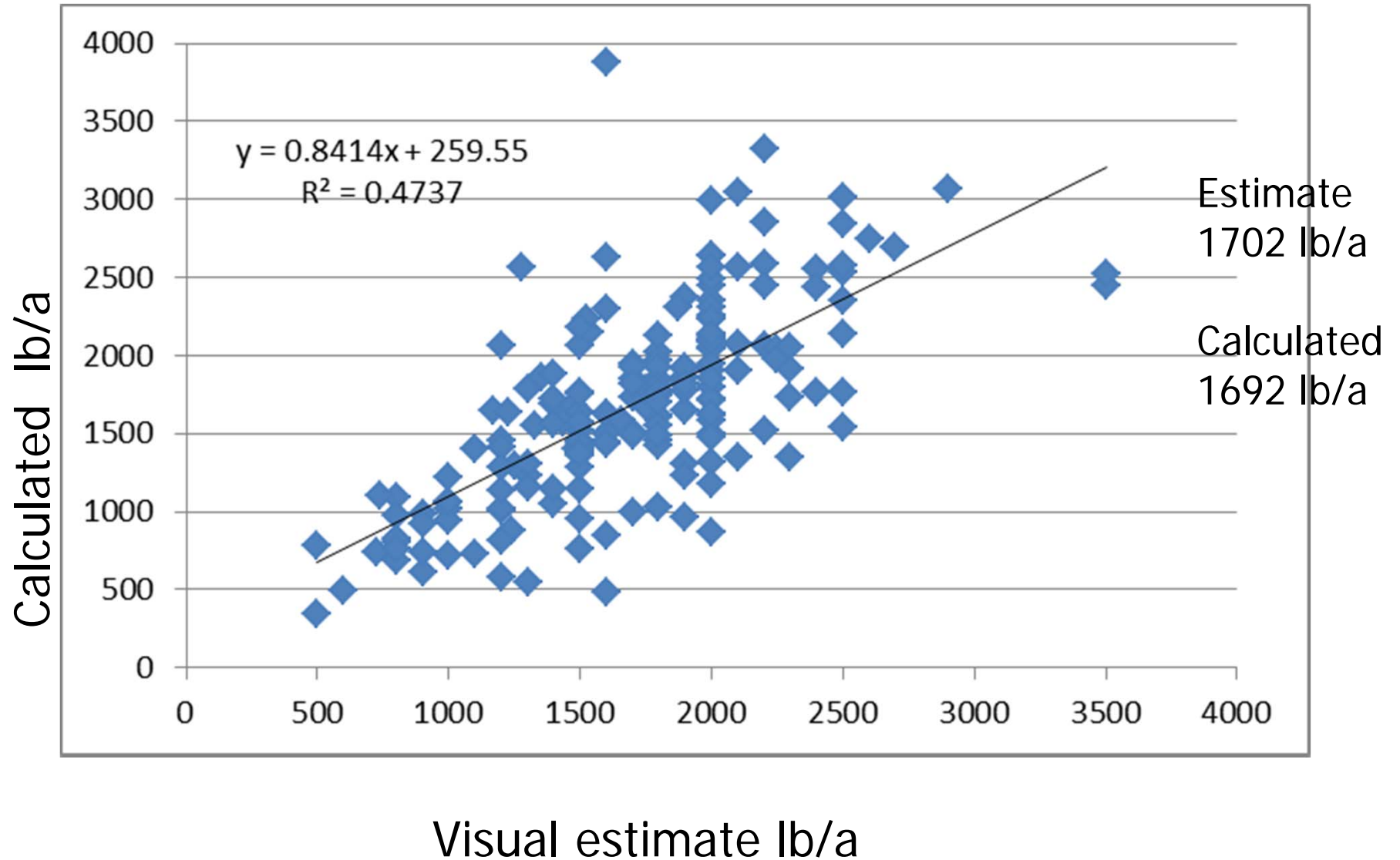
Plant population per acre

Sunflower Yield : lb/a

2009-2012



Yield 2012 Survey

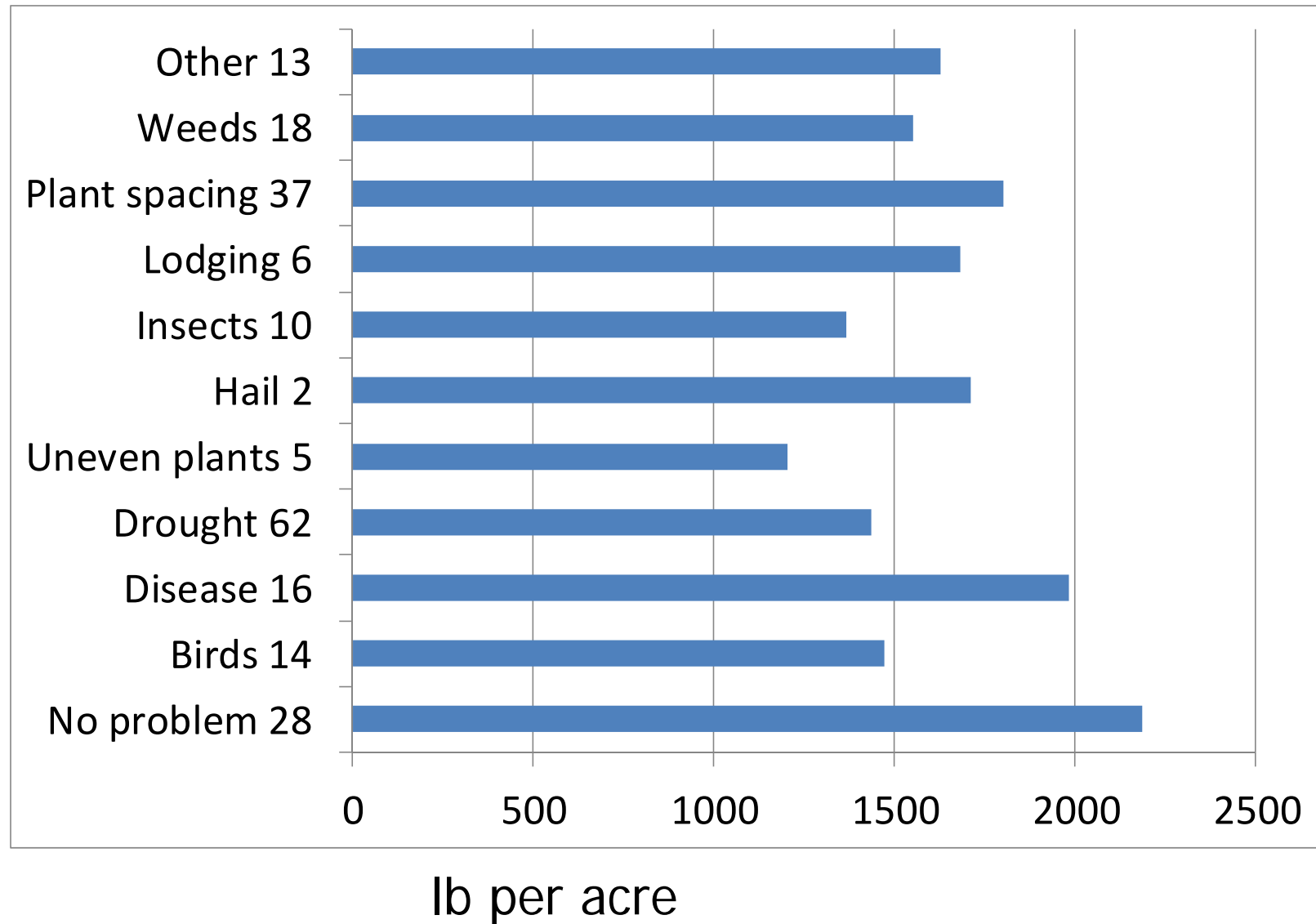


2012 #1 Yield Limiting Factors - combined (211 Fields)

• Disease	7.1%
• Plant spacing within row	17.5%
• Lodging	2.8%
• Weeds	8.5%
• Birds	6.6%
• Insects	4.7%
• Drought	29.4%
• Hail	0.9%
• Uneven plant growth	2.5%
• Other	6.6%
• No Problem	13.3%



Yield Limiting factor and Yield 2012



2012 #2 Yield Limiting Factors - combined (211 Fields)

• Plant spacing within row	14.2%
• Uneven plant growth	5.2%
• Weeds	10.9%
• Insects	6.6%
• Disease	7.1%
• Birds	4.7%
• Lodging	1.9%
• Drought	6.6%
• Hail	0.9%
• Other	7.1%
• No Problem	34.6%



2012 #1 Yield Limiting Factors - North Dakota (97 Fields)

- Plant spacing 16.5%
- Disease 13.4%
- Lodging 3.1%
- Drought 20.6%
- Uneven plant growth 4.1%
- Birds 9.3%
- Weeds 8.2%
- Insects 5.2%
- Hail 1.0%
- Other 8.2%
- No Problem 10.3%



2012 #2 Yield Limiting Factors - North Dakota (97 Fields)

- Plant spacing 11.3%
- Disease 8.2%
- Weeds 7.2%
- Birds 7.2%
- Insects 9.3%
- Hail 1.0%
- Lodging 4.1%
- Drought 7.2%
- Uneven plant growth 9.3%
- No Problem 29.9%
- Other 5.2%



2012 #1 and #2 Yield Limiting Factors - Minnesota (10 Fields)

#1 Factor

- No problem 50%
- Plant spacing 40%
- Birds 10%

#2 Factor

- No Problem 80%
- Insects 20%

2012 # 1 and #2

Yield Limiting Factors - South Dakota

(54 Fields)

#1 Factor

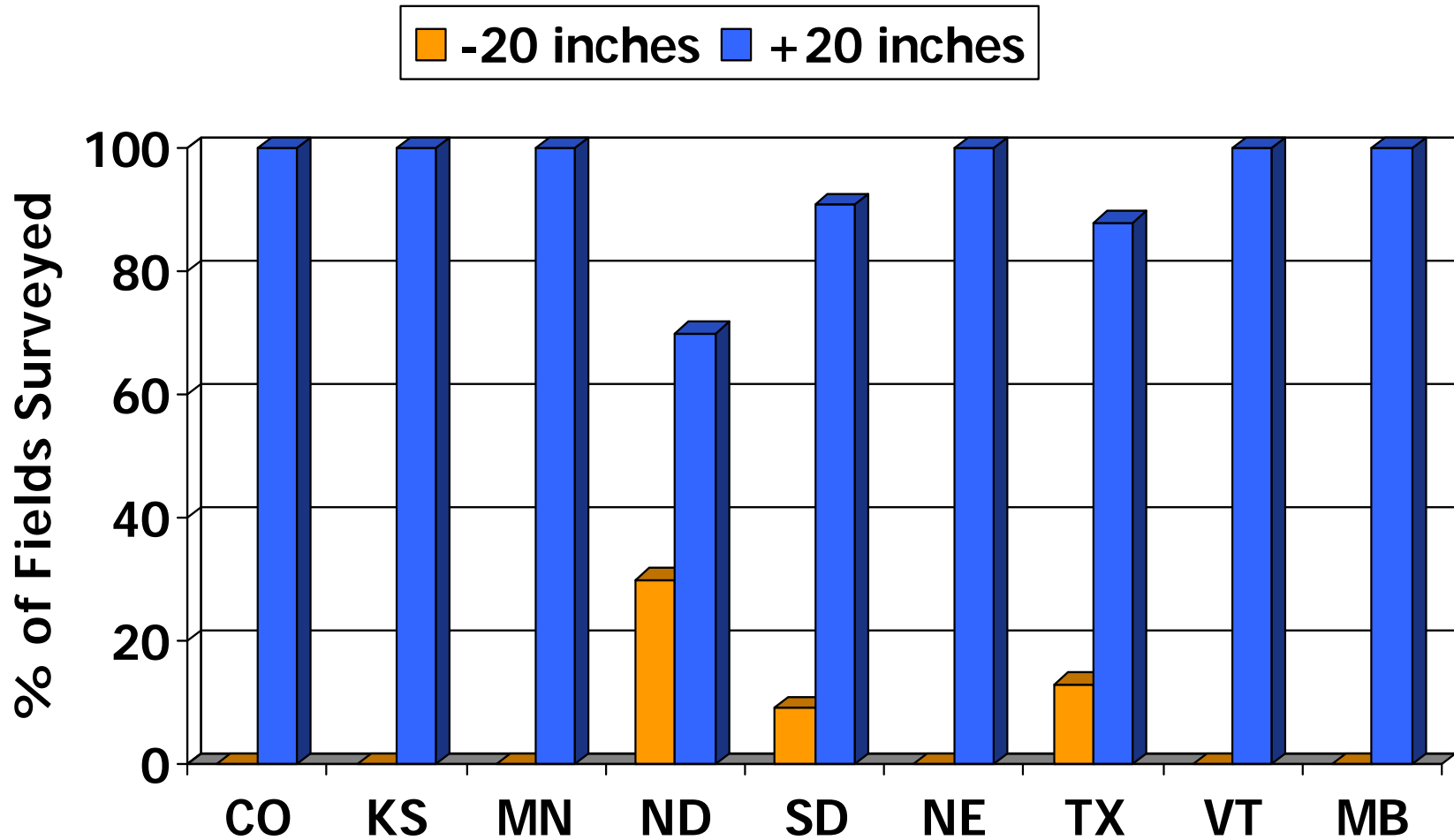
- Plant Spacing 30.4%
- Disease 13.0%
- Drought 4.4%
- Uneven plant growth 4.4%
- Lodging 13%
- Other 4.4%
- No problem 30.4%

#2 Factor

- Plant spacing 13.0
- Birds 8.7
- Disease 4.4
- Drought 8.7
- Insects 4.4
- Lodging 13.0
- Weeds 4.4
- Other 8.7
- No Problem 34.8

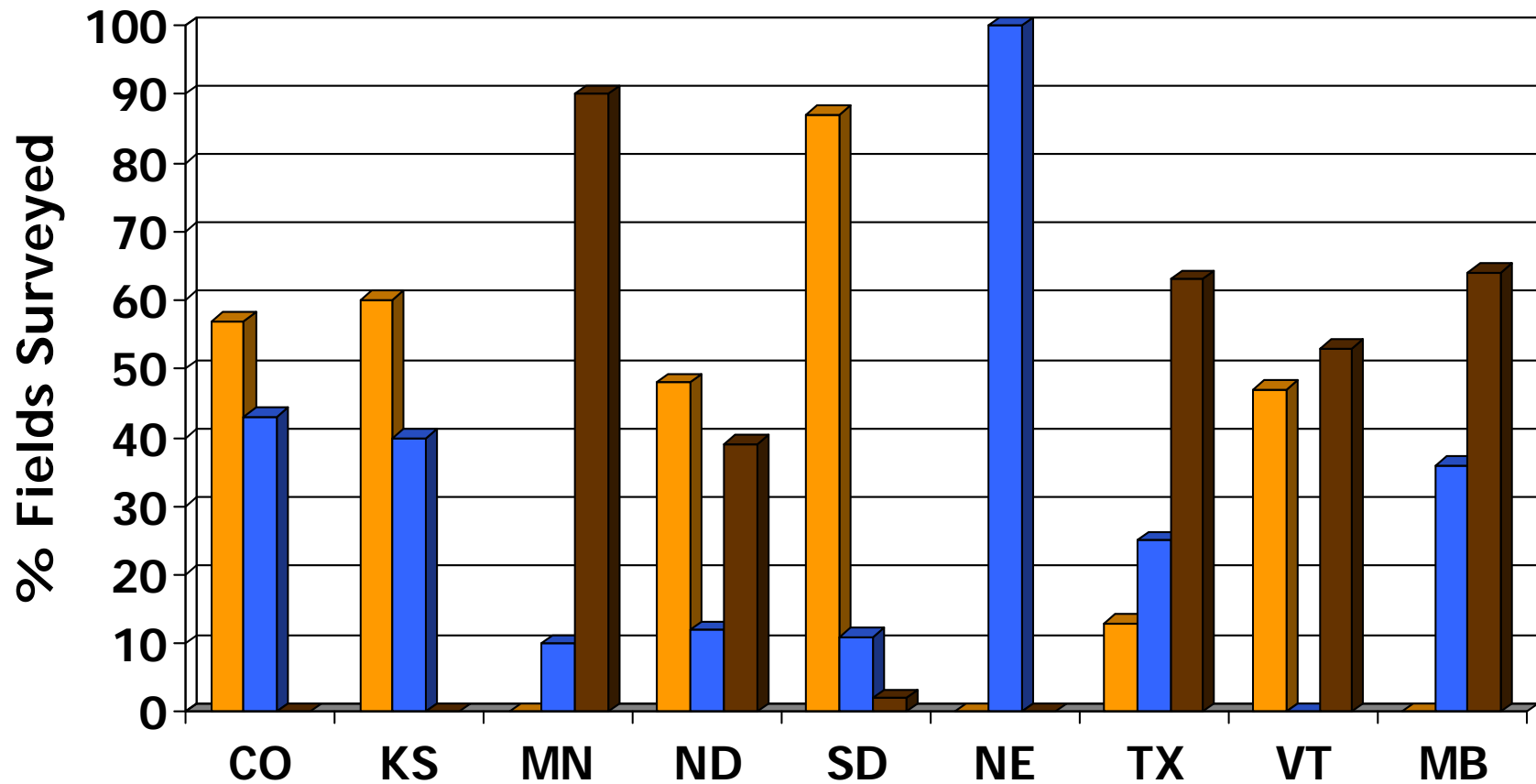


Row Spacing in Sunflower - 2012



Tillage in Sunflower - 2012

■ No till ■ Min till ■ Conv till

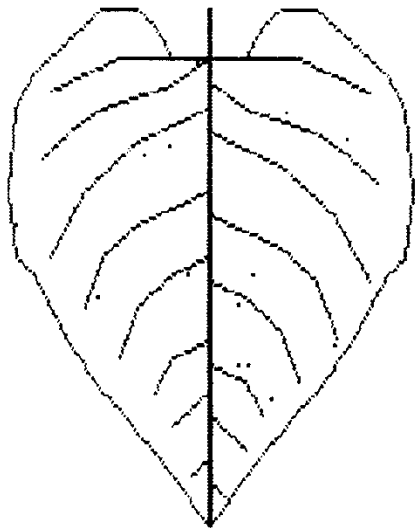


Rust in Sunflower

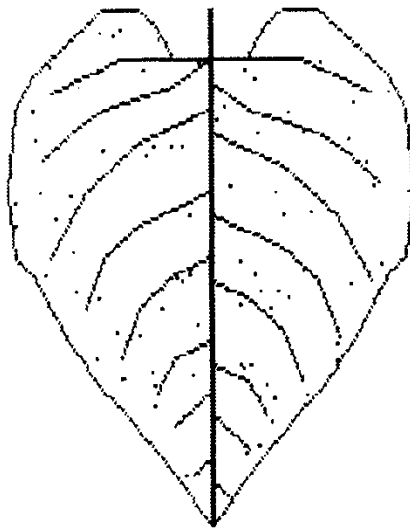




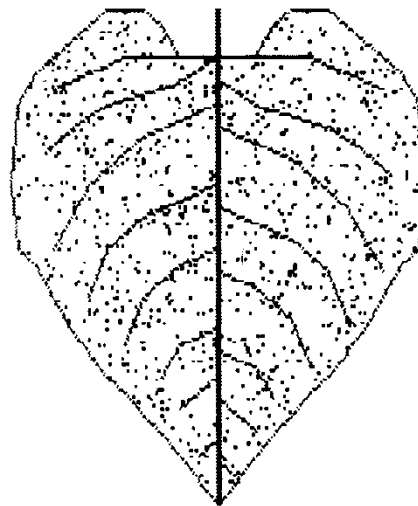
Instructions were examine upper 4 leaves on 5 consecutive plants and determine illustration that best fits average of all plants.



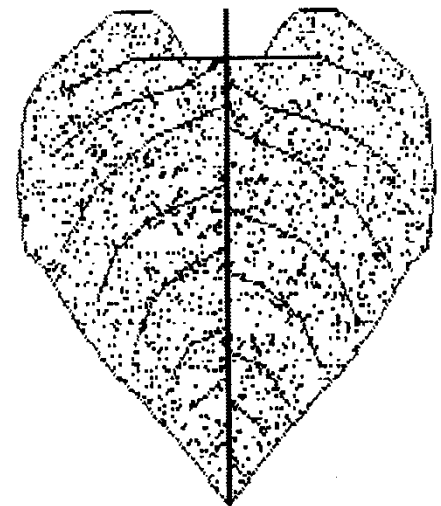
Leaf Area Affected .1%



Leaf Area Affected .5%

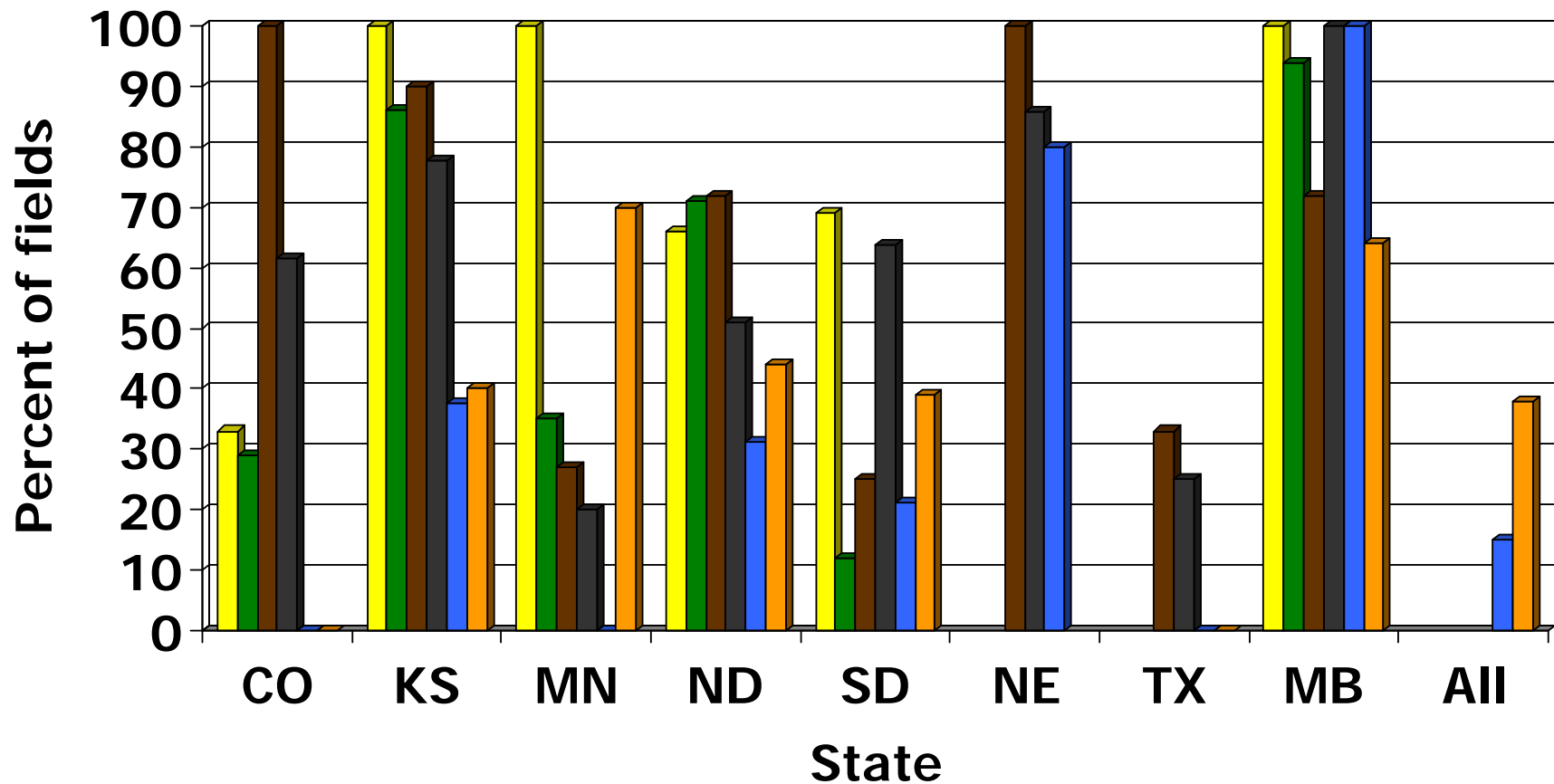


Leaf Area Affected 5%

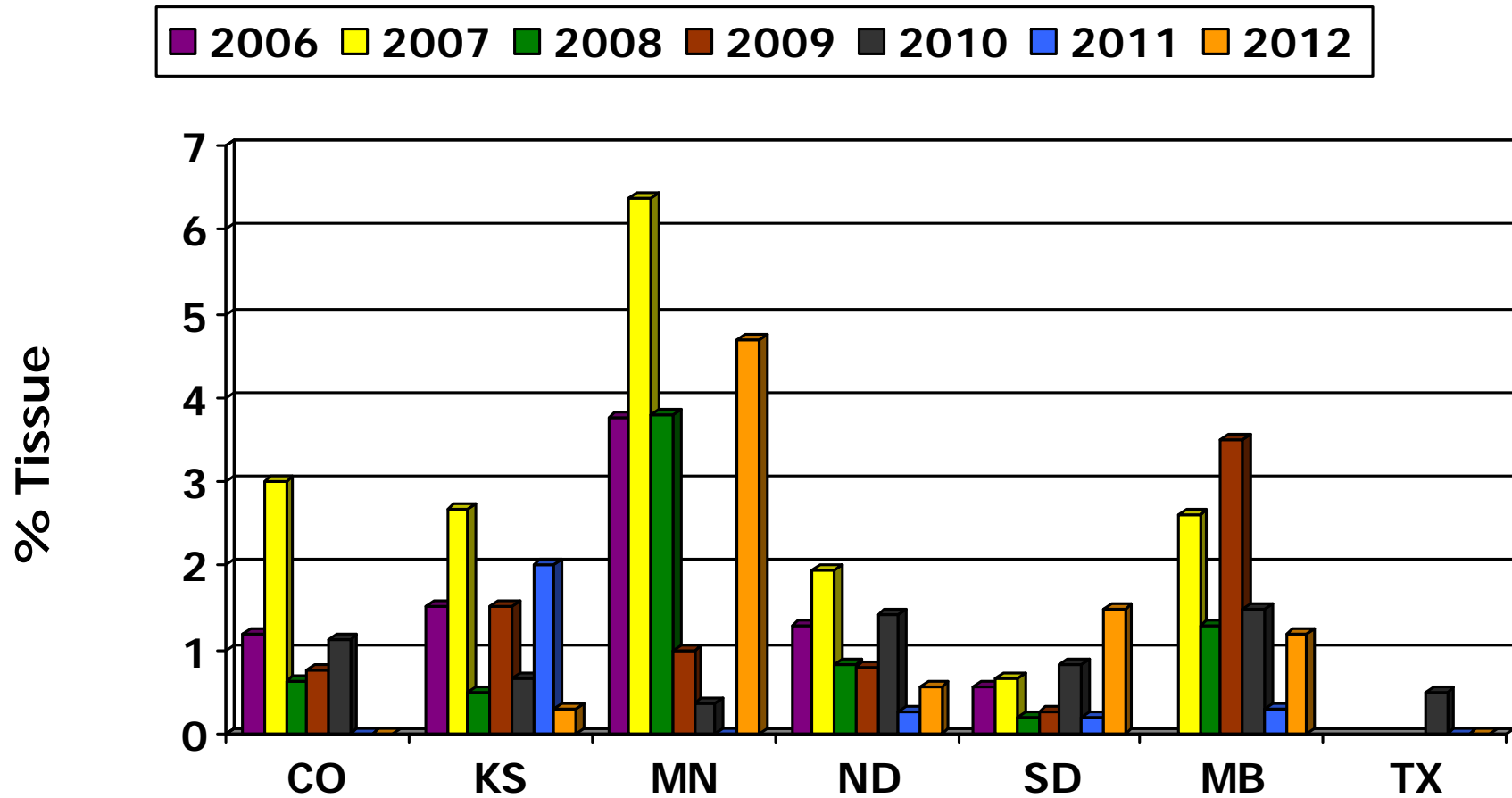


Leaf Area Affected 10%

Red Rust Incidence in Sunflower

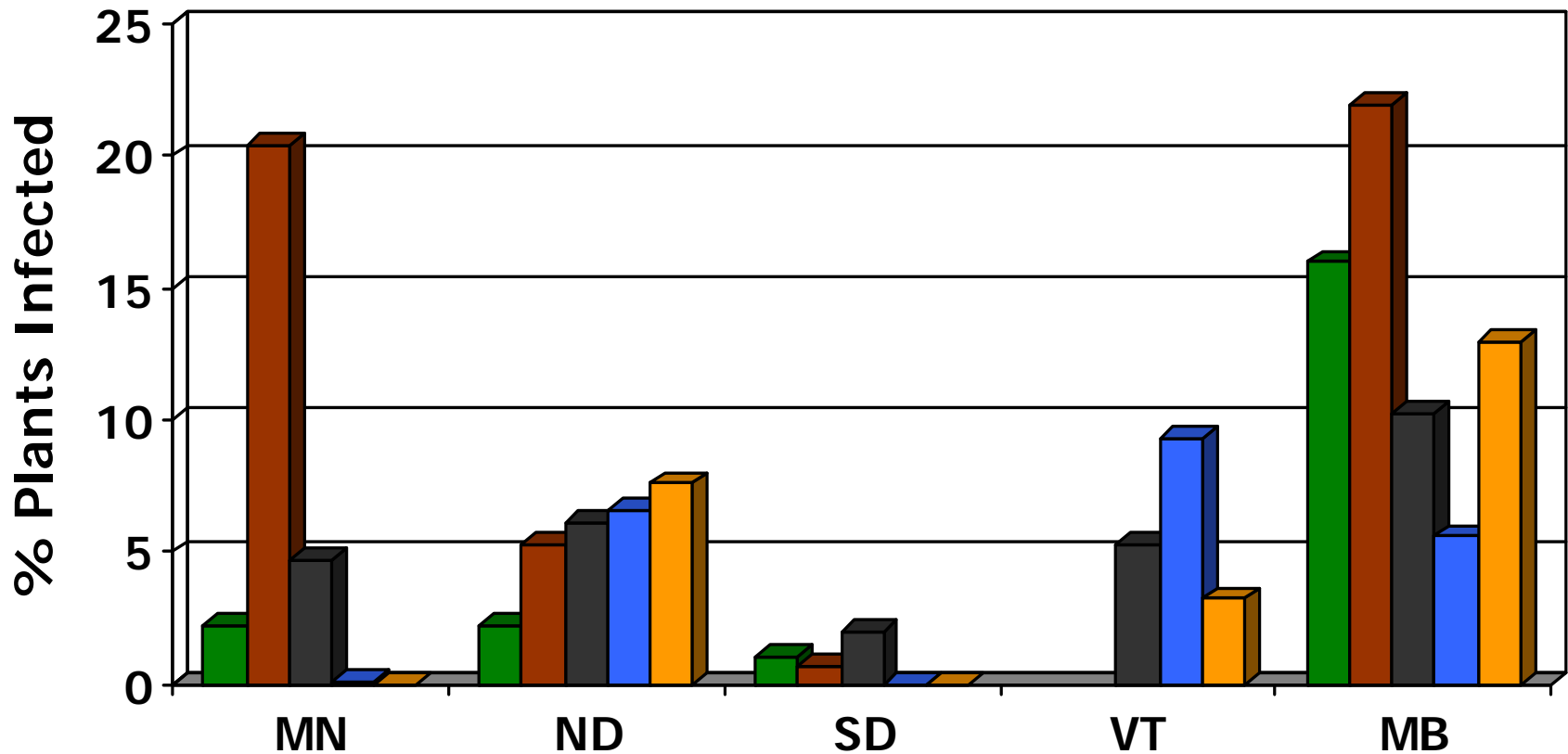
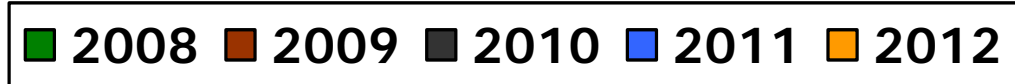


Red Rust Severity in Sunflower

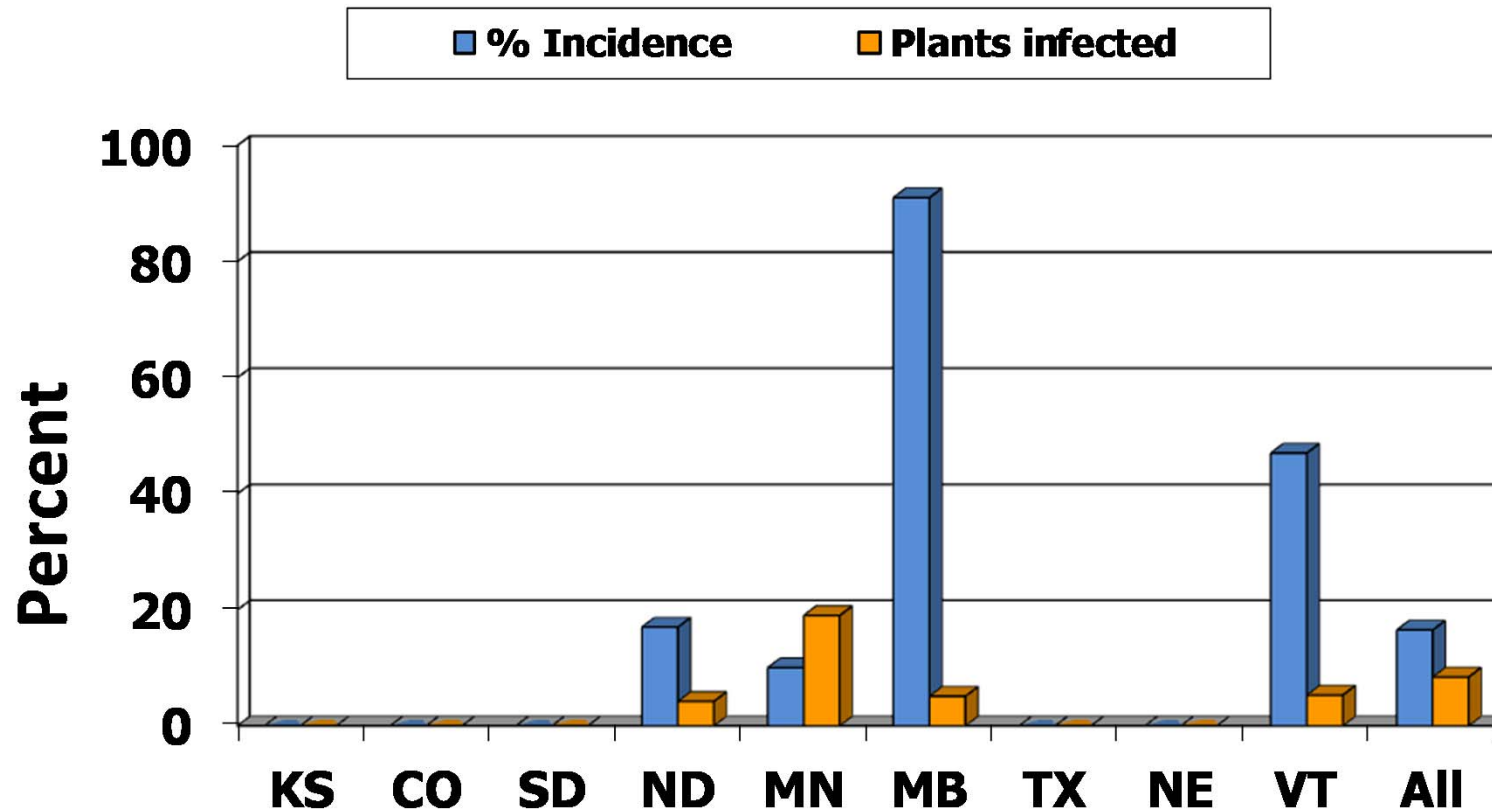


Rust Severity Estimated for Fields Where Incidence Reported

Sclerotinia Head Rot Severity in Sunflower 2008-2012



Sclerotinia Stalk Rot Incidence and Severity in Sunflower 2012



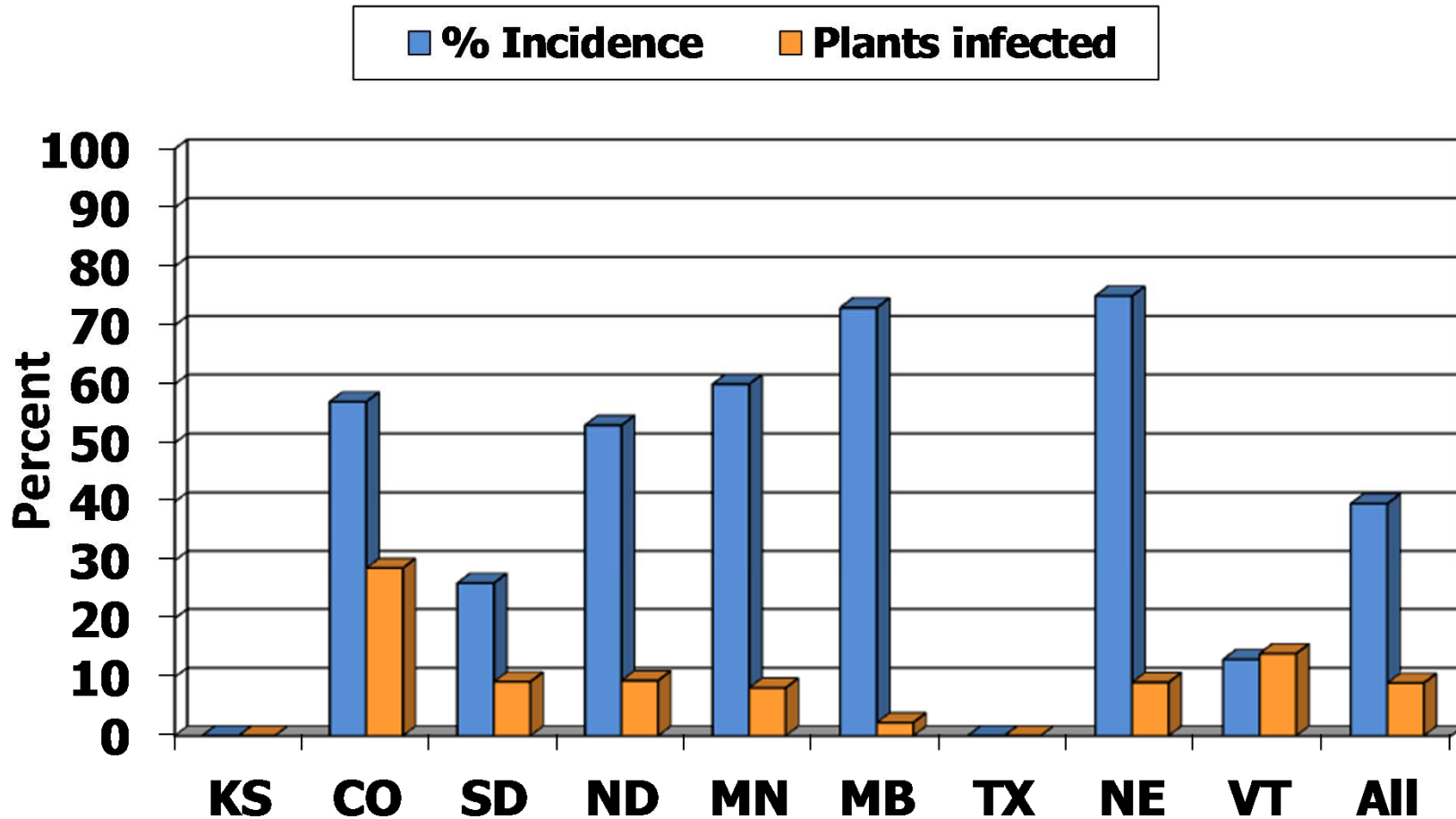
Phomopsis Stem Canker



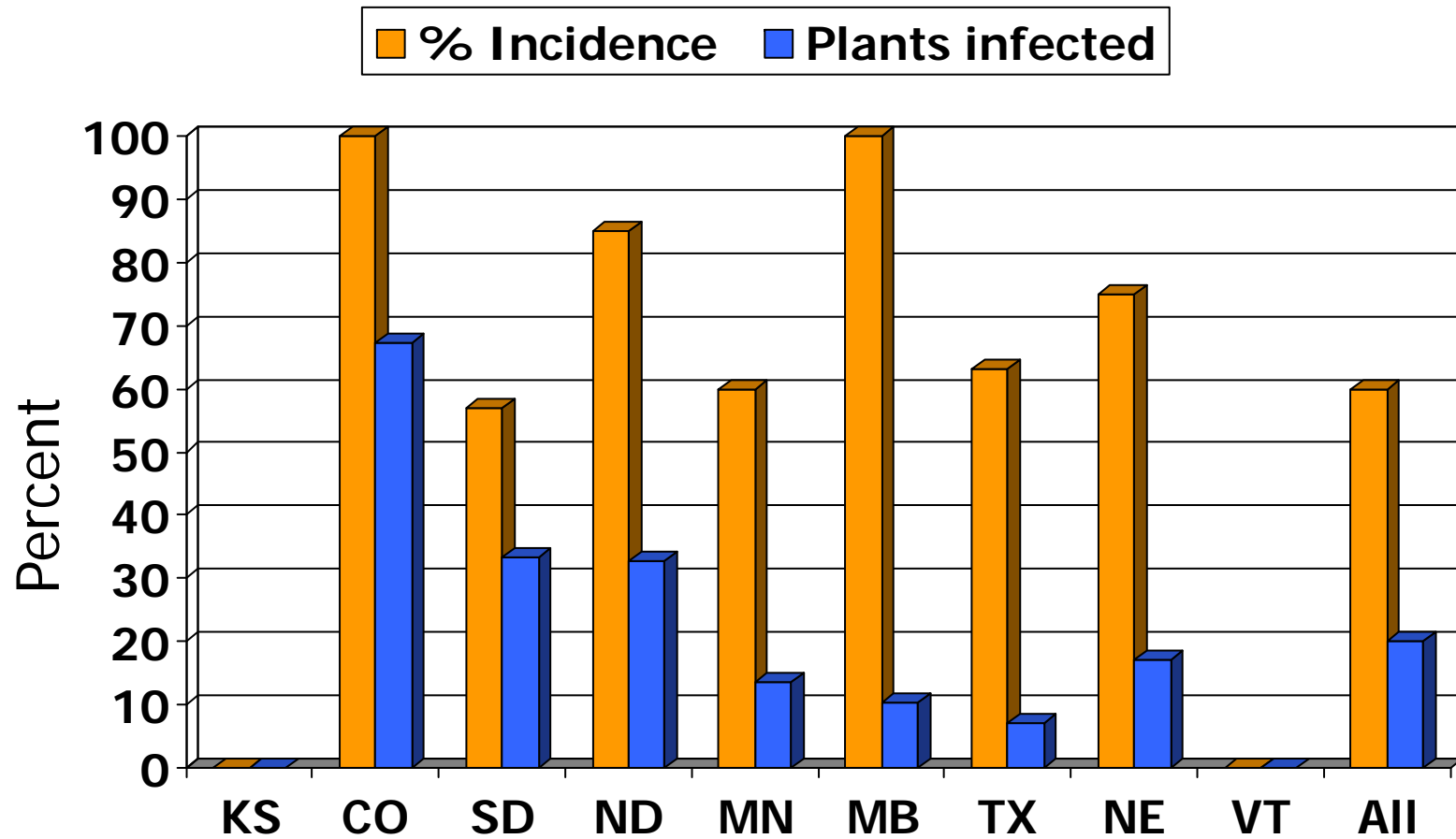
Phoma



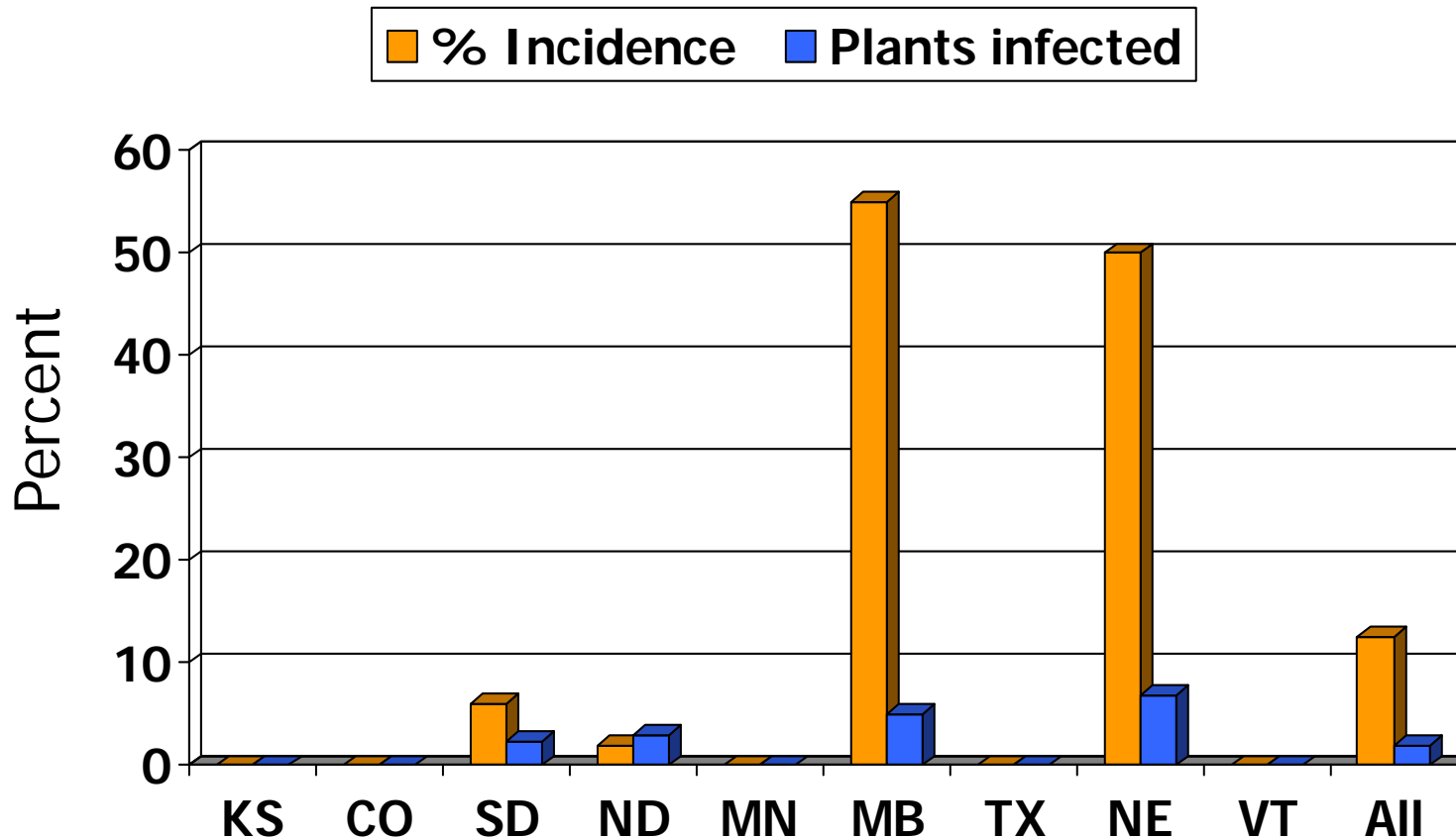
Phomopsis Incidence and Severity in Sunflower 2012



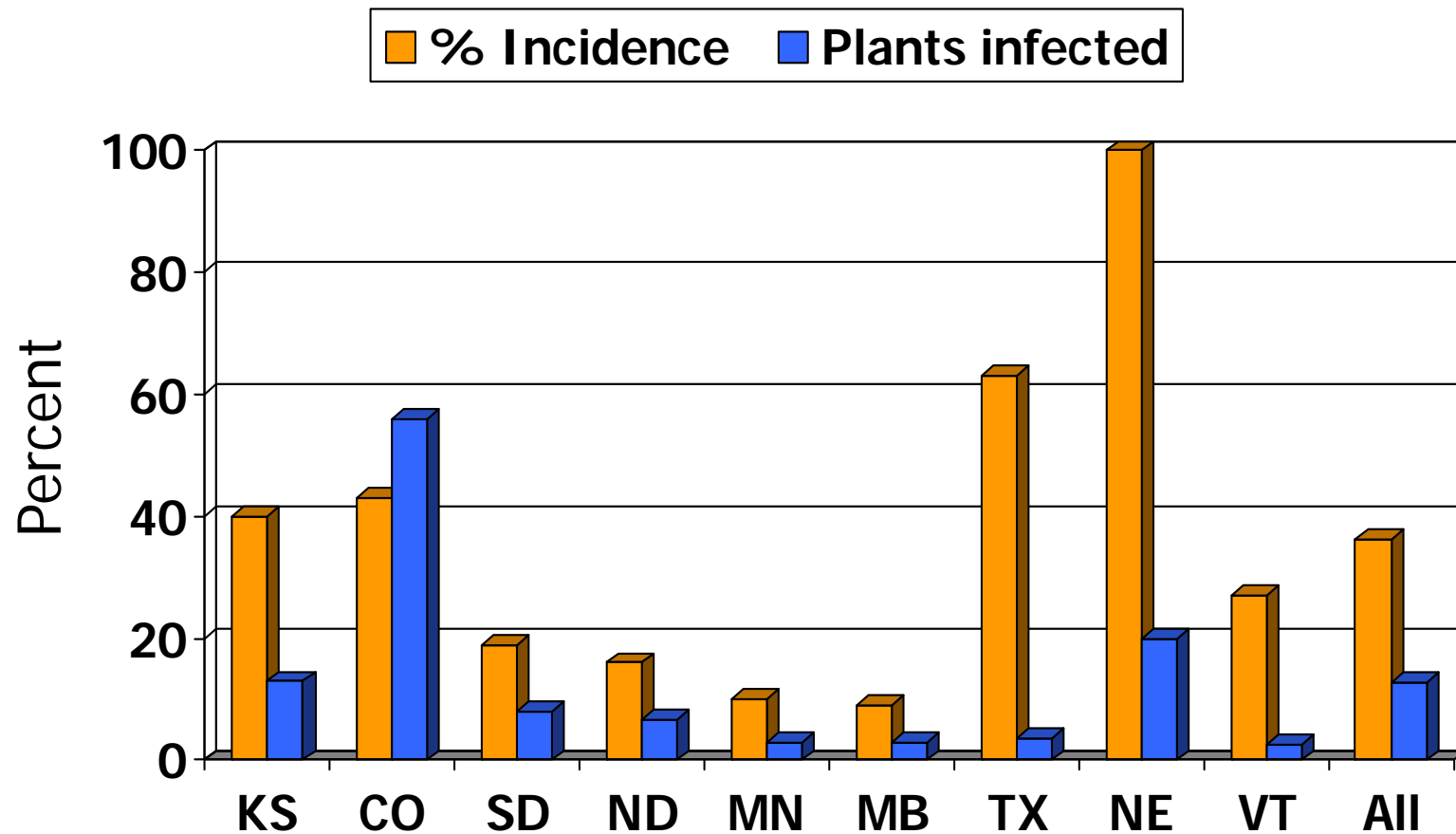
Phoma Incidence and Severity in Sunflower 2012



Verticillium Incidence and Severity in Sunflower 2012

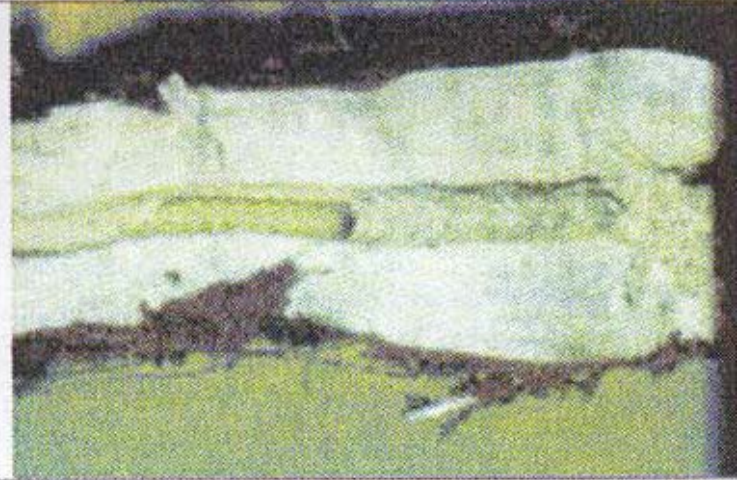
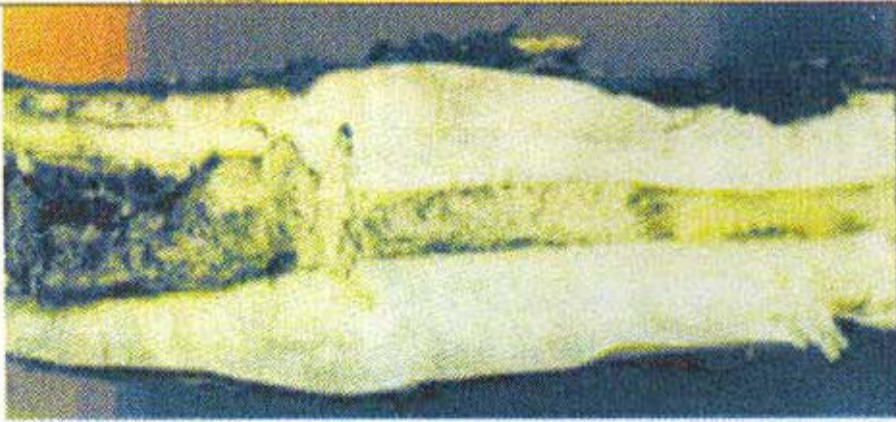


Rhizopus Incidence and Severity in Sunflower 2012

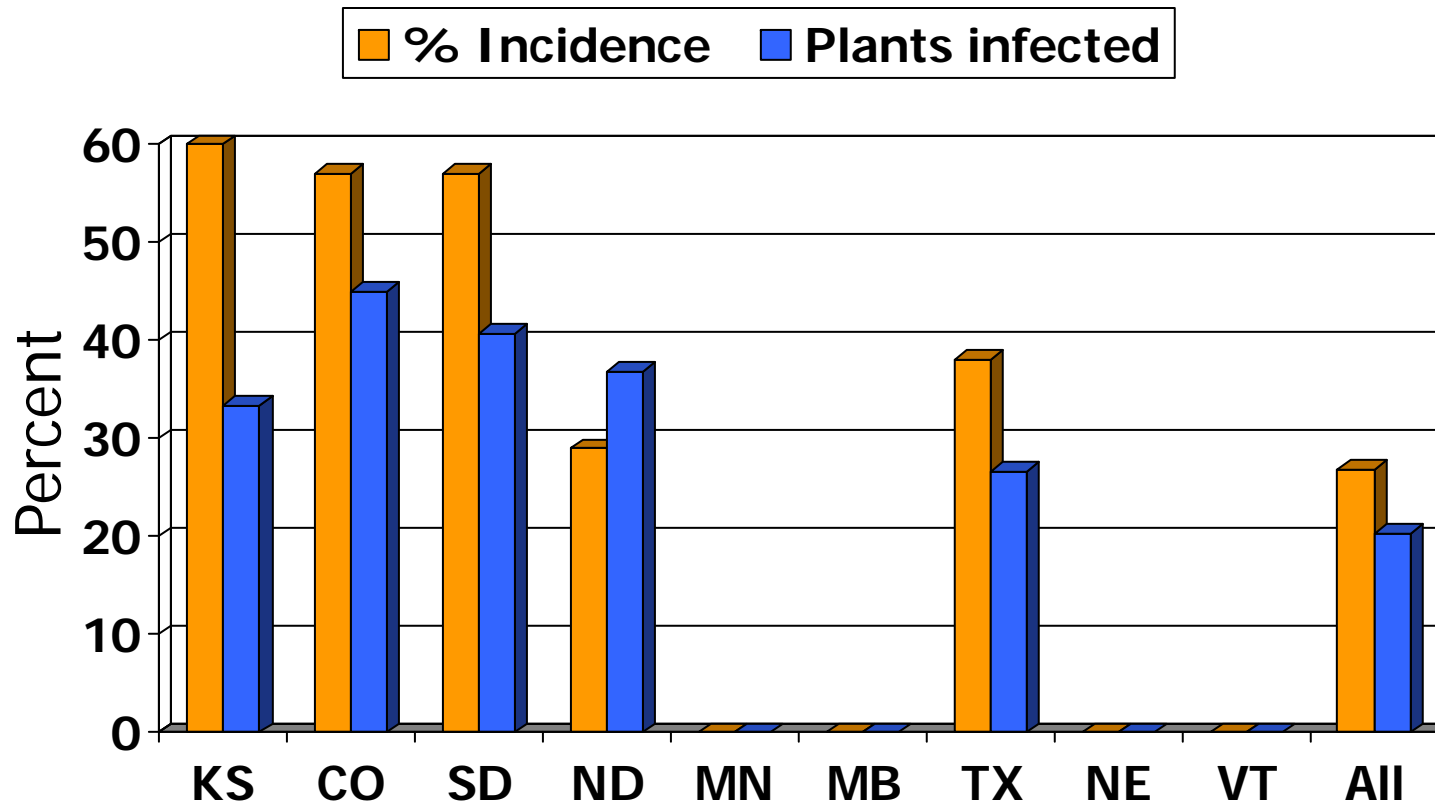


Dectes

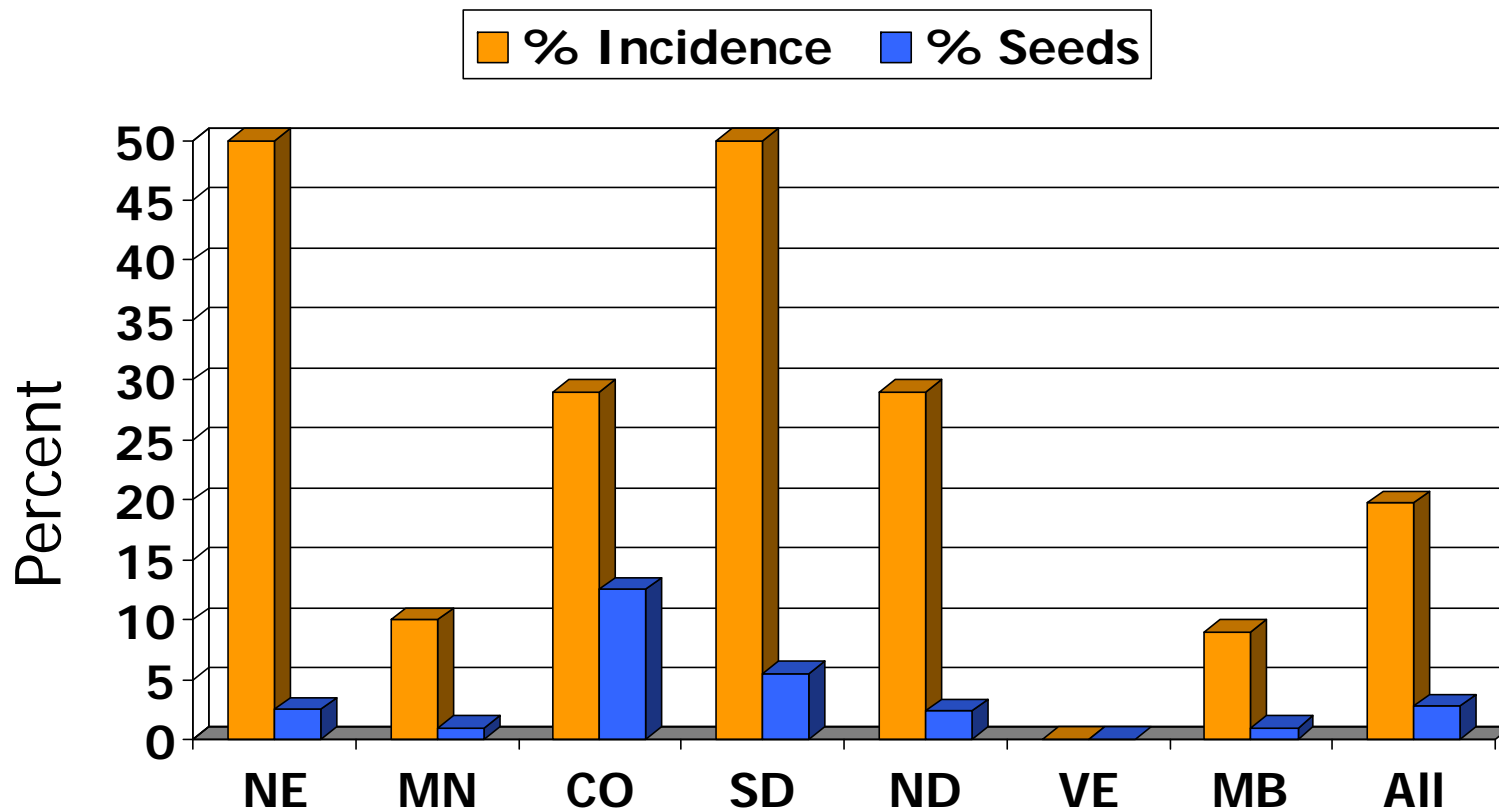
- Dectes (Long-horned Beetle)



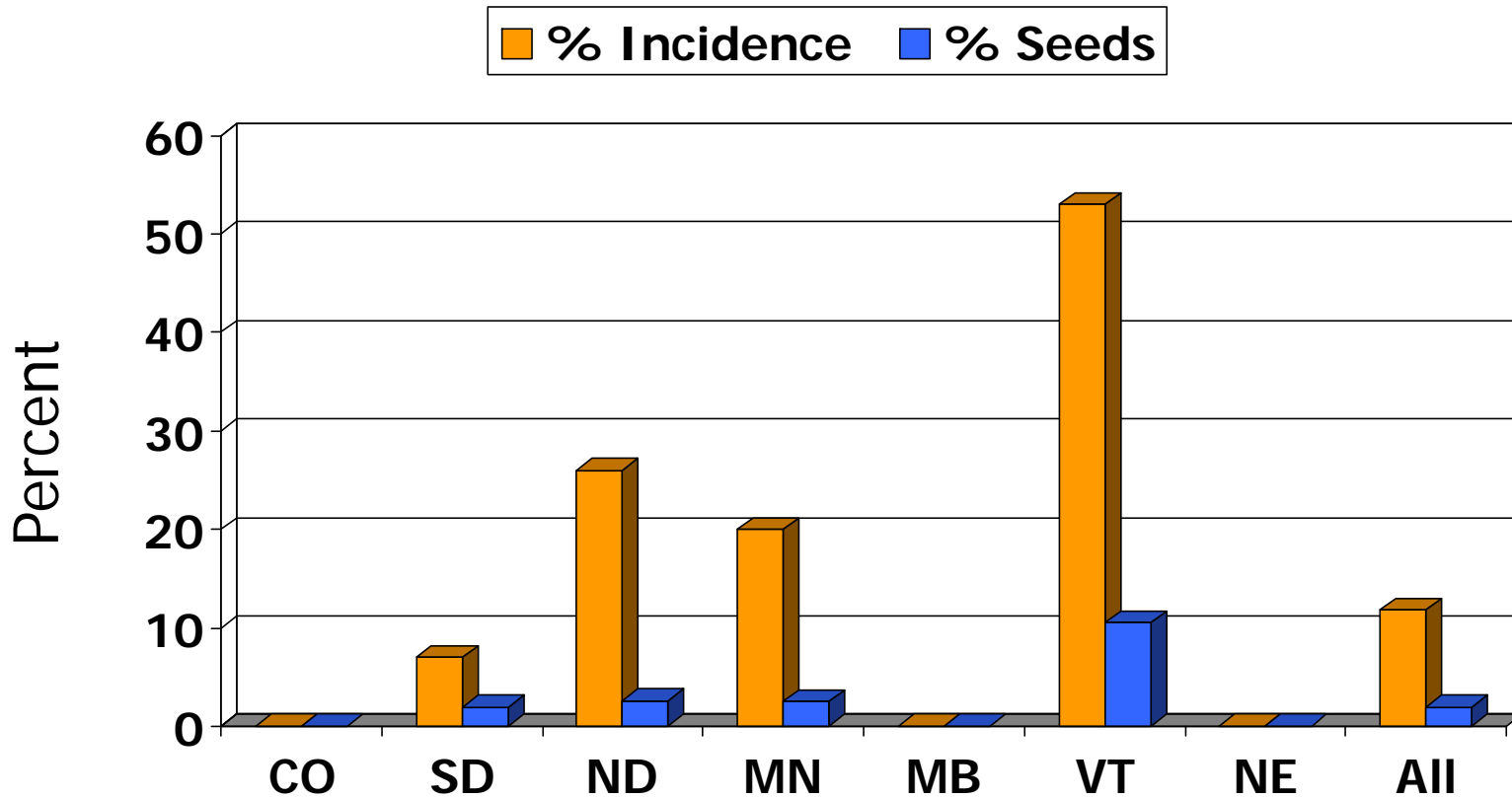
Long-horned Beetle Incidence and Severity in Sunflower 2012



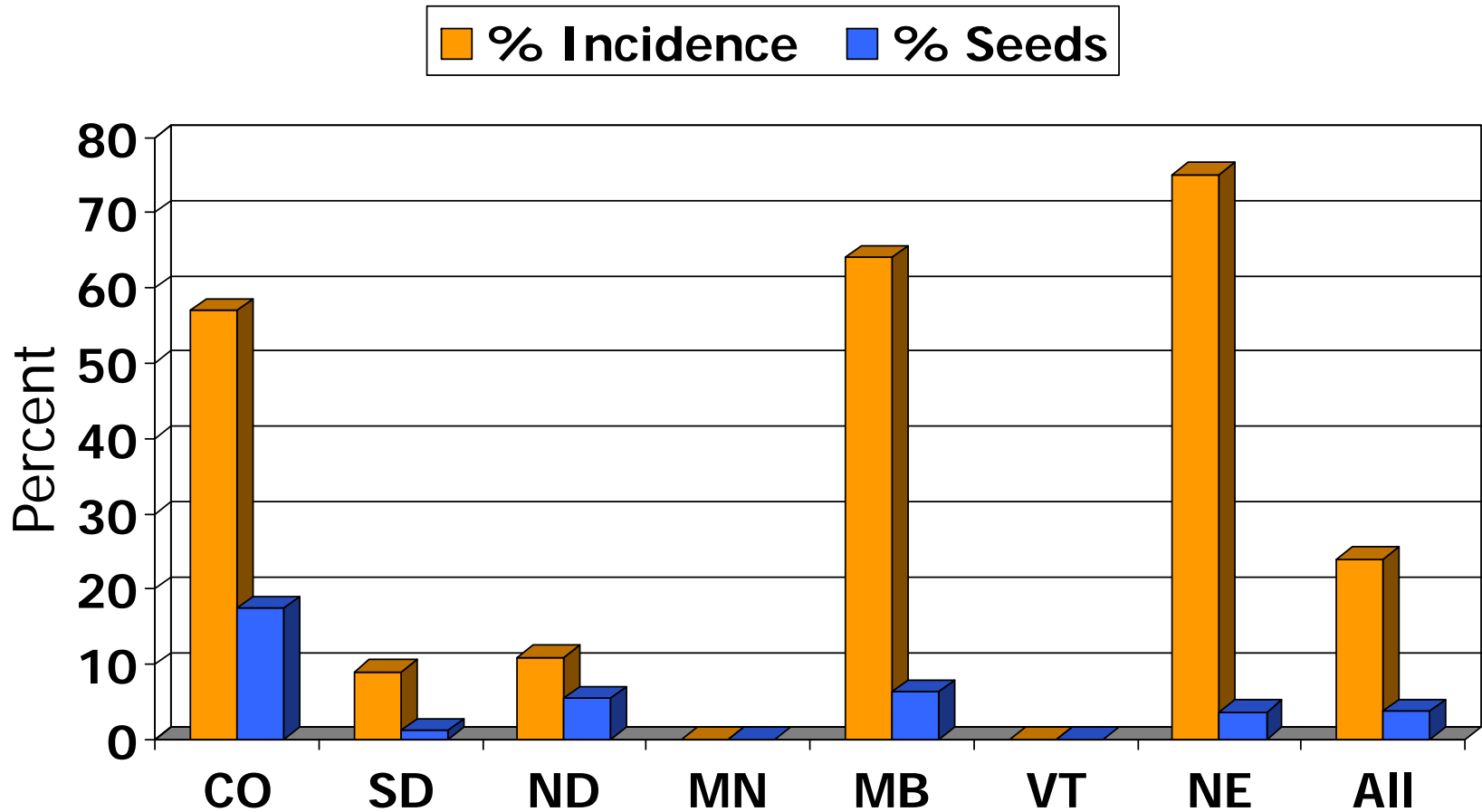
Seed Weevil Incidence and Severity in Sunflower 2012



Banded Sunflower Moth Incidence and Severity in 2012

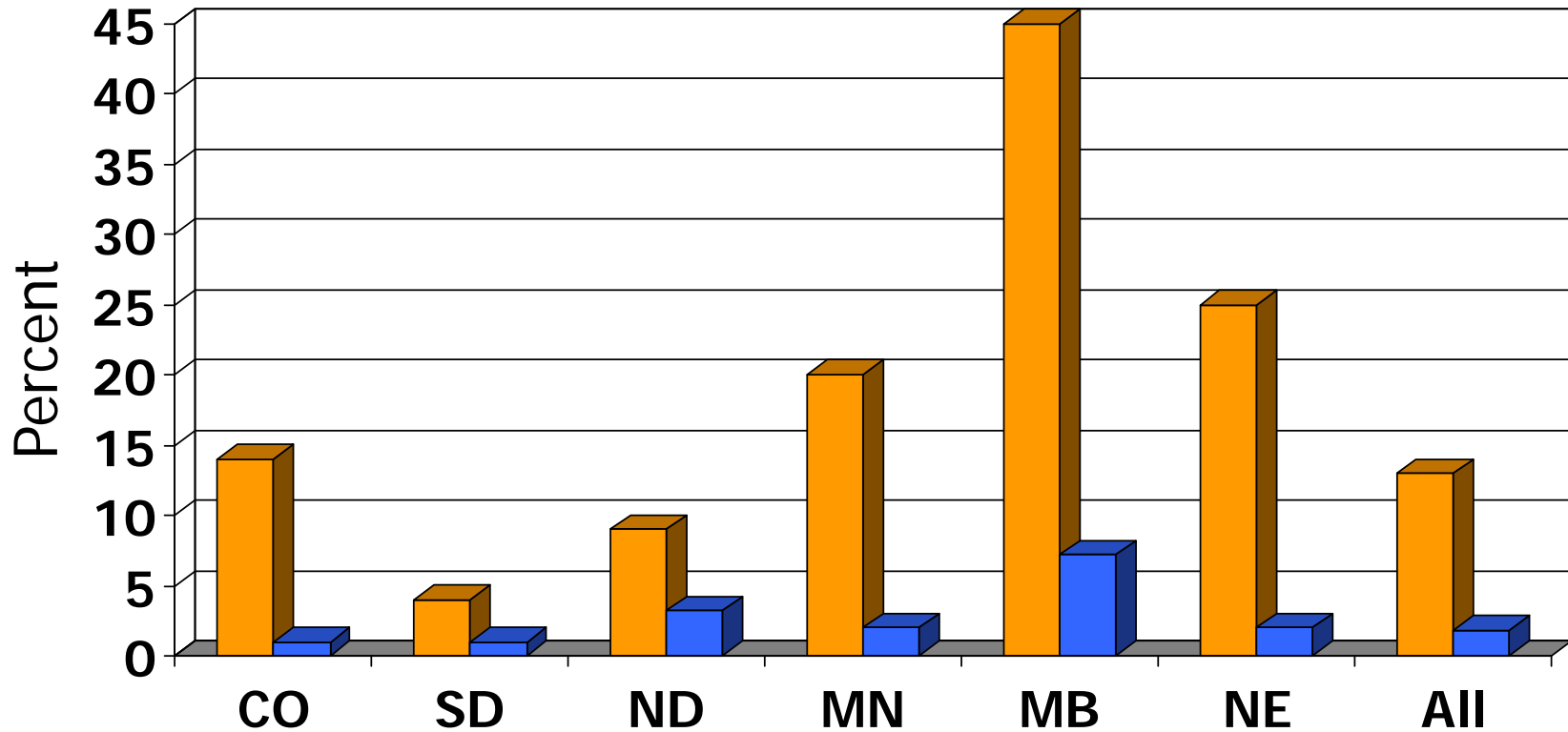


Sunflower Moth Incidence and Severity in Sunflower 2012

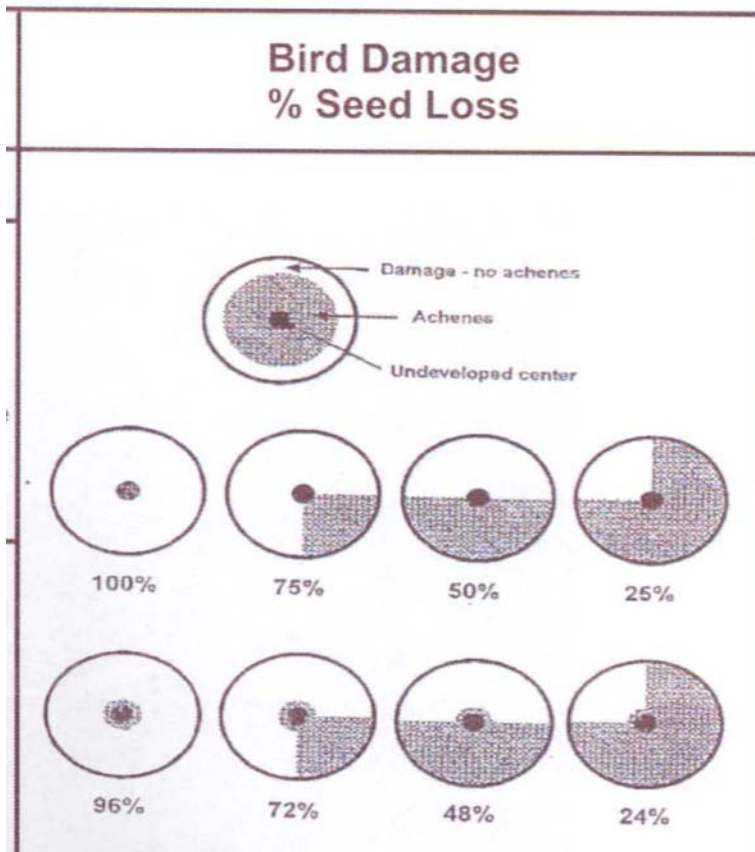


Brown Spot Incidence and Severity in 2012 (confectionary)

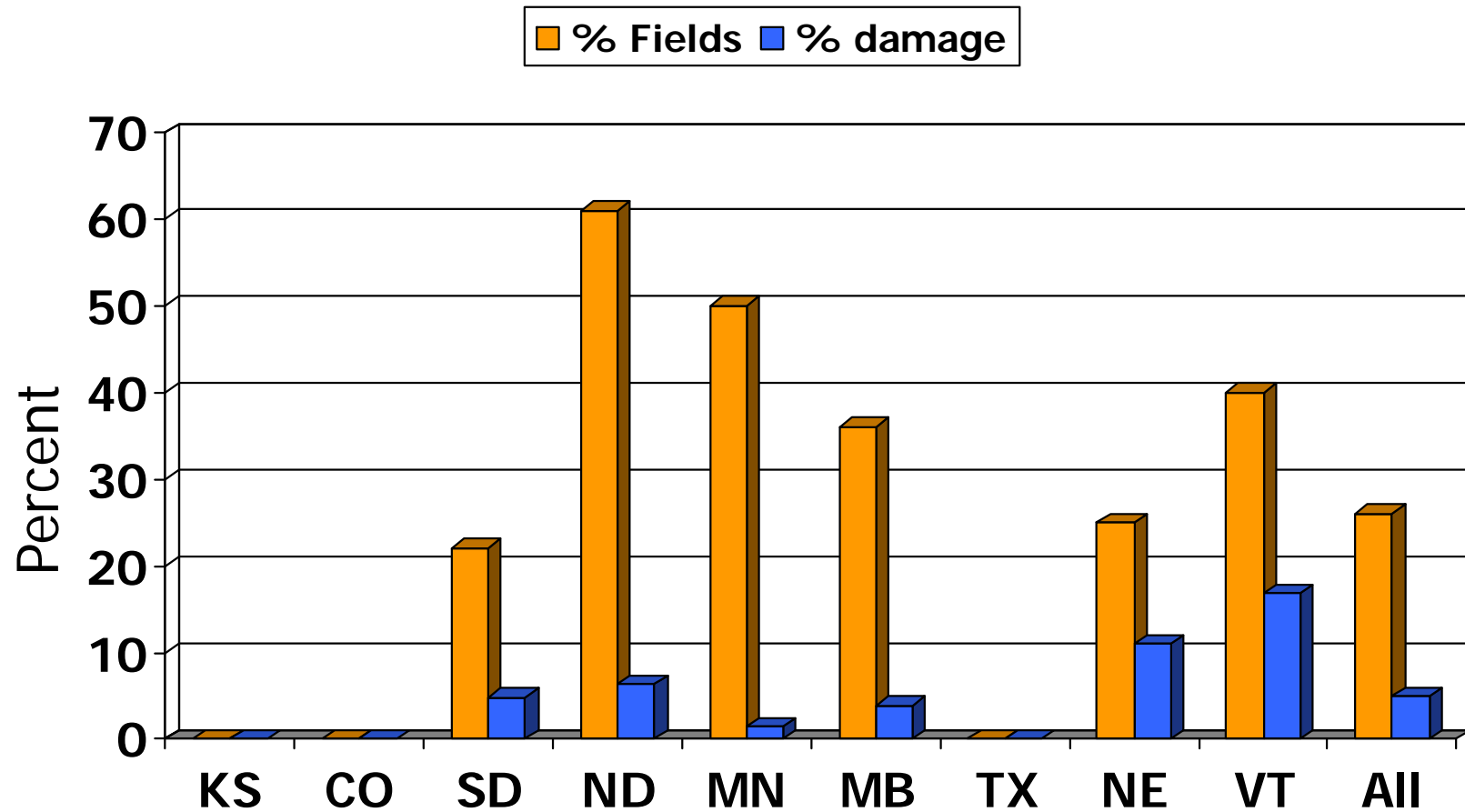
■ % Incidence ■ % Seeds



Recording observations



Bird Incidence and Severity in Sunflower 2012



Top Weeds Observed: 2012

North Dakota

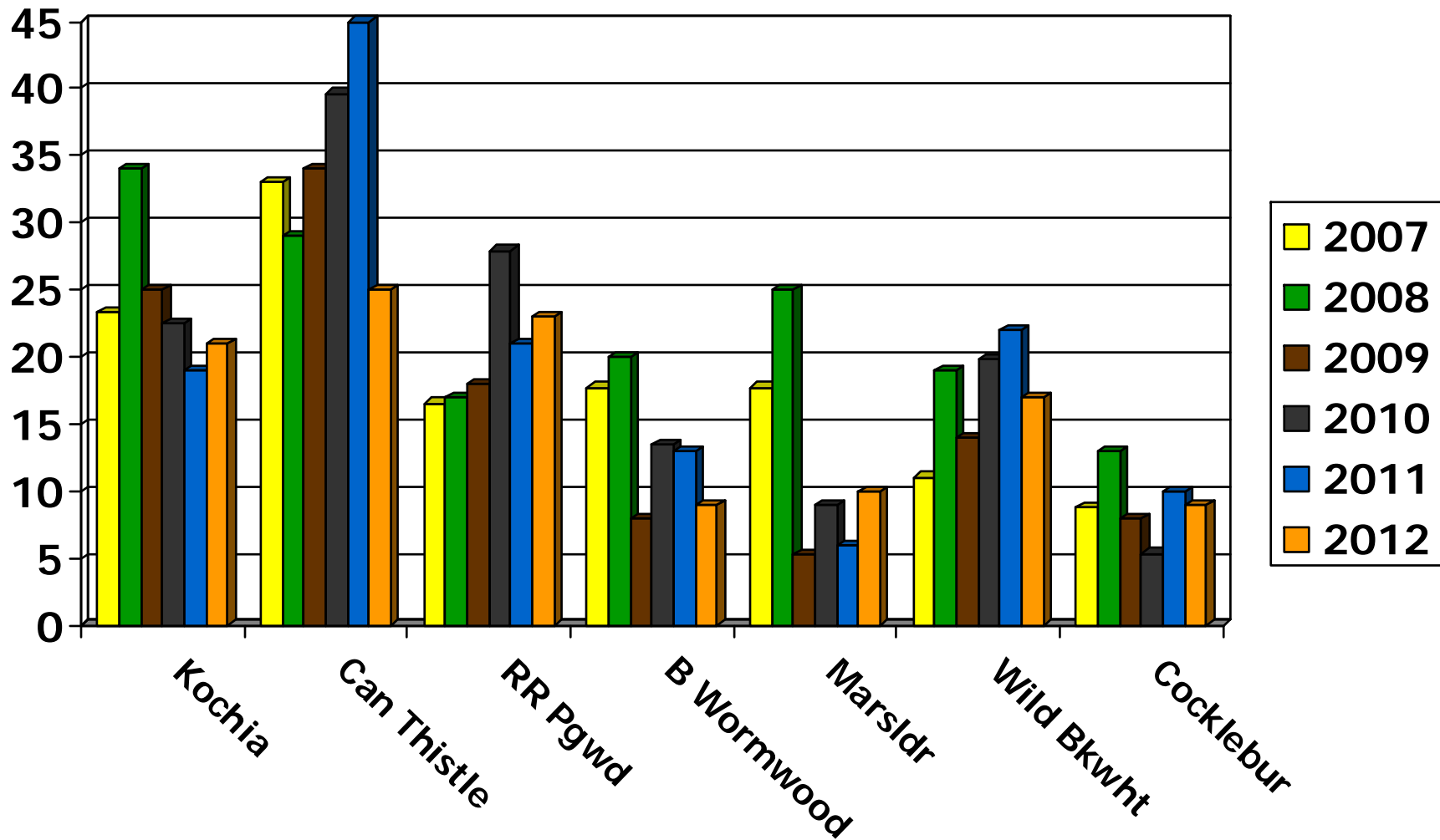
- Biennial wormwood
- Canada thistle
- Cockle Bur
- Lambsquarter
- Kochia
- Red root Pig Weed
- Russian thistle
- Rag weed-common
- Foxtail green & yellow

Minnesota

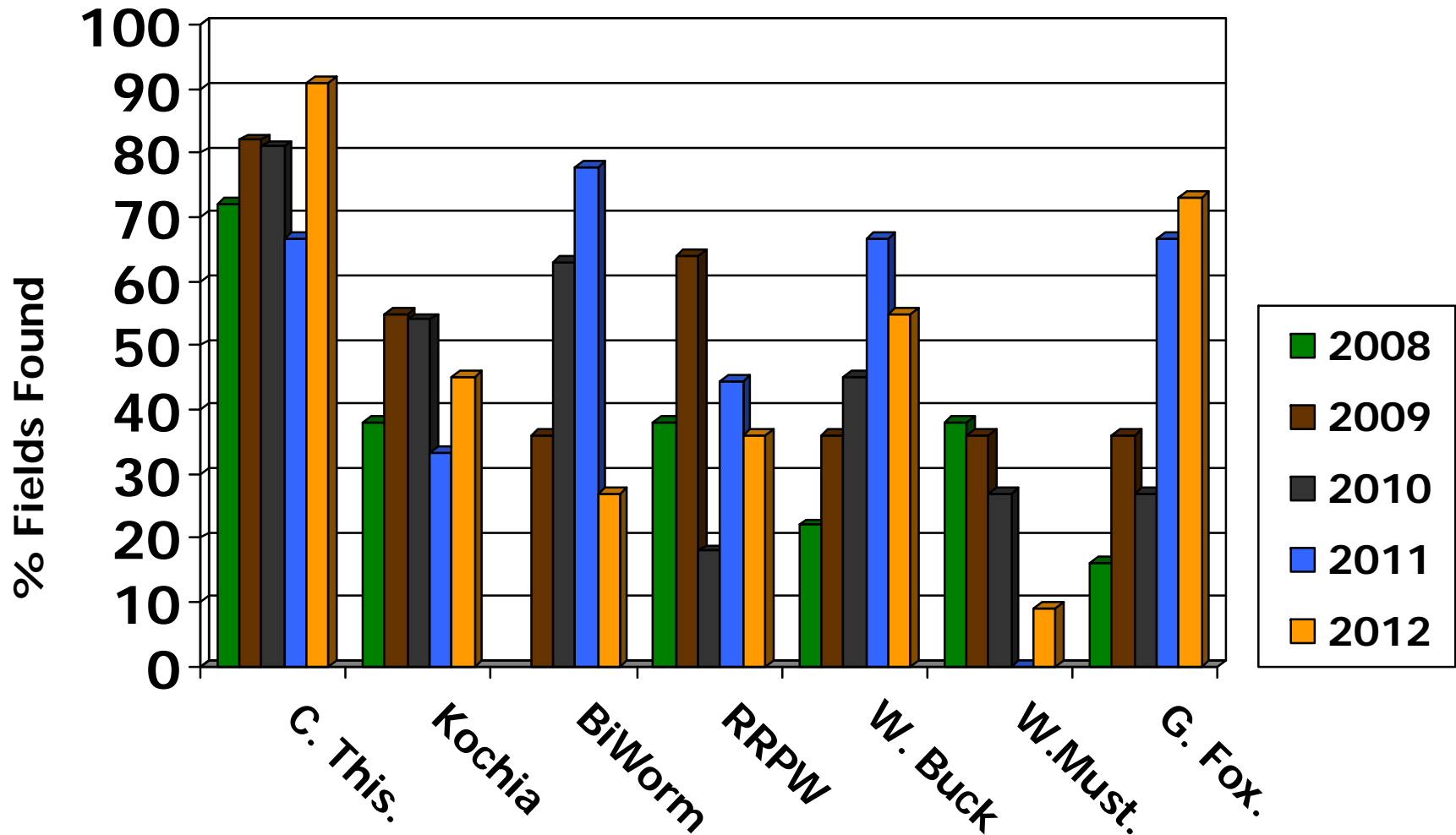
- Biennial wormwood
- Canada thistle
- Lambsquarter
- Marsh elder
- Rag weed-common
- Field sandbur
- Foxtail green



Incidence of Broadleaf Weeds ND/MN 2007-2012



Incidence of Weeds Observed in Manitoba 2008-2012



Top Five Weeds in South Dakota 2010-2012

2010

- Green foxtail
- Kochia
- Redroot pigweed
- Russian thistle
- Cocklebur

2011

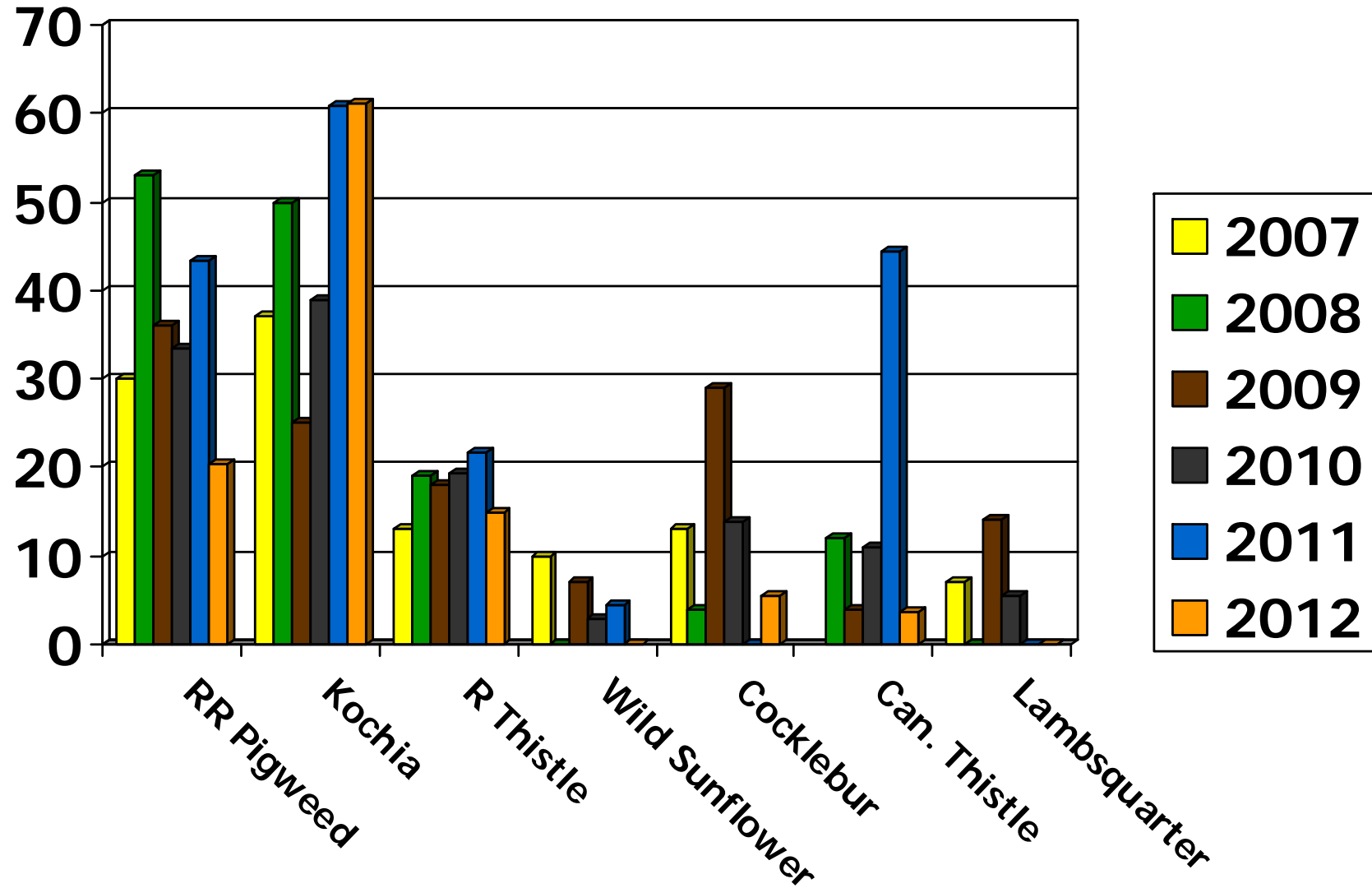
- Kochia
- Lanceleaf sage
- Redroot pigweed
- Russian thistle
- Green foxtail

2012

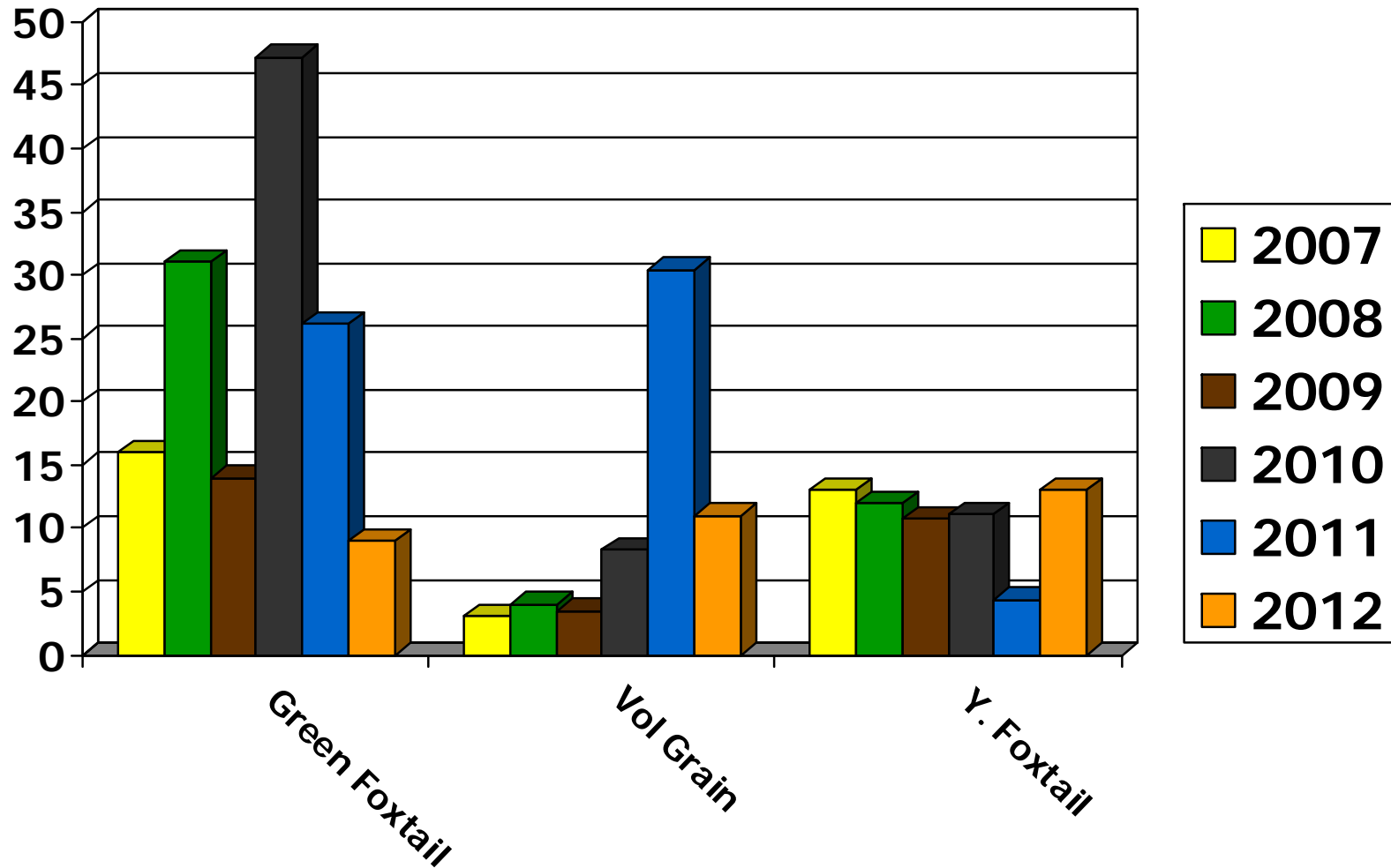
- Kochia
- Lanceleaf sage
- Redroot pigweed
- Russian thistle
- Green foxtail
- Yellow foxtail



Incidence of Broadleaf Weeds South Dakota 2007-2012



Incidence of Grassy Weeds South Dakota 2007 - 2012



Top Weeds Observed: 2012

Colorado

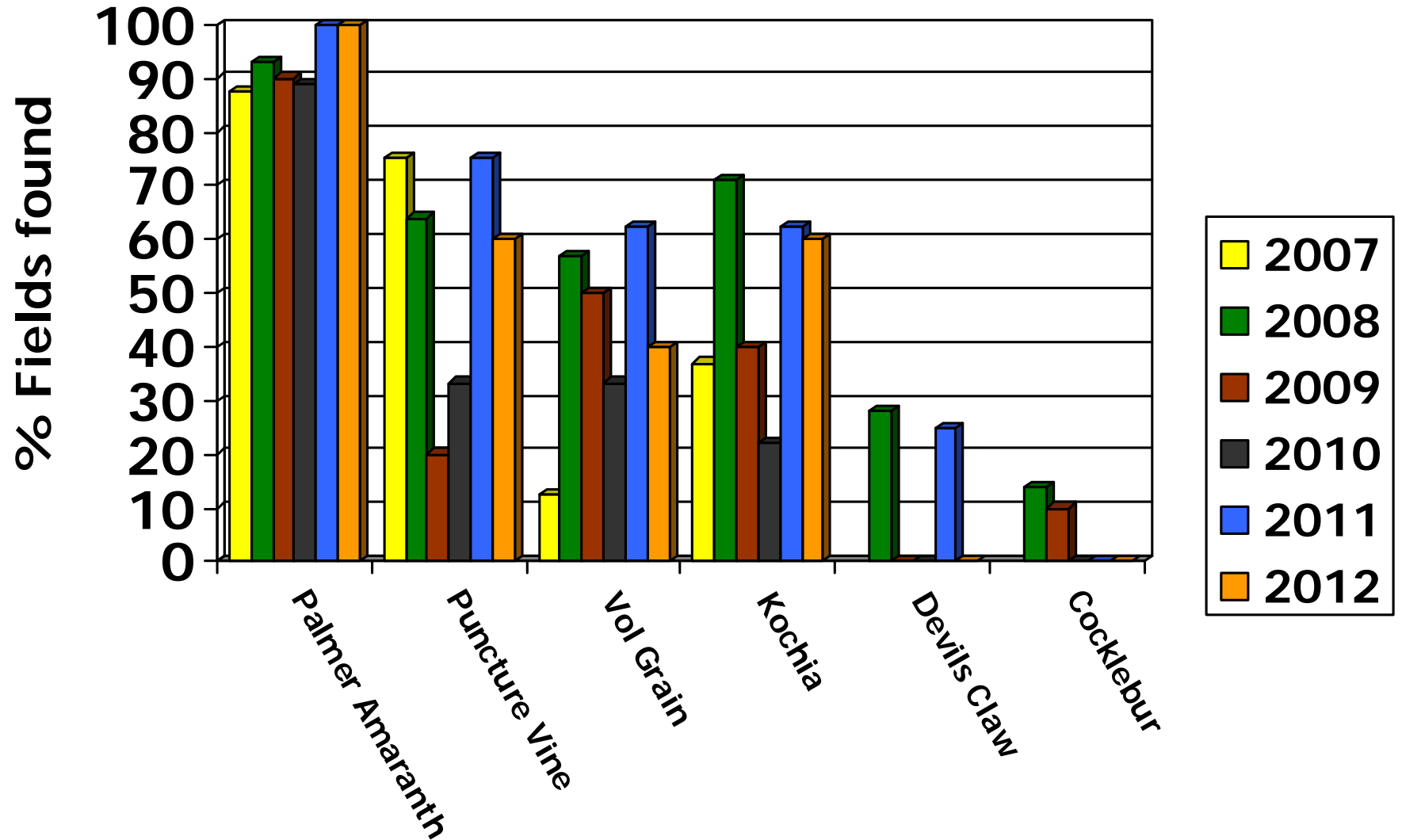
- Red root pig weed
- Kochia
- Puncture vine
- Russian thistle
- Nightshade
- Lanceleaf sage

Kansas

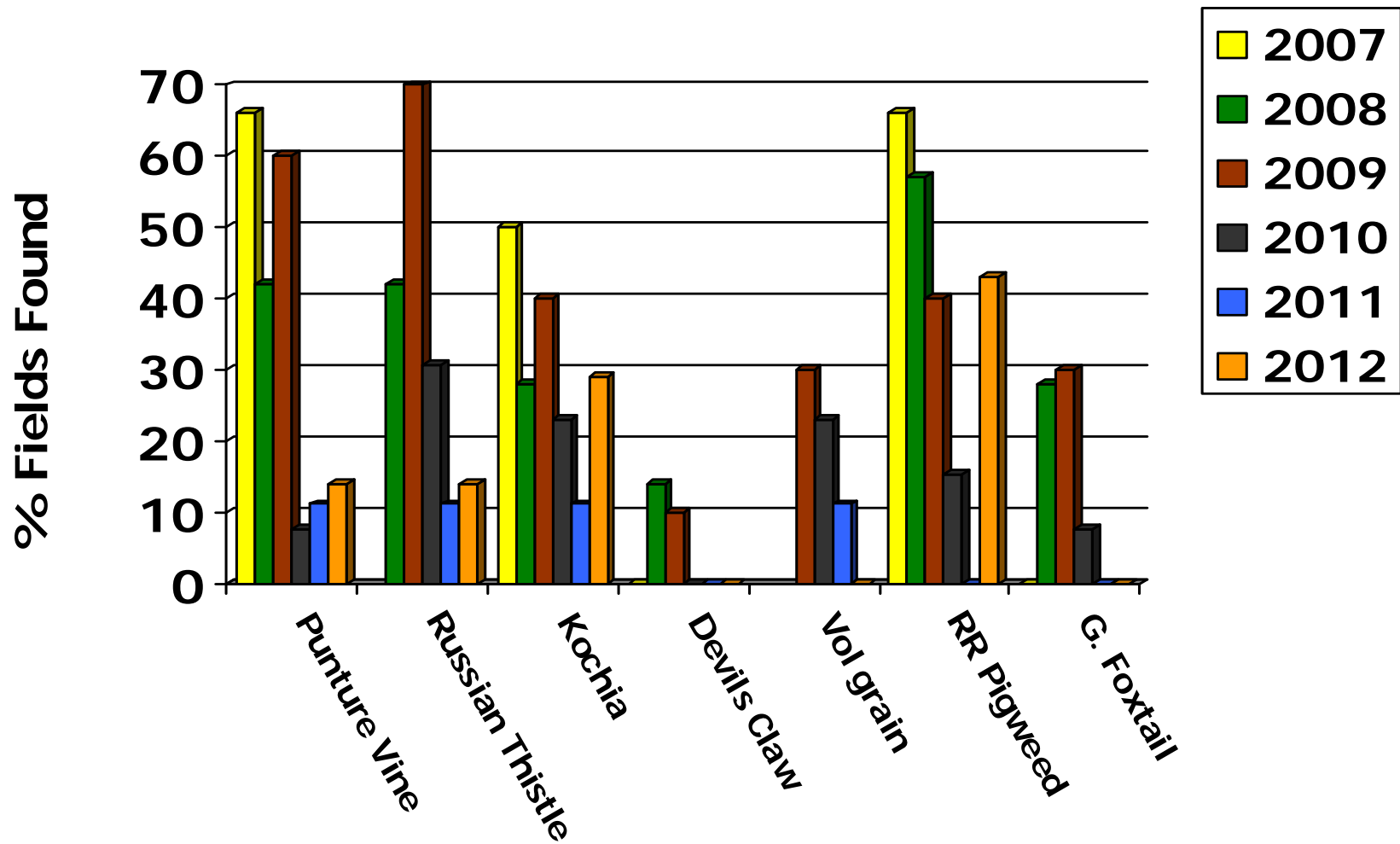
- Palmer amaranth
- Puncture vine
- Volunteer grain
- Kochia



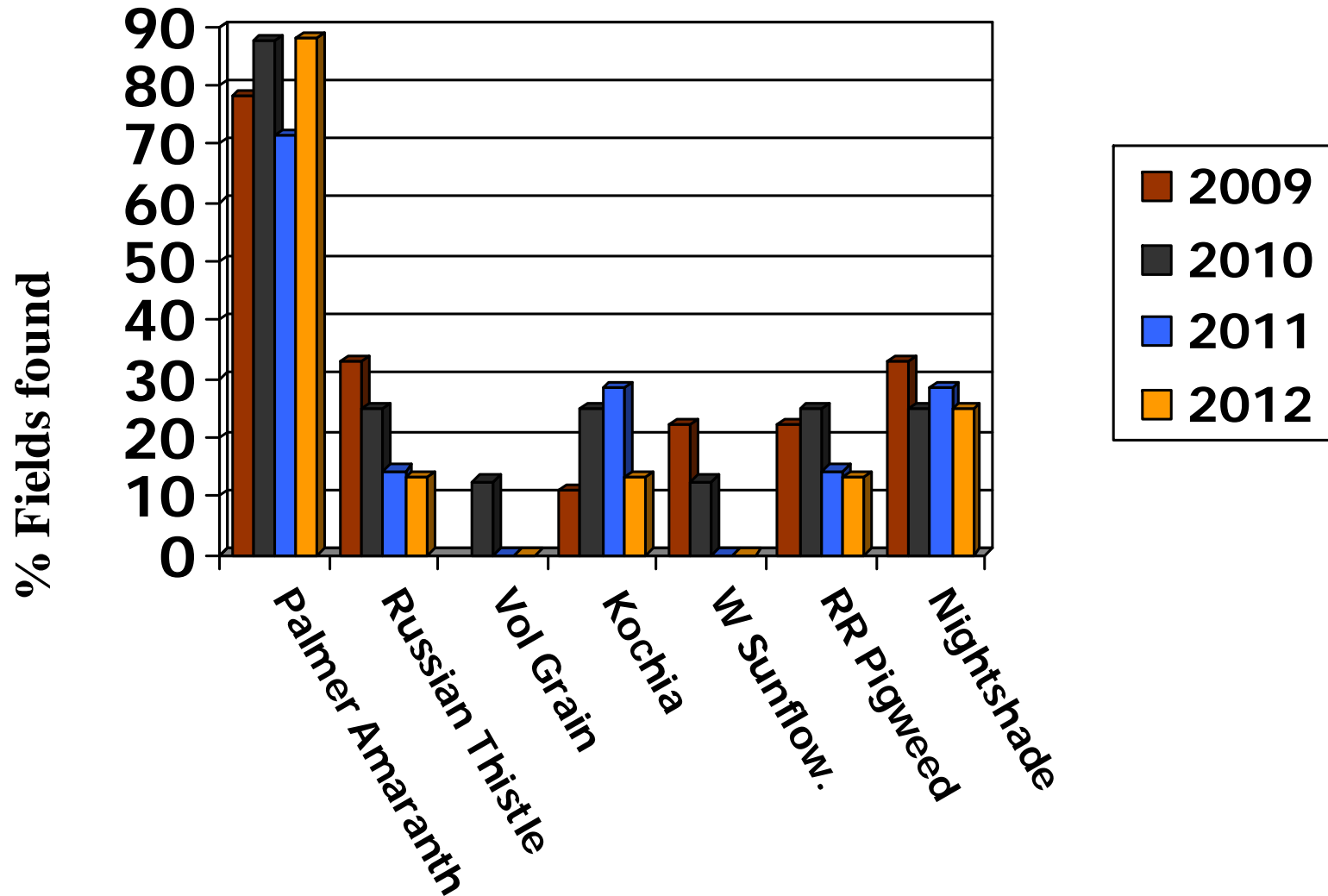
Incidence of Weeds in Kansas



Incidence of Weeds in Colorado 2007-2012



Incidence of Weeds in Texas



Conclusions and Summary of 2012 National Sunflower Survey

- Main yield limiting factors in ND were, drought, plant spacing (within the row), diseases, and birds.
- Main yields limiting factors in SD were plant spacing, disease and lodging.
- Main Yield limiting factors in Minnesota were plant spacing within the row and bird damage.



*2012 Sunflower Survey
Sponsored by the National
Sunflower Association*

