
# 2009 National Sunflower Association Survey

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**Emeritus- Crop Science**

www.ag.ndsu.edu/varietytrials/

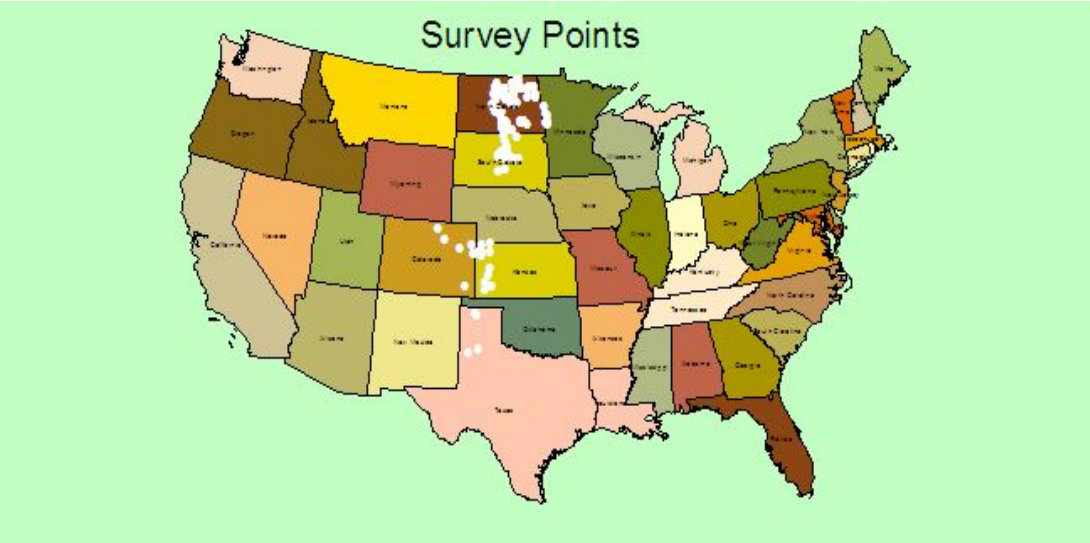
A-652 (Revised)

North Dakota
and South Dakota
# HYBRID
# SUNFLOWER
Performance Testing
2009

Compiled by

# 2009 Sunflower Survey- # Fields

- North Dakota-87
- Minnesota-18
- South Dakota-28
- Kansas-10
- Colorado-10
- Nebraska-4
- Manitoba-11
- Texas-9
- **TOTAL- 177**



# 2009 Sunflower Survey

- Only counties with 20,000 planted Acres or more
- 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*

* Highest # Surveyed

# 2009 Sunflower Crop Survey Teams

- North Dakota 9 teams
- South Dakota 6 teams
- Kansas 1 team
- Colorado 2 teams
- Minnesota 2 teams
- Nebraska 1 team
- Texas 1 team
- Manitoba 1 team

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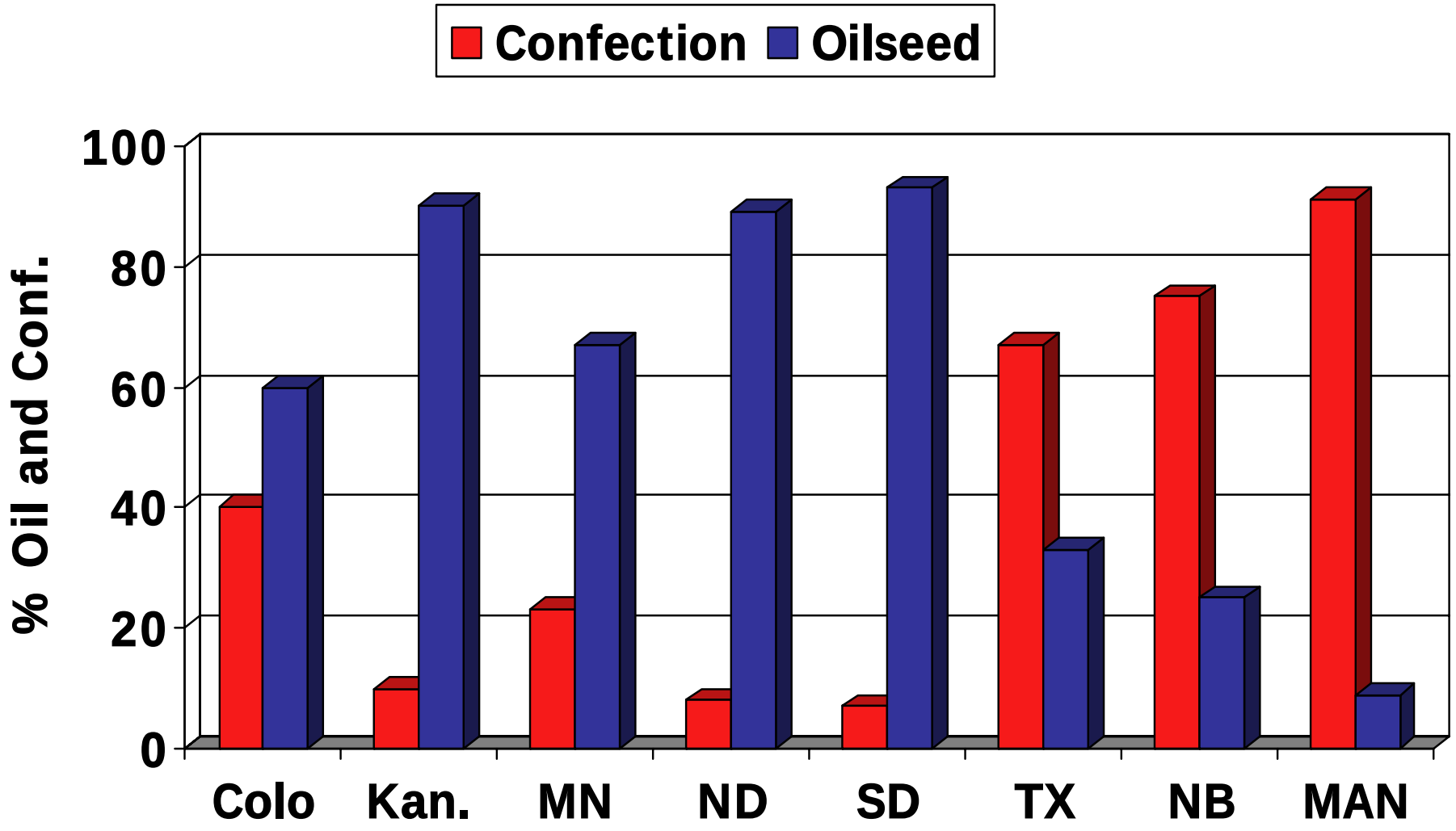
Total of 23 teams

# % of Fields Confection and Oils Sunflower-2009 Survey



# 2009 Sunflower Yield and Management Practices

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

**GPS North_____ GPS West _____ Dryland (1) _____ Irrigated (2) _____.**

| **Yield Data:** | | **Plants / Pop.** | **Head Diameter** | **Seed Size** | **% Good Seed** | **Center Seed Set** | **Previous Crop** |
|---|---|---|---|---|---|---|---|
| 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:**

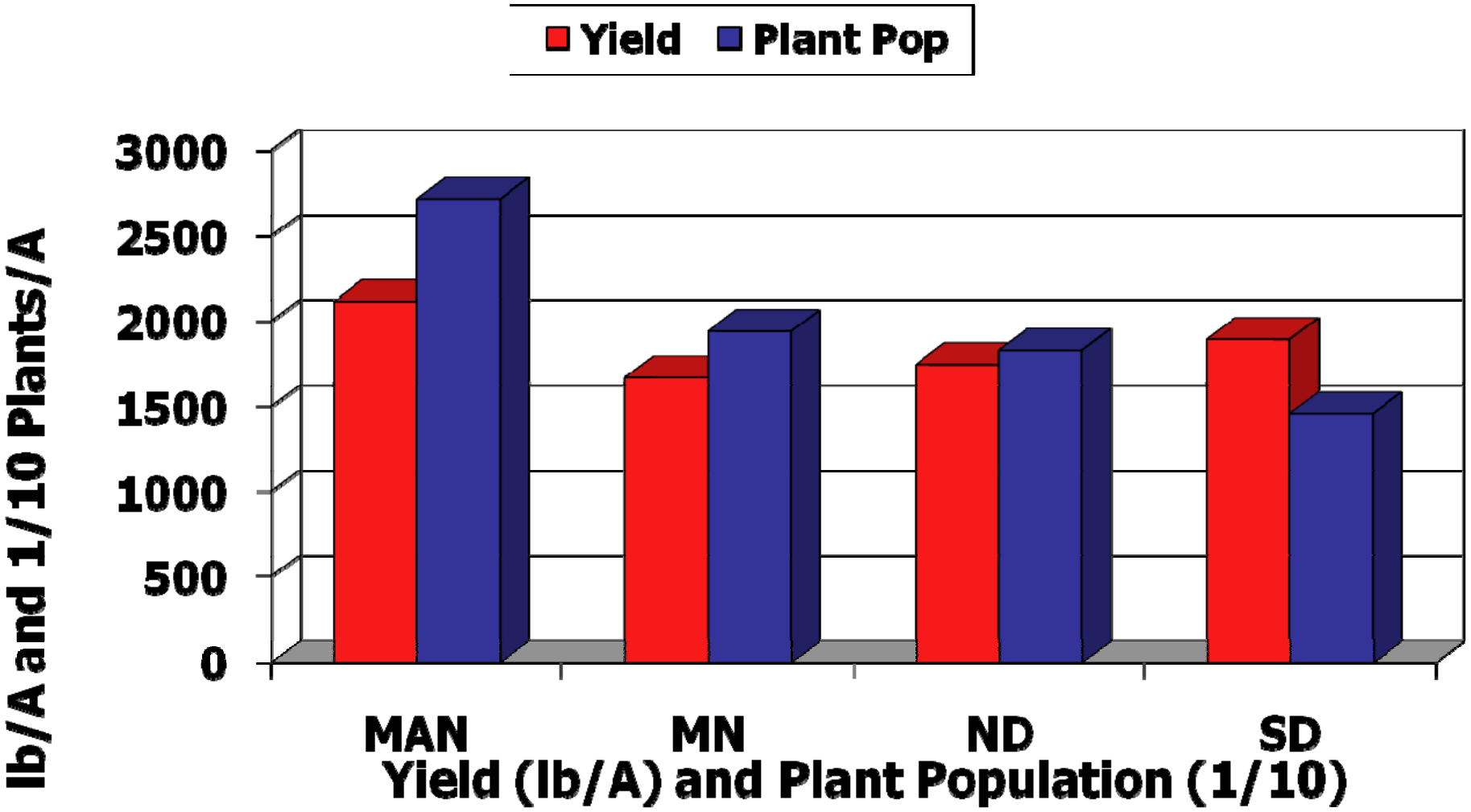
**Row Spacing** 20" or less - 1 _____ 21" or Greater - 2_____

# Counting plants per acre

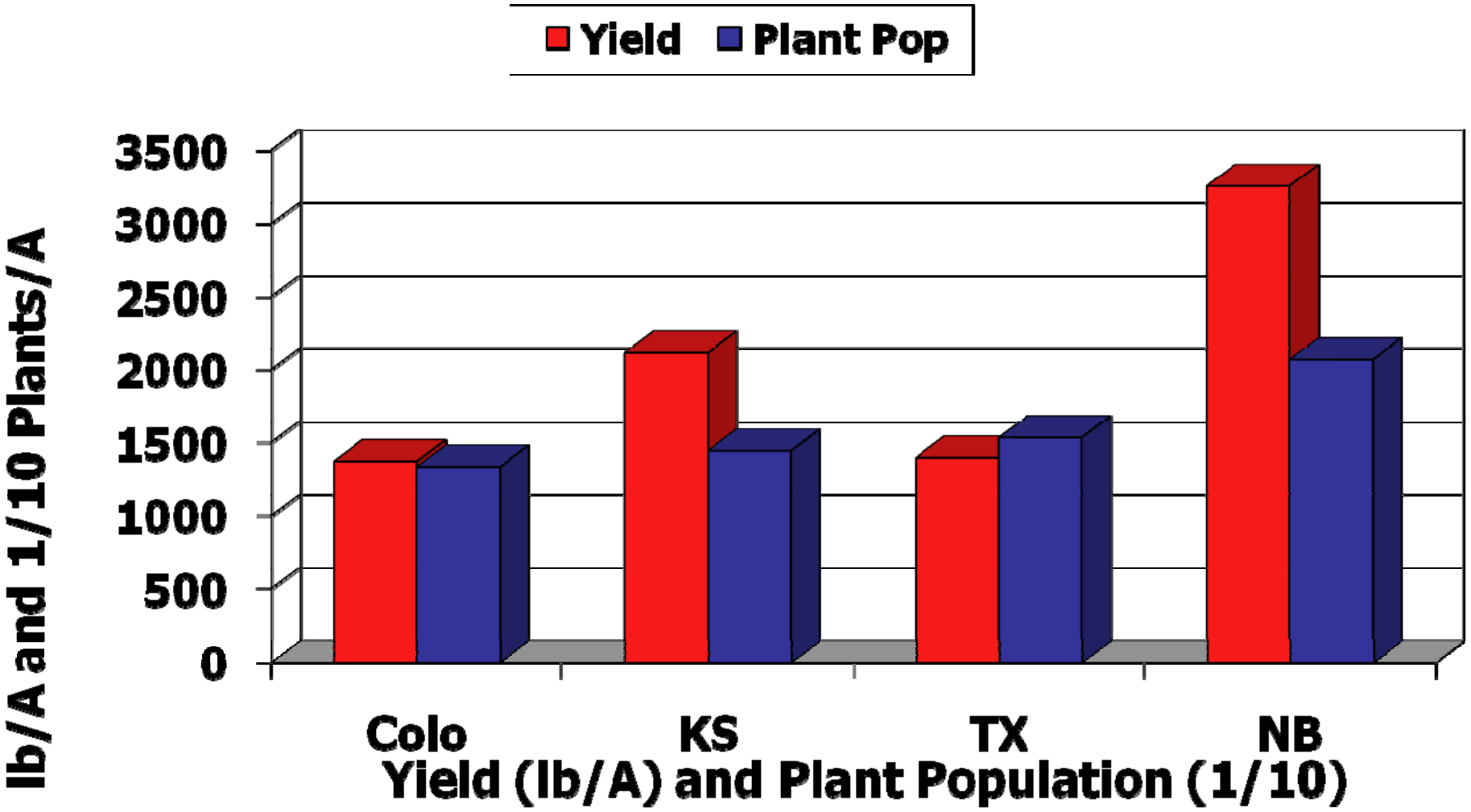
# Measuring Head Diameter

# Head fill and seed size

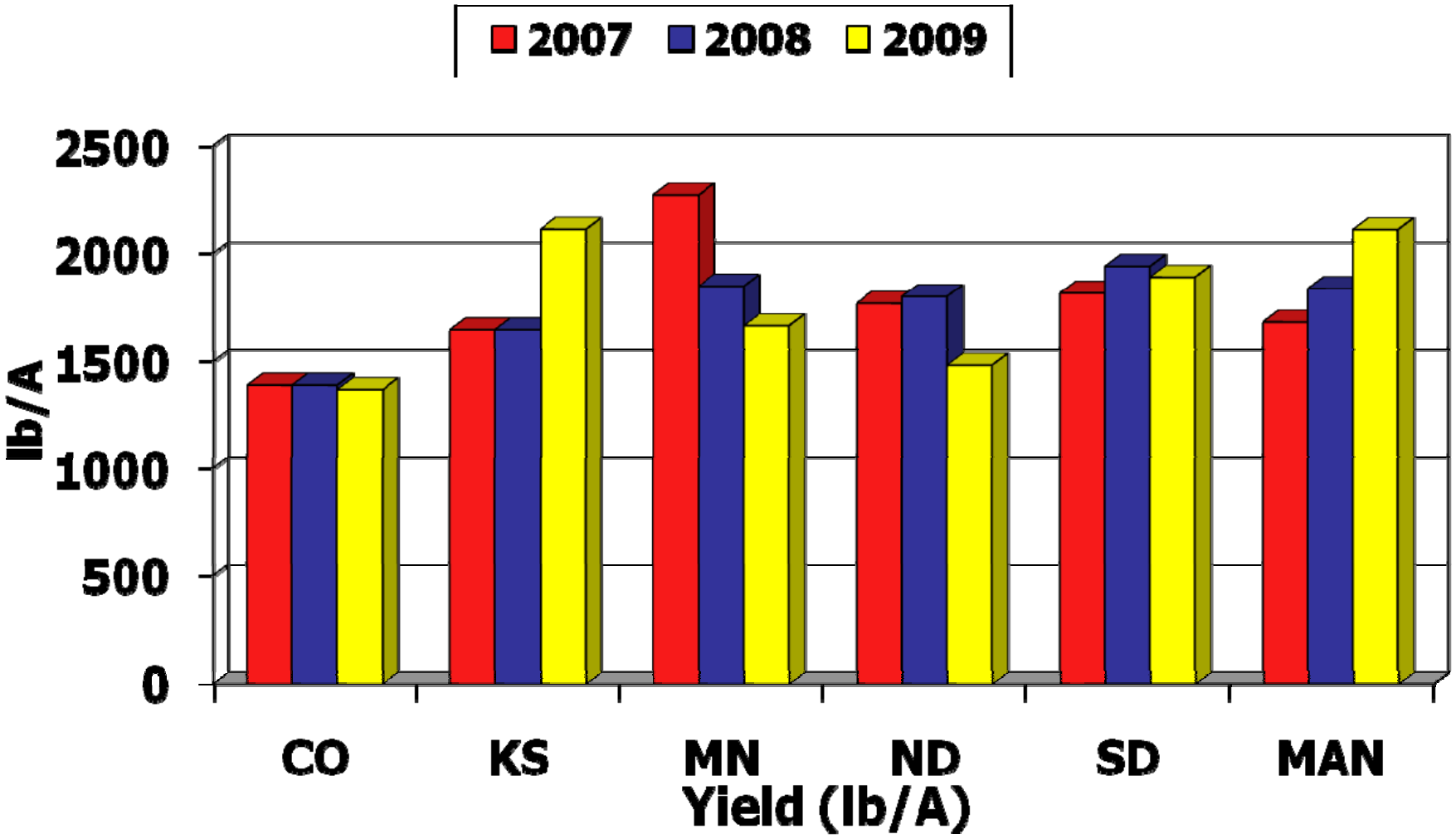
# Sunflower Yield and Plant Population: 2009



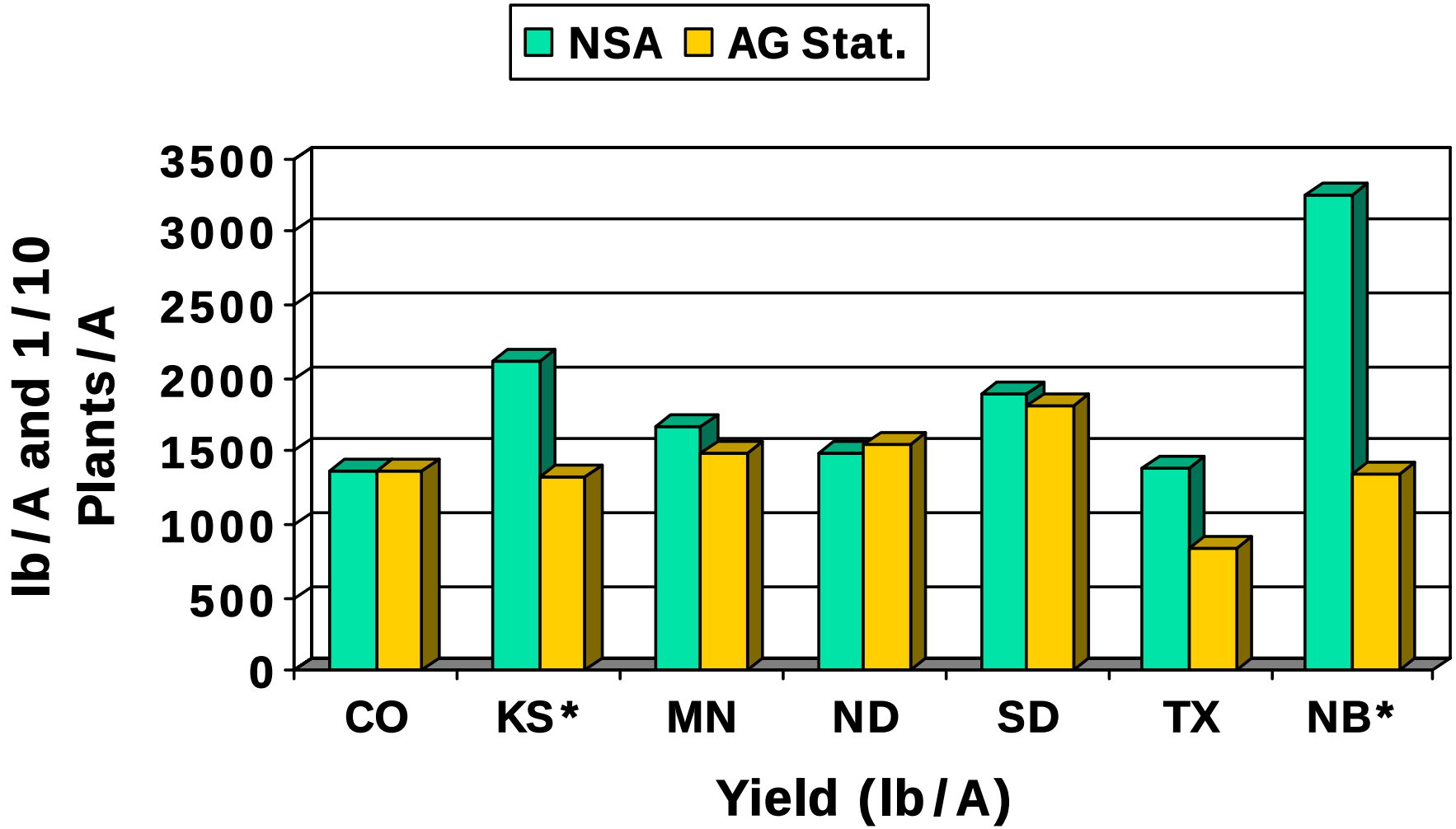
# Sunflower Yield and Plant Population: 2009



# Sunflower Yield : Lbs/A 2007, 2008 and 2009

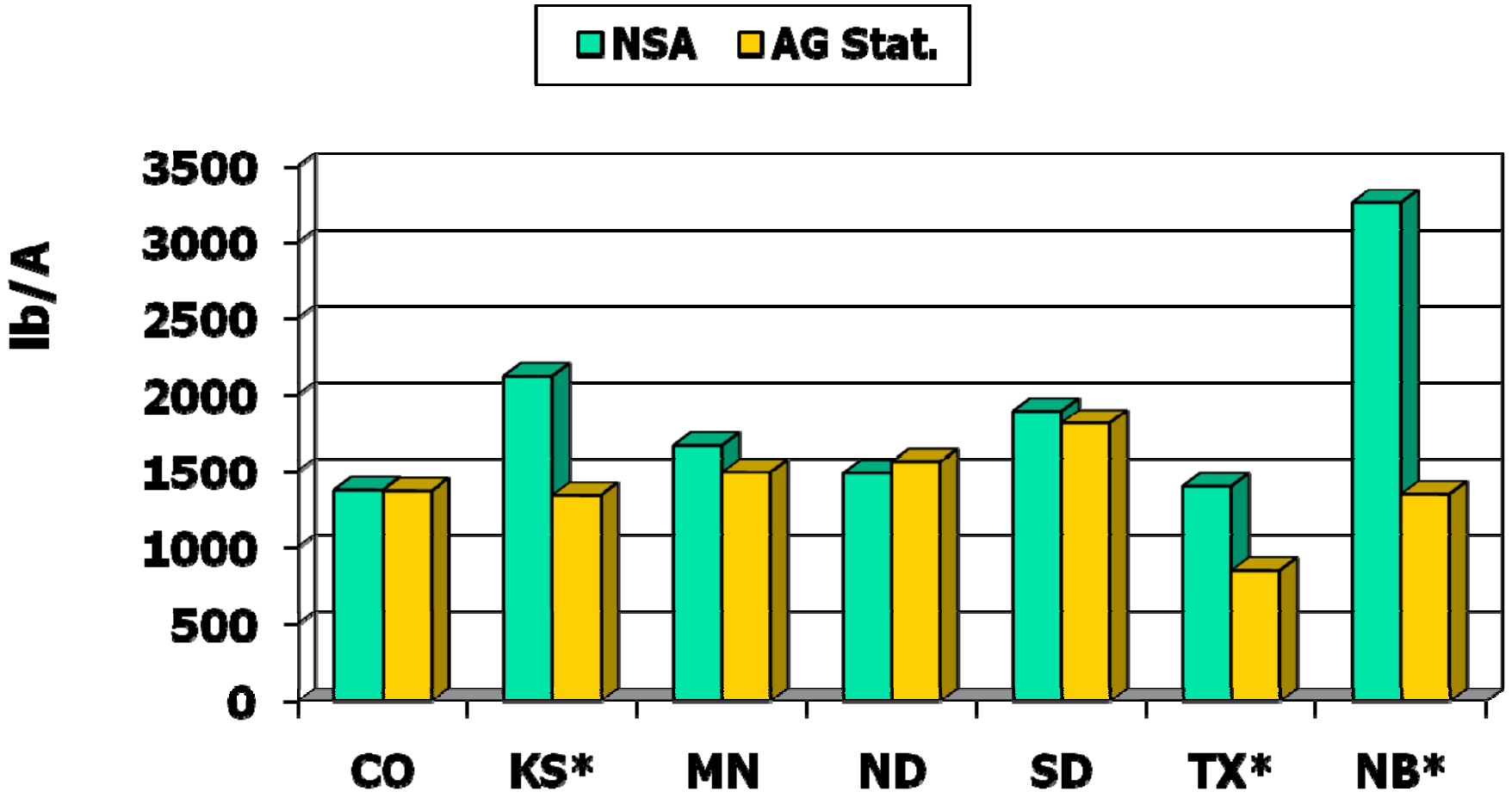


# 2009 NSA and USDA-Ag Statistics Sunflower Field Estimates



# 2009 NSA and USDA-Ag Statistics Sunflower Field Estimates

*Note:  Fields in NSA survey in Kansas, Texas and Nebraska were primarily irrigated.



# 2009 # 1 Yield Limiting Factors- North Dakota (87 Fields)

- Disease 26
- Plant spacing 15
- Weeds 9
- Birds 7
- Insects 5
- Other 7
- Drought 1
- Herbicide Damage 1
- No Problem 16

USA Sunflower Survey

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# 2009 # 2
# Yield Limiting Factors- N. Dak. (87 Fields)

- Disease 16
- Plant spacing 7
- Weeds 9
- Birds 2
- Lodging 2
- Other 4
- Insect 3
- No Problem 39

## 2009 # 1 and #2
## Yield Limiting Factors- Minn. (18 Fields)

**#1 factors:**

- Disease 13
- Plant spacing 2
- Other 1
- No Problem 2

**# 2 factors:**

- Birds 4
- Plant spacing 1
- Disease 1
- No Problem 12

# 2009 # 1 and #2
# Yield Limiting Factors- South Dakota (28 Fields)

**# 1 Factor**

- Plant Spacing 12
- Birds 3
- Disease 3
- Insects 2
- Weeds 1
- Drought 1
- Hail 1
- Lodging 1
- Other 3
- No Problem 1

**# 2 Factor**

- Plant spacing 5
- Disease 3
- Lodging 3
- Insects 2
- Drought 2
- Other 6
- No Problem 6

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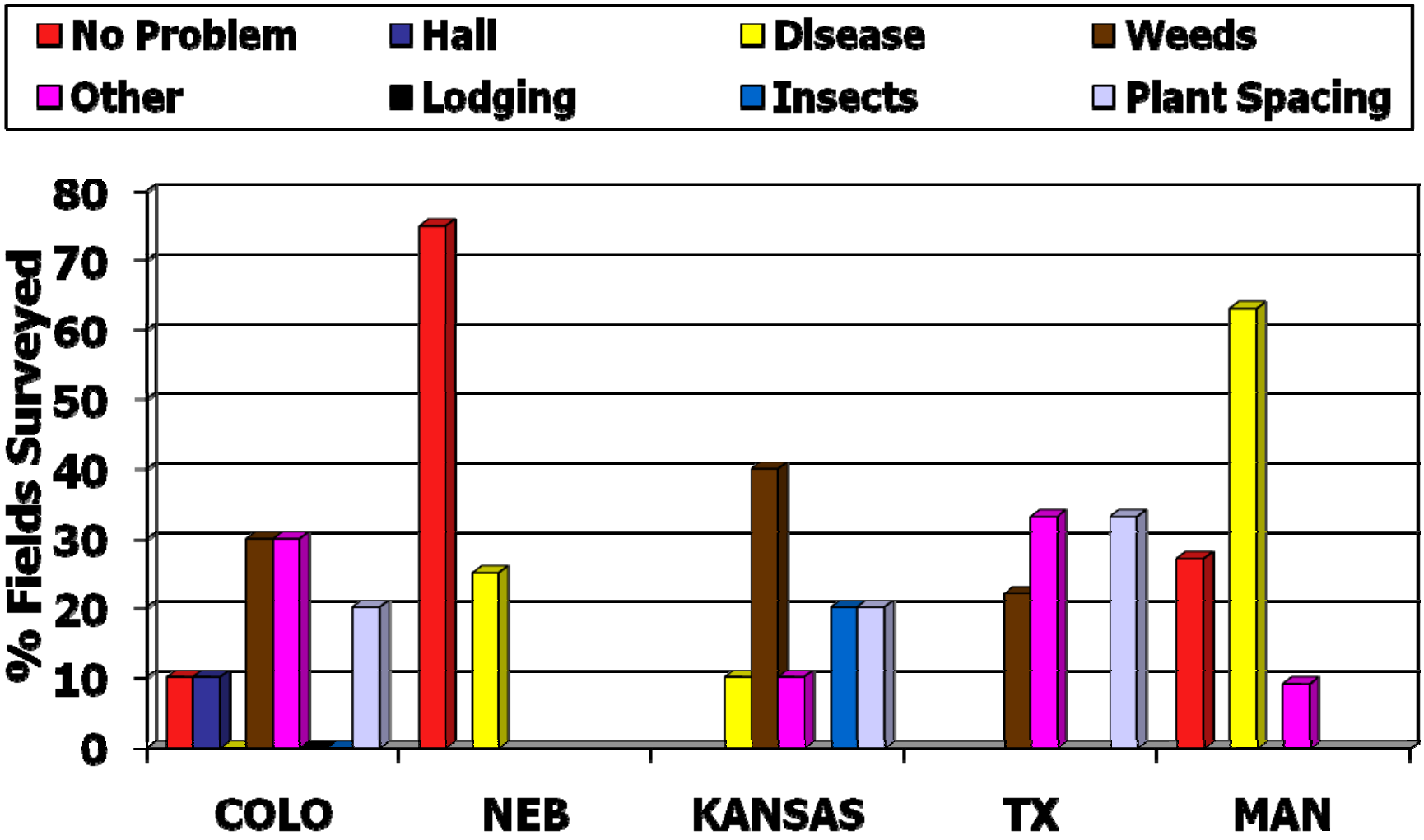
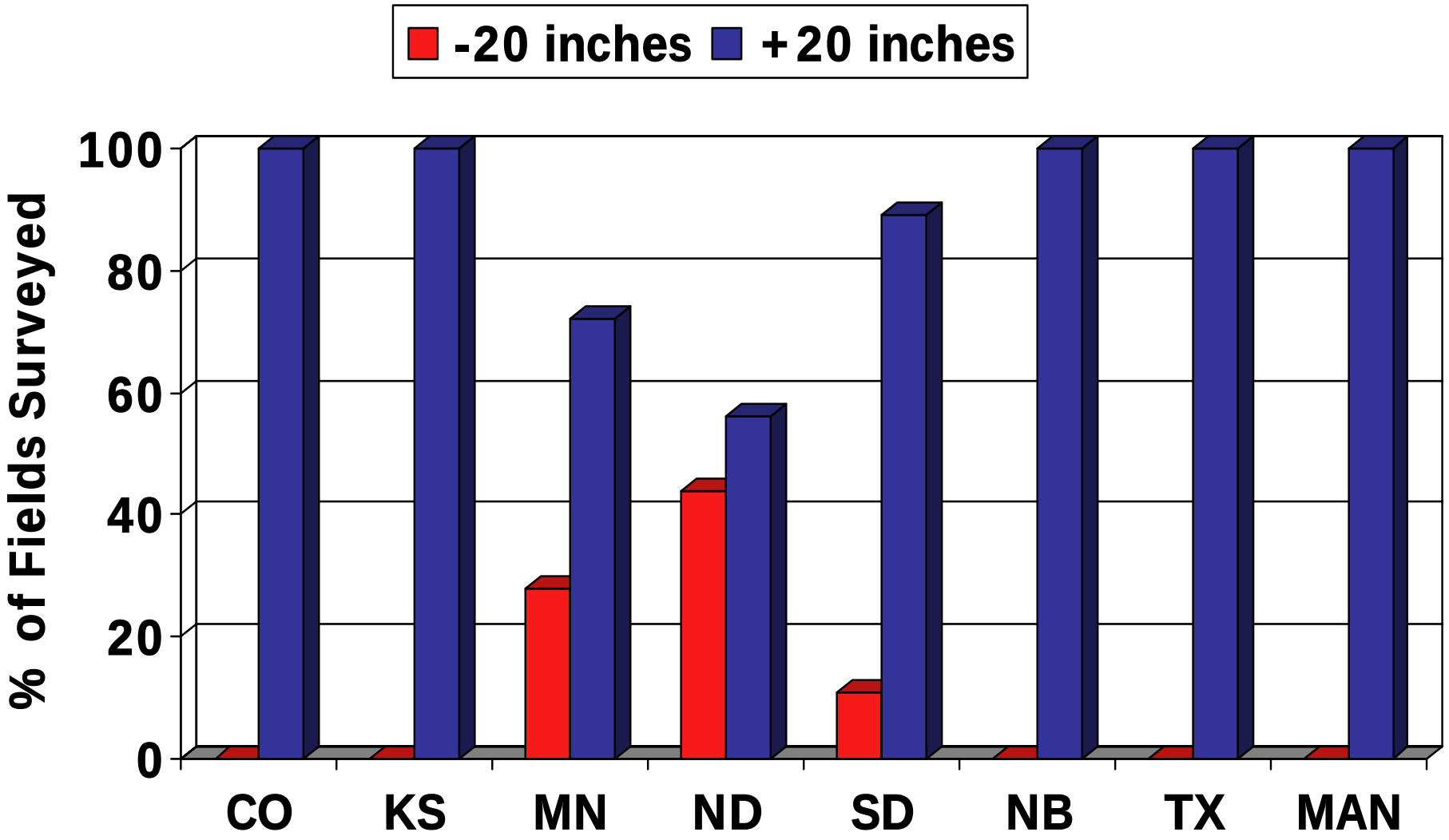
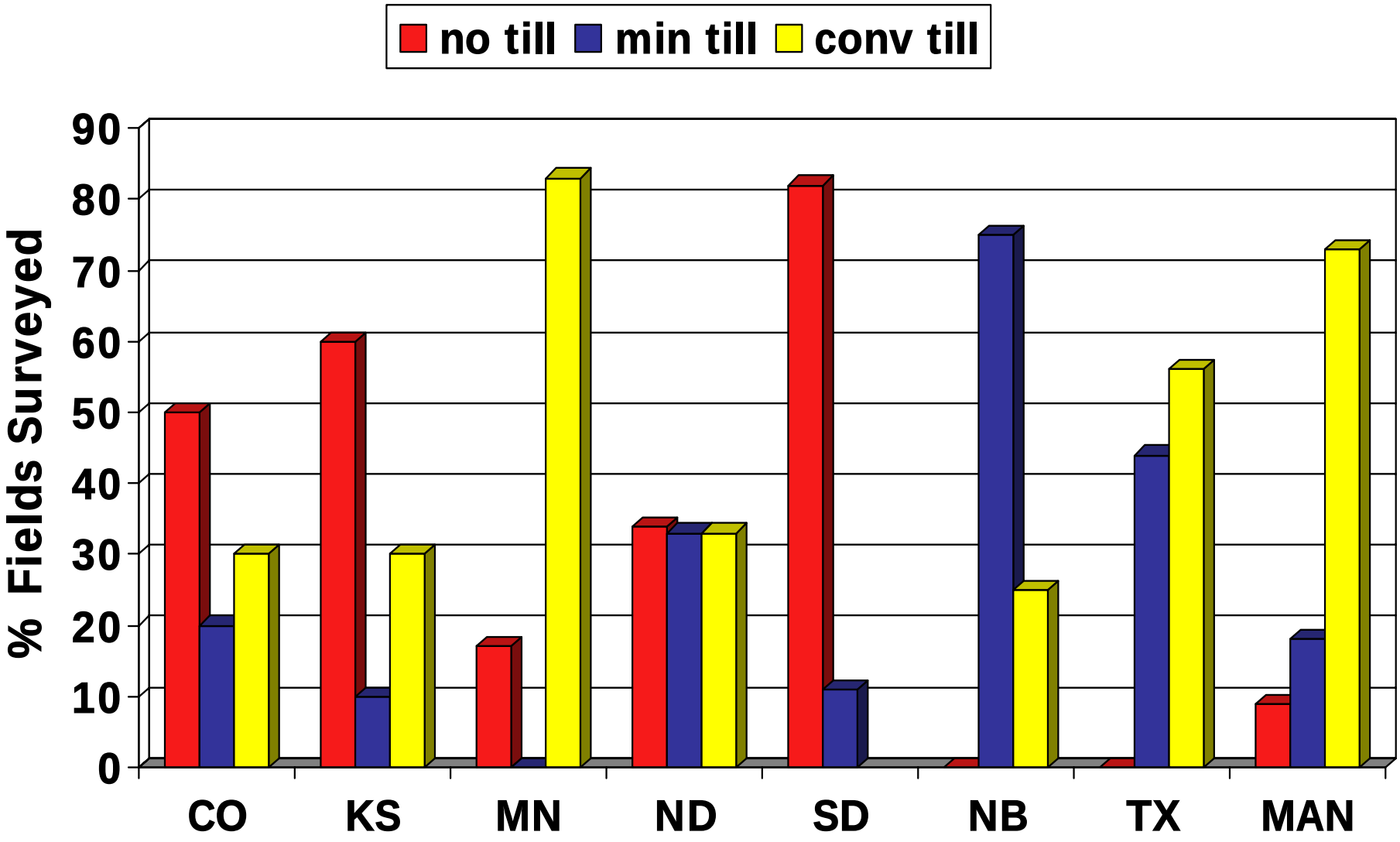
# Number One Yield Limiting Factors-2009



# Row Spacing Sunflower-2009

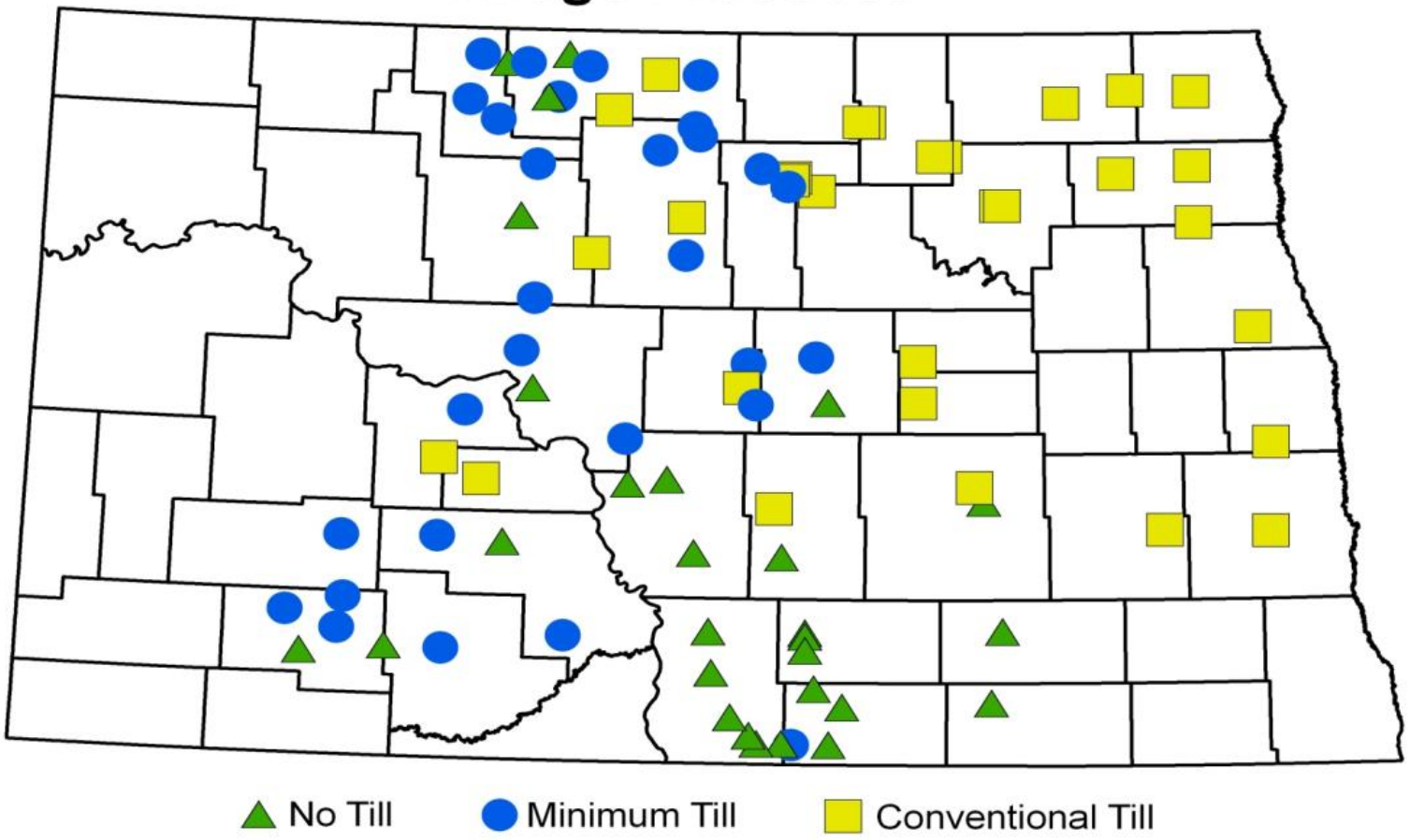


# Tillage: 2009 Sunflower Survey



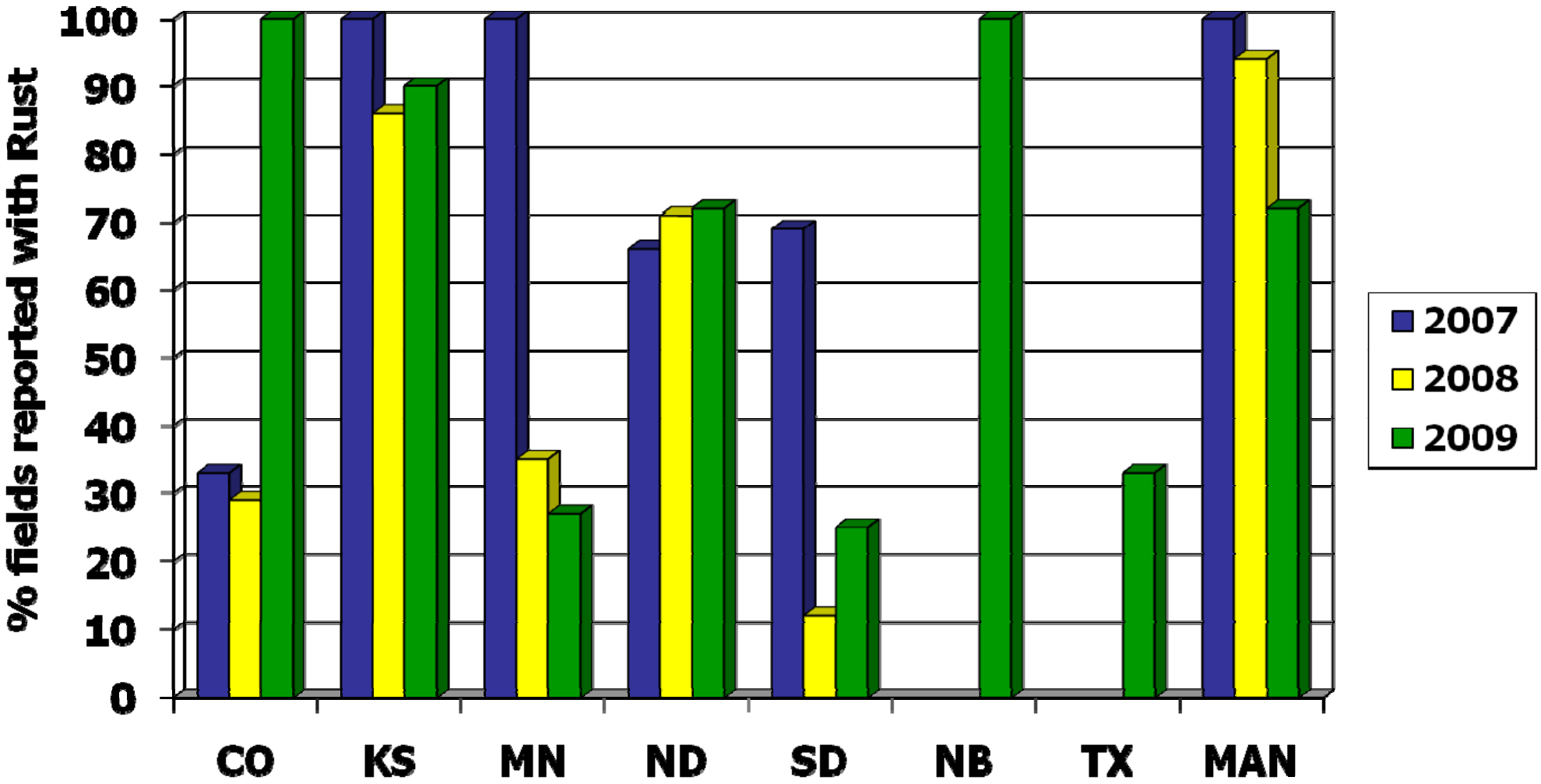
# 2009 Sunflower Survey

## *Tillage Practices*



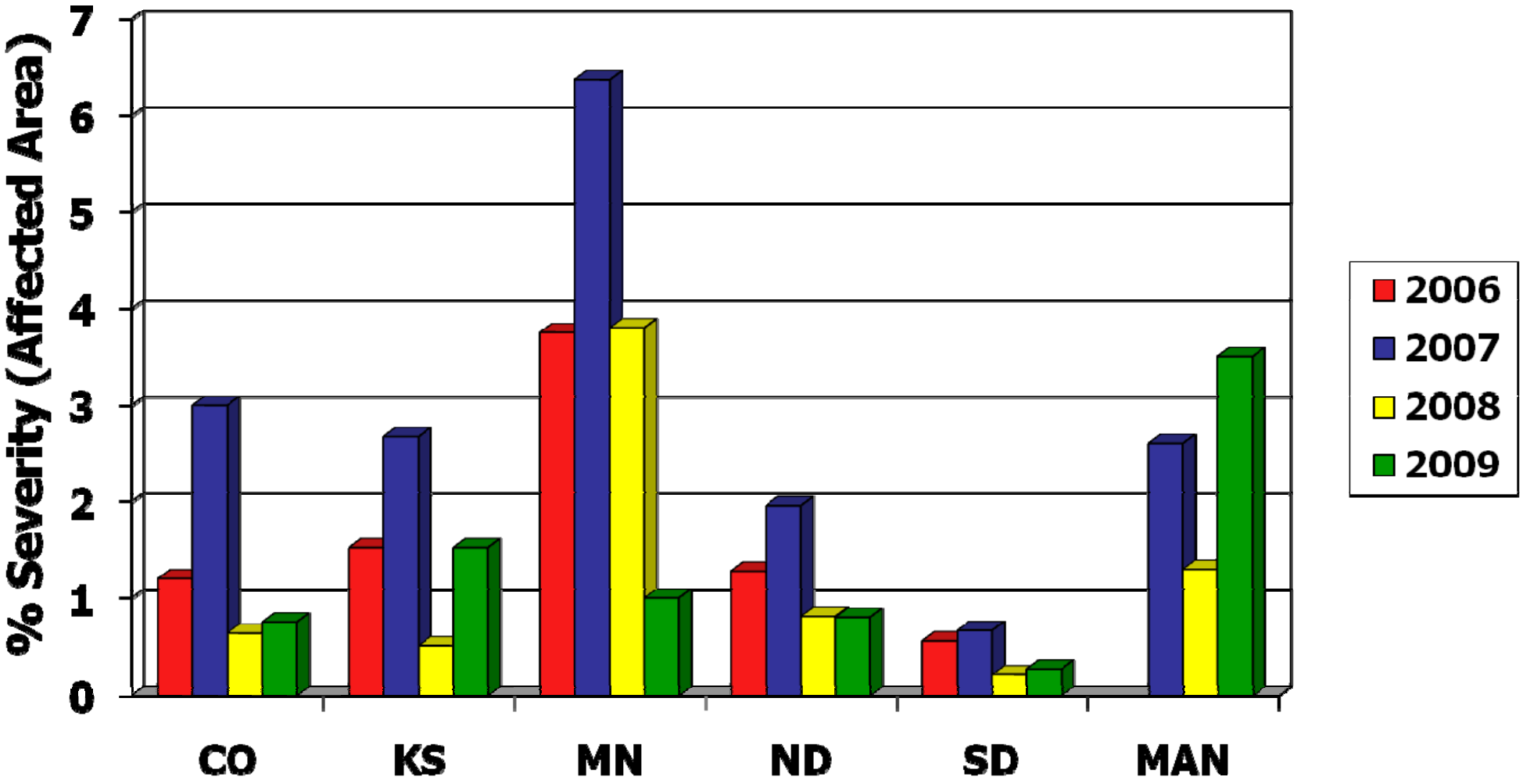
# Rust in Sunflower

# Red Rust Incidence in Sunflower




Rust Reported

# Red Rust Severity in Sunflower




Rust Severity Estimated for Fields Where Incidence Reported

# Sclerotinia Head Rot

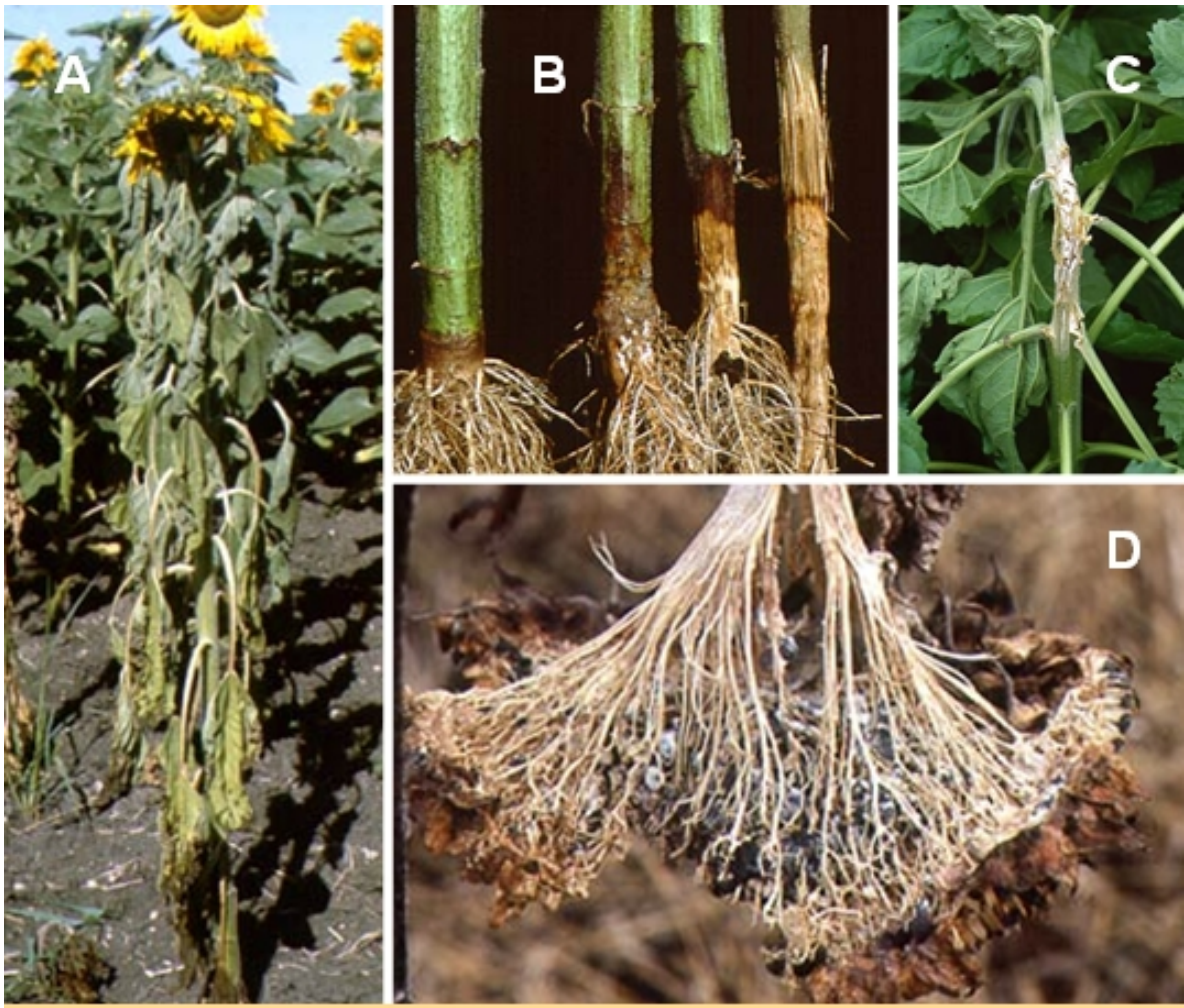
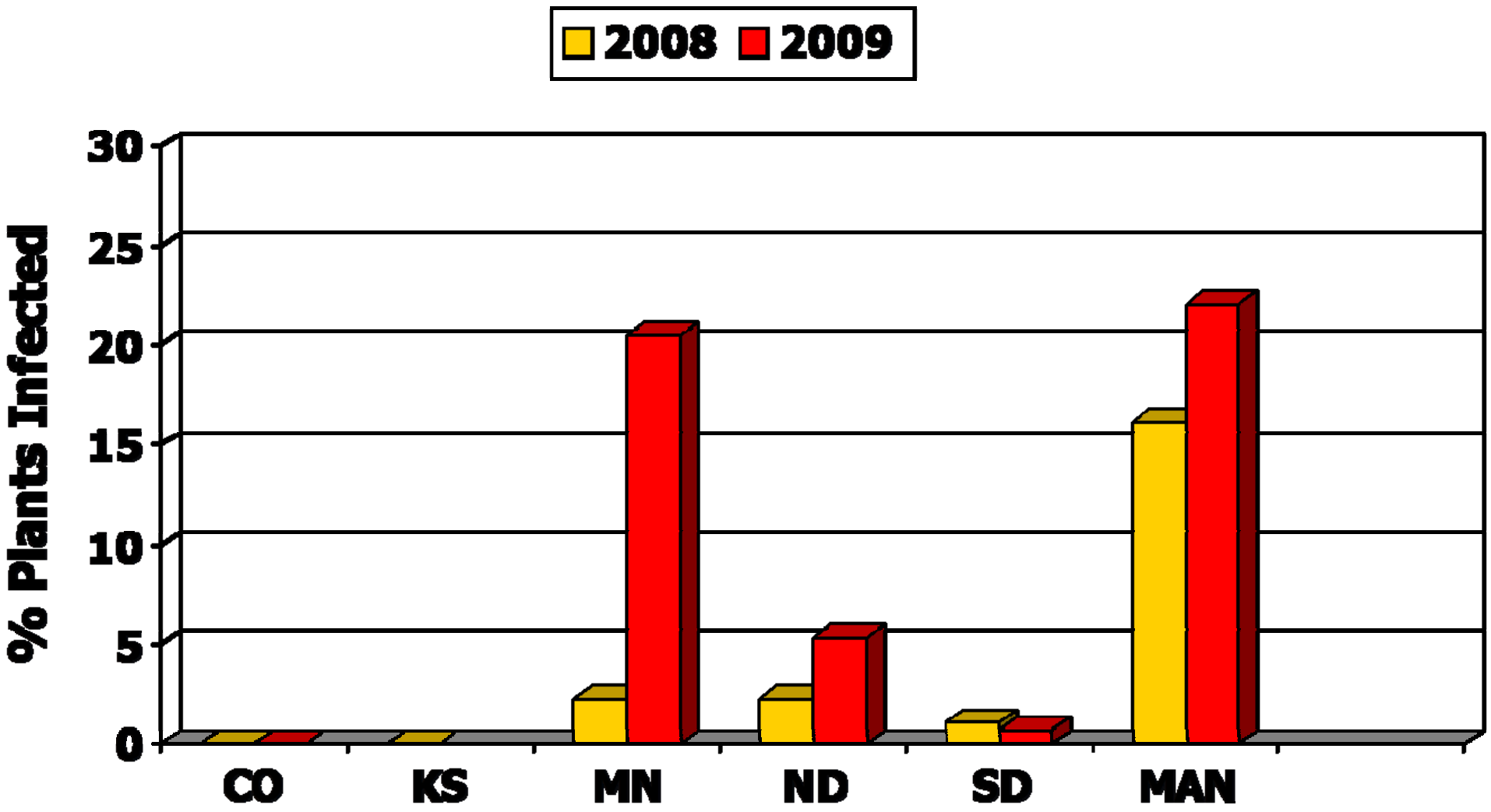


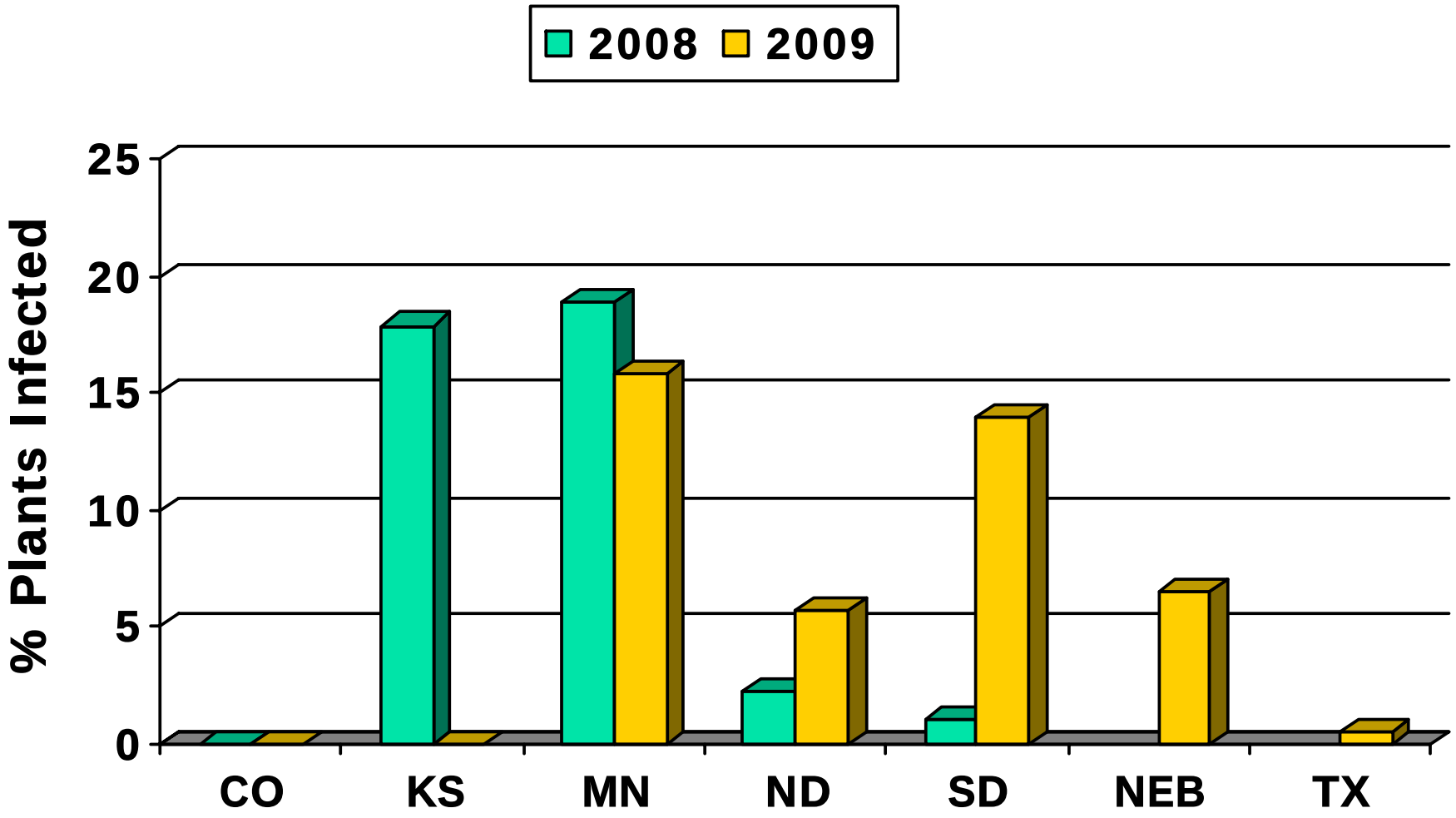

**Figure 1. Sclerotinia disease in sunflower expressed as sclerotinia wilt (A and B), mid-stalk rot (C), and head rot (D). *Source: NDSU circular PP-840, March, 2000.***

# Sclerotinia Head Rot in Sunflower 2008 & 2009



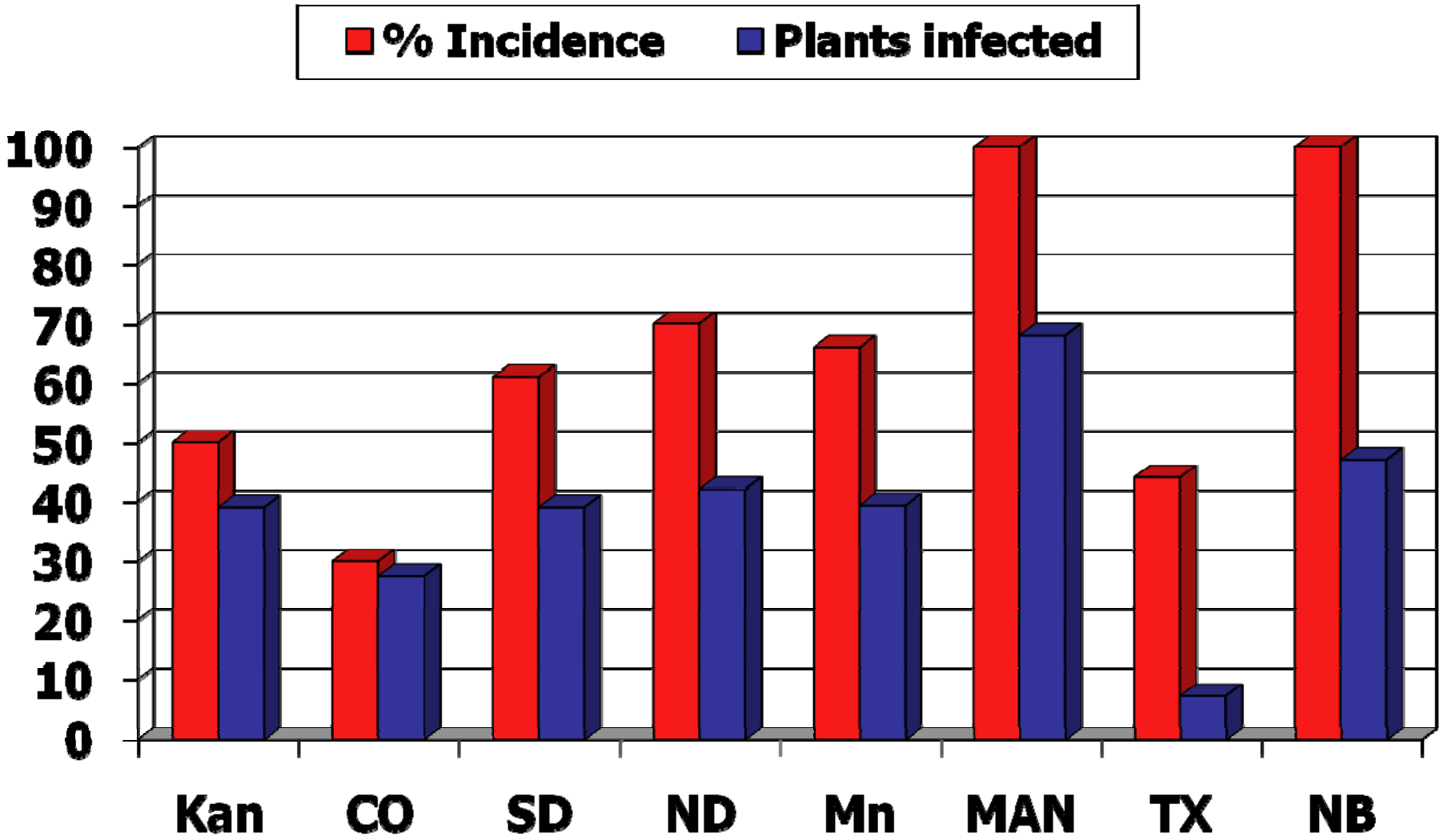
| Phomopsis Stem Canker | Phoma |
| --- | --- |
|  |  |

# Phomopsis in Sunflower 2008 & 2009



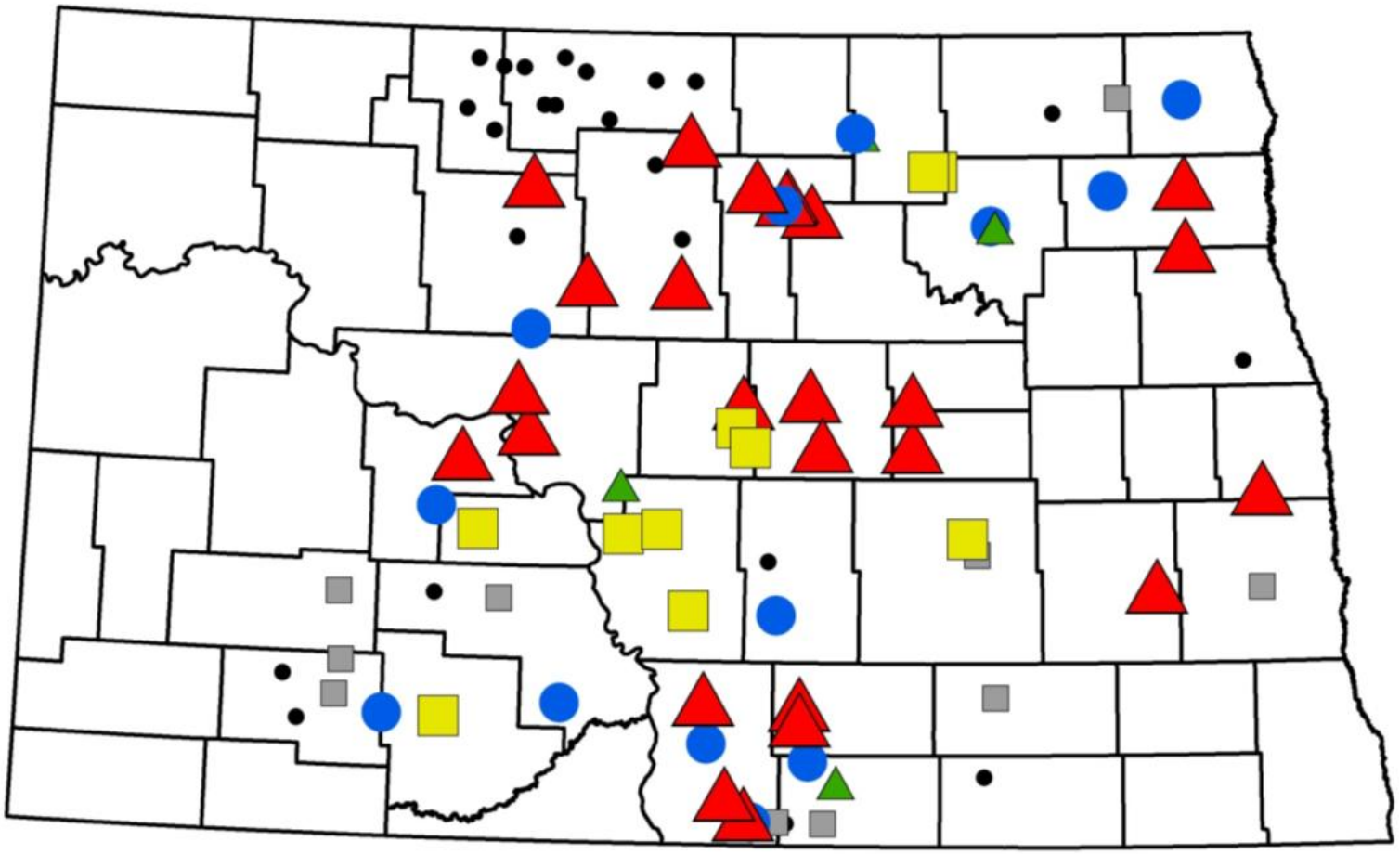
| Phomopsis Stem Canker | Phoma |
| --- | --- |
|  |  |

# Phoma Incidence in 2009



# 2009 Sunflower Survey

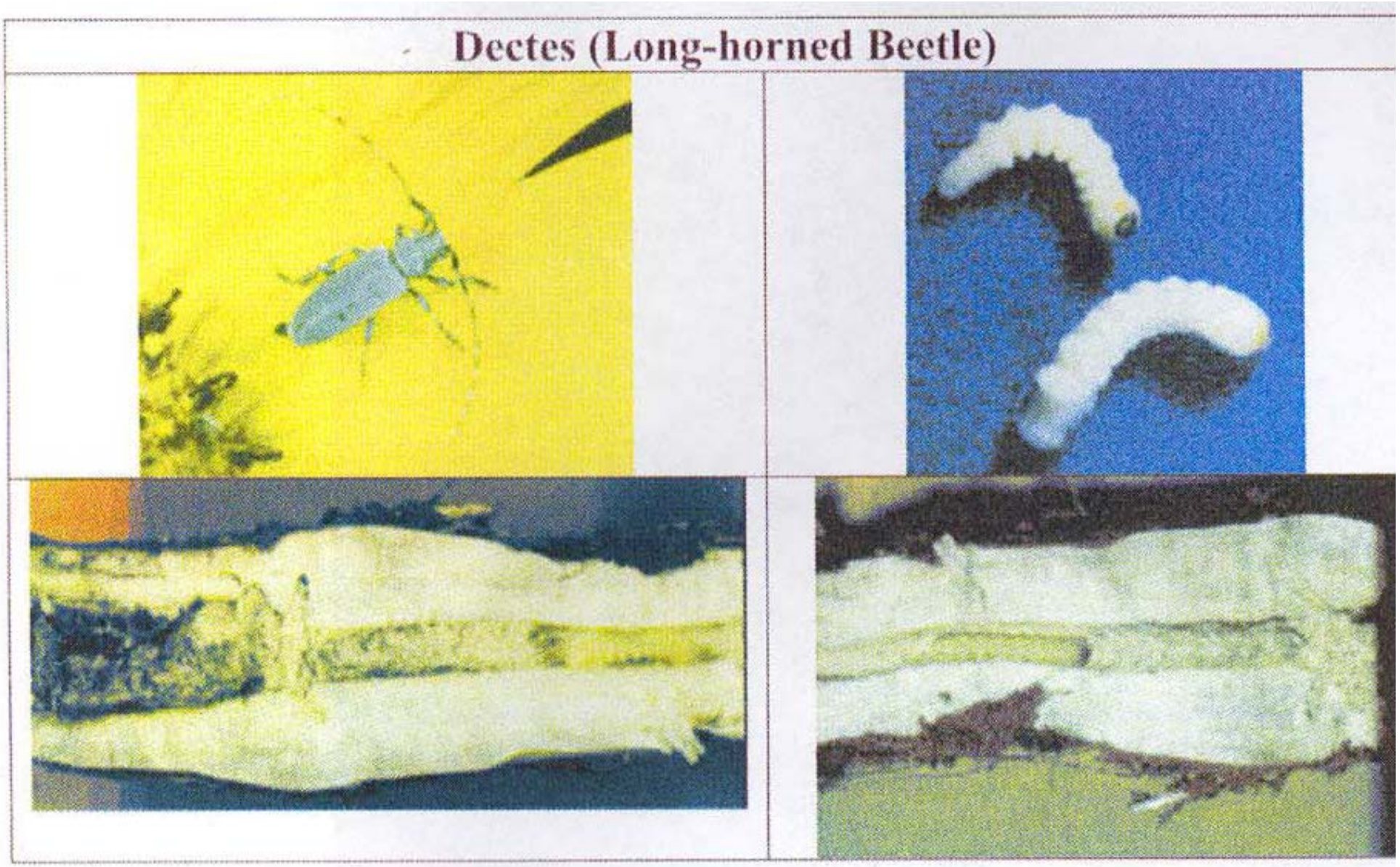
## *Phoma*



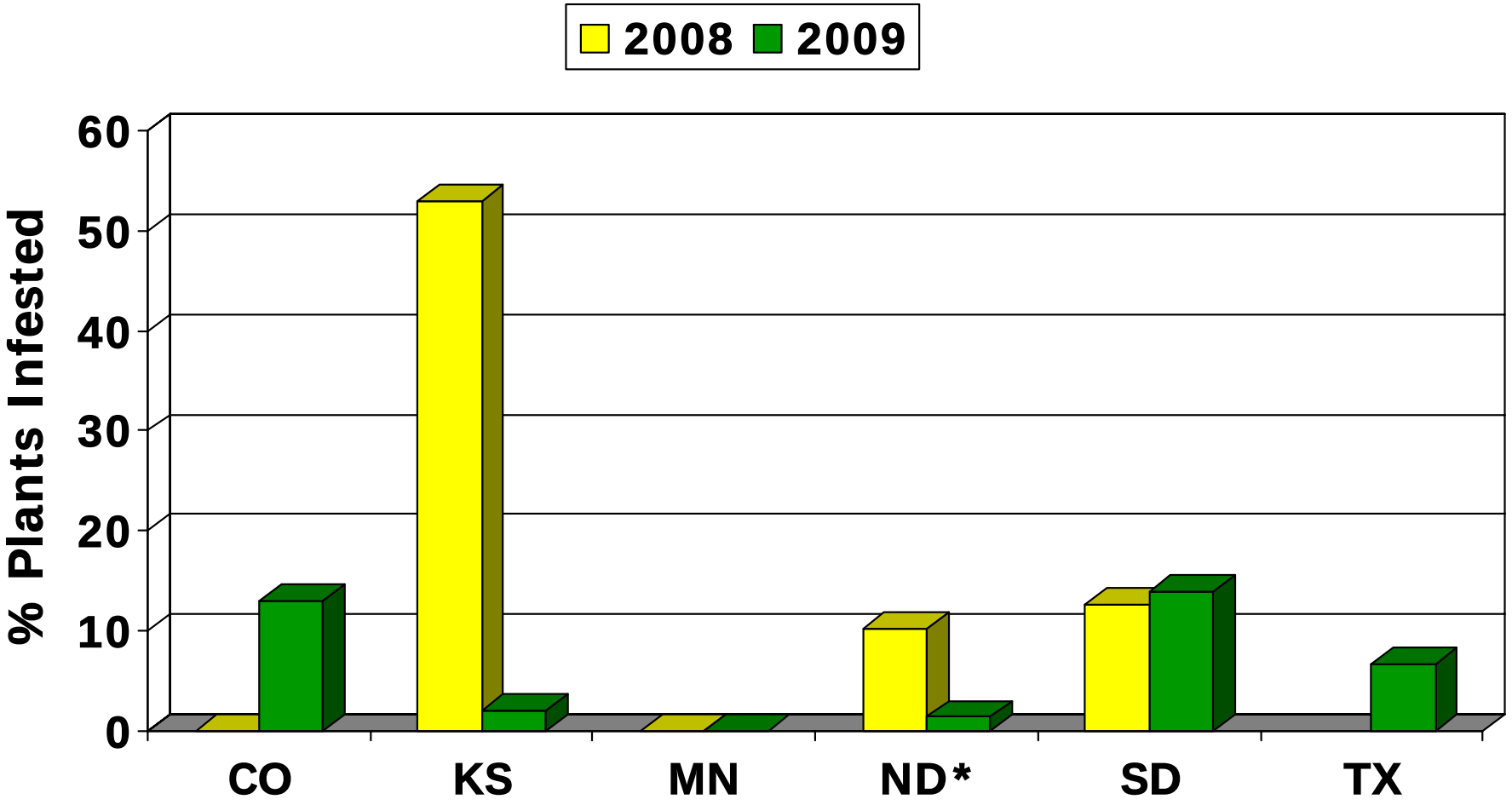
**Percent Incidence**

● 0 ■ 1-10 ▲ 11-25 ● 26-50 ■ 51-75 ▲ 76-100

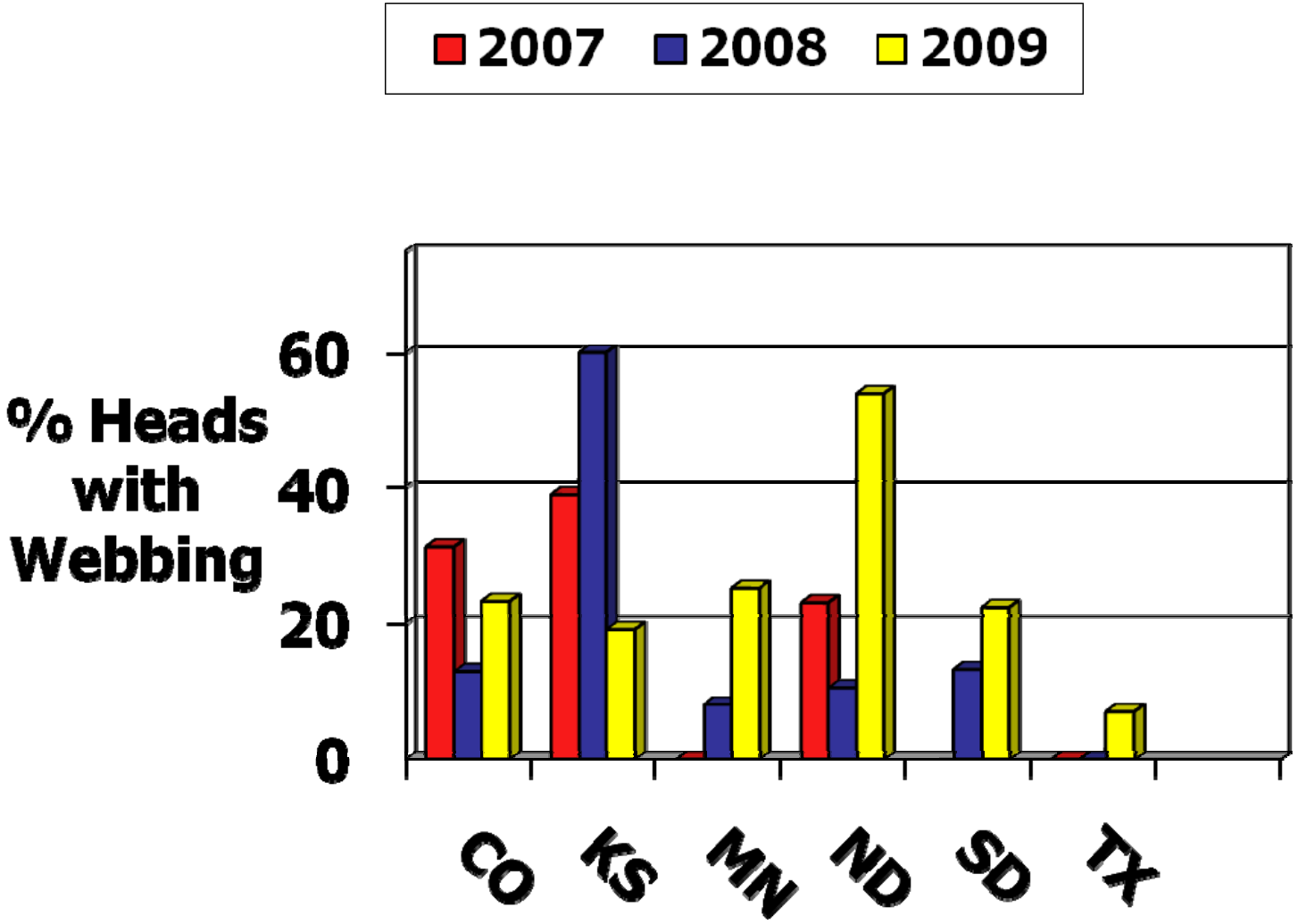
# Dectes



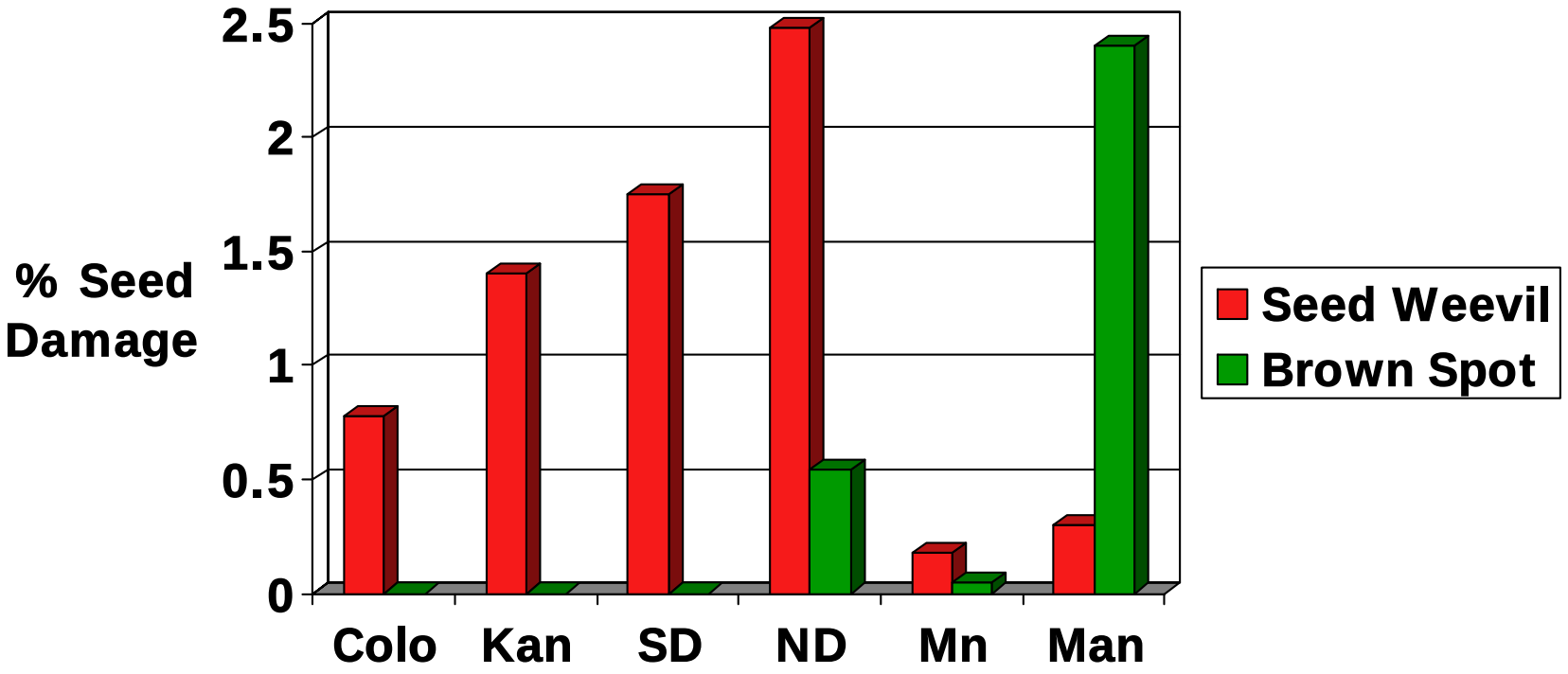
# Insect: Long horned Beetle



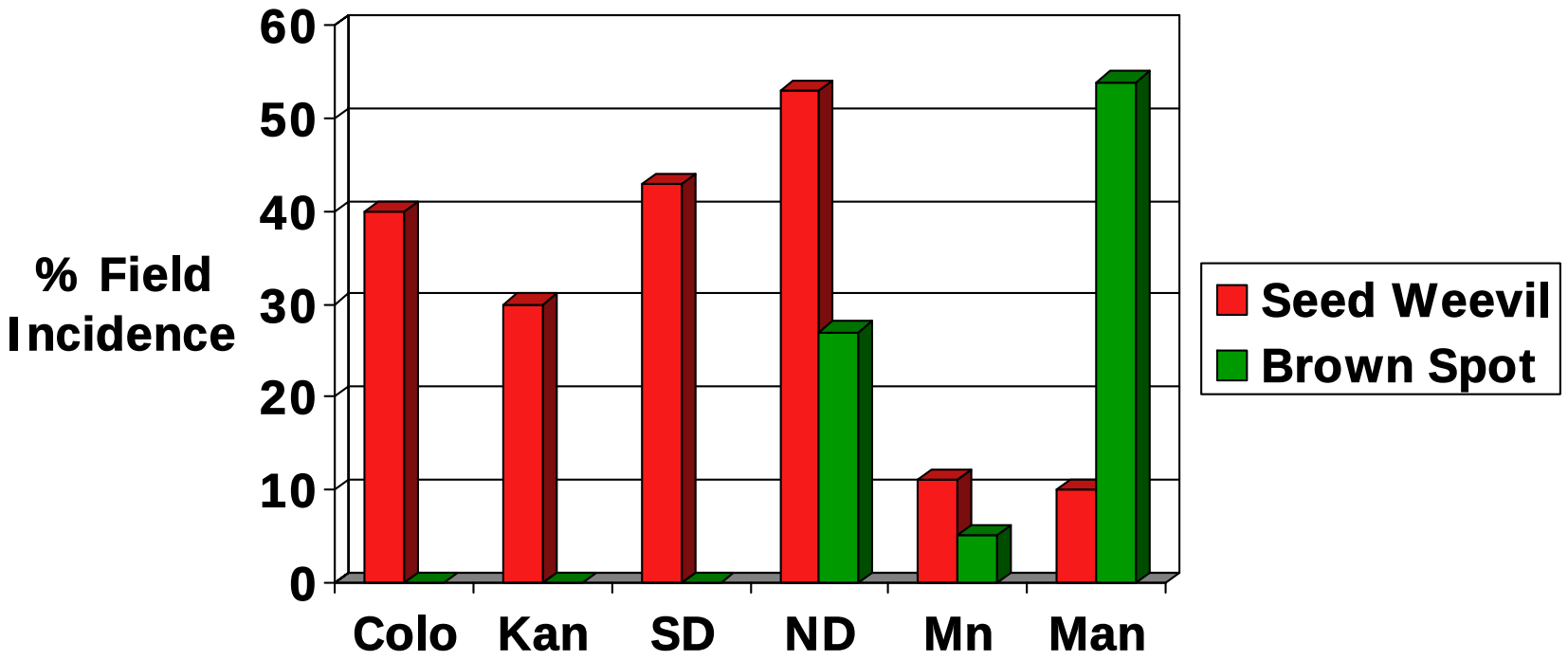
# Webbing in Sunflower Heads



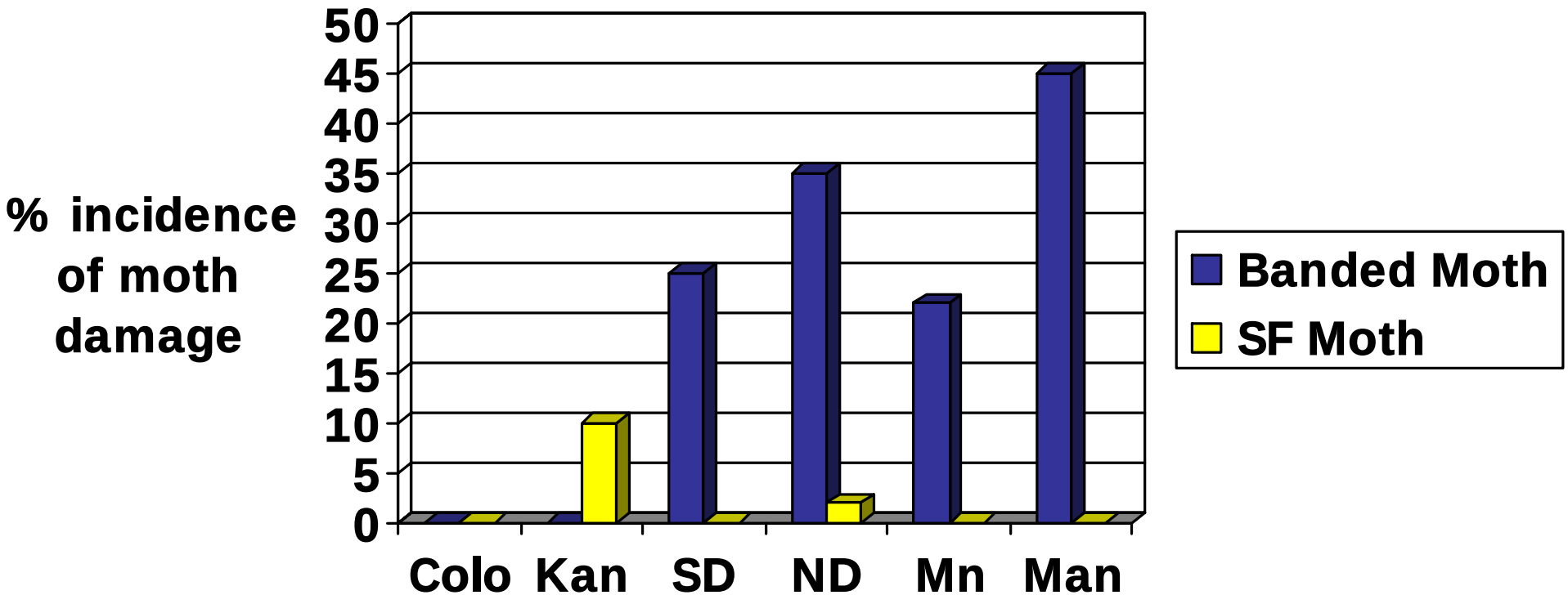
# Insect Seed Damage-2009



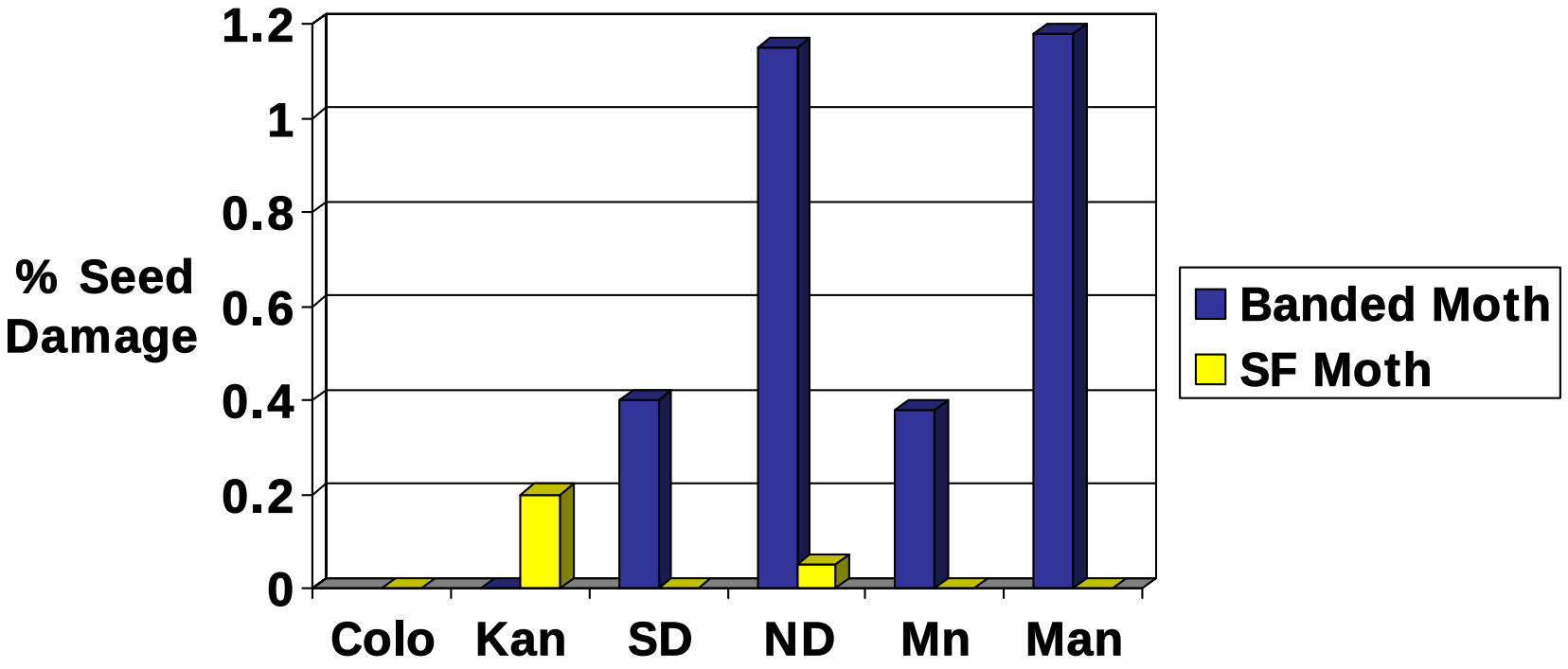
# Insect Seed Damage Incidence-2009



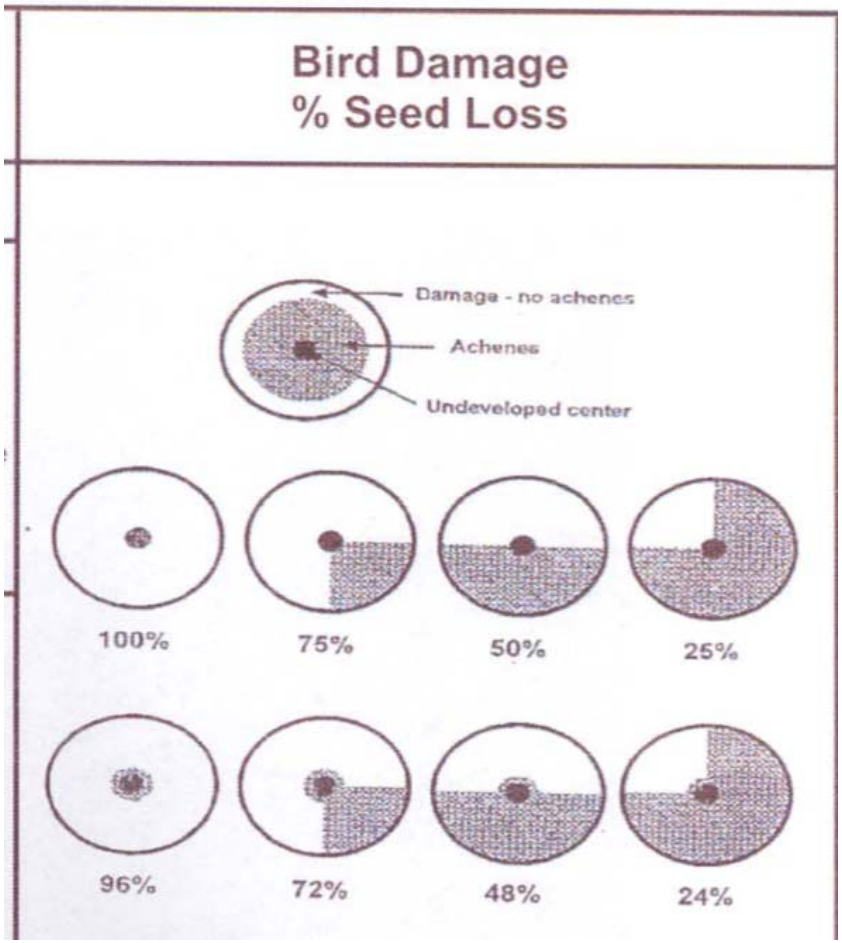
# Moth Damage Incidence in 2009 Sunflower Survey



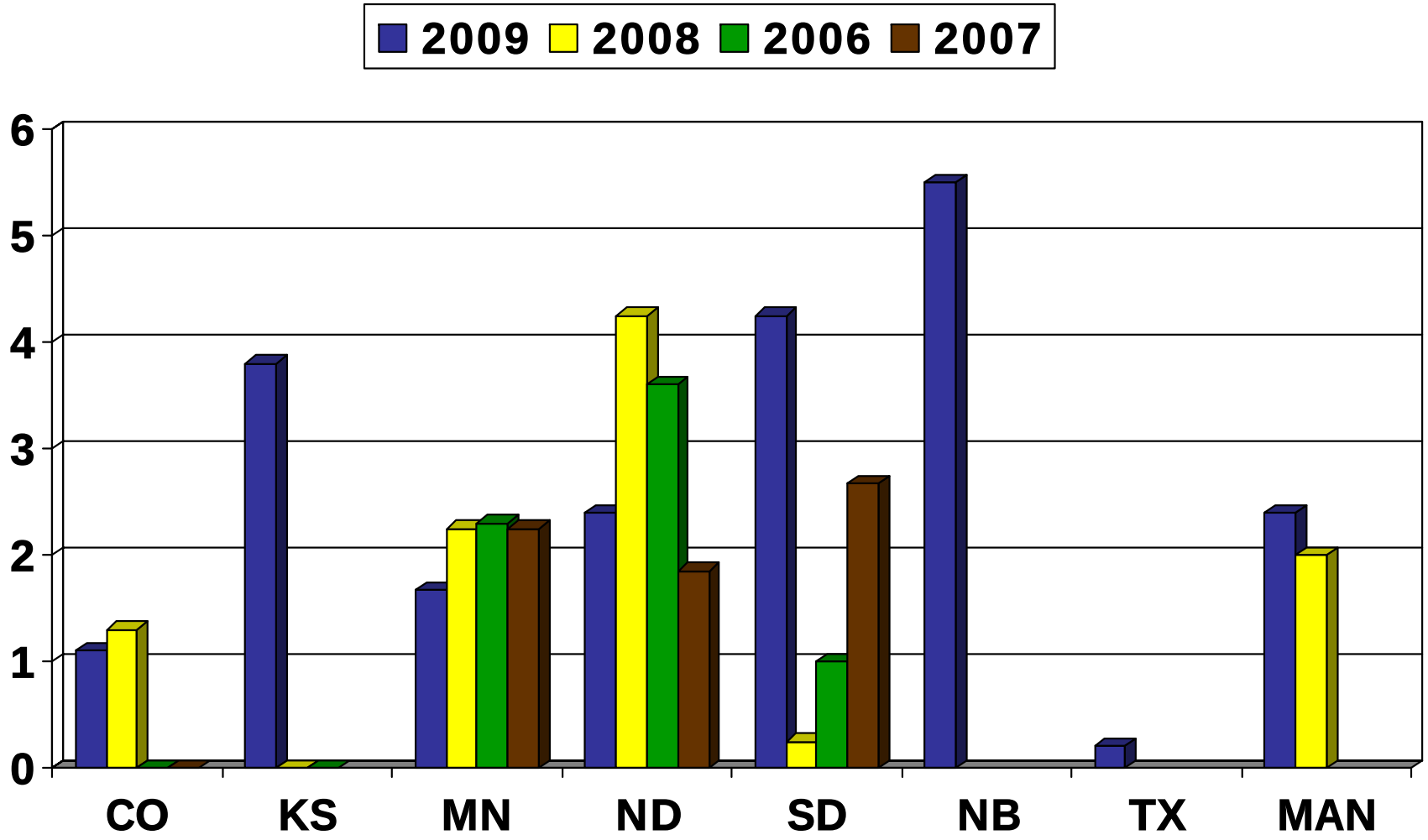
# Insect Seed Damage by Moths-2009



# Recording observations




# %Bird Damage



# Top Weeds Observed: 2009

- **North Dakota**
- Canada Thistle
- Kochia
- RR Pigweed
- Volunteer grain
- Wild Buckwheat
- Green foxtail
- Biennial wormwood

- **Minnesota**
- Canada Thistle
- Redroot pigweed

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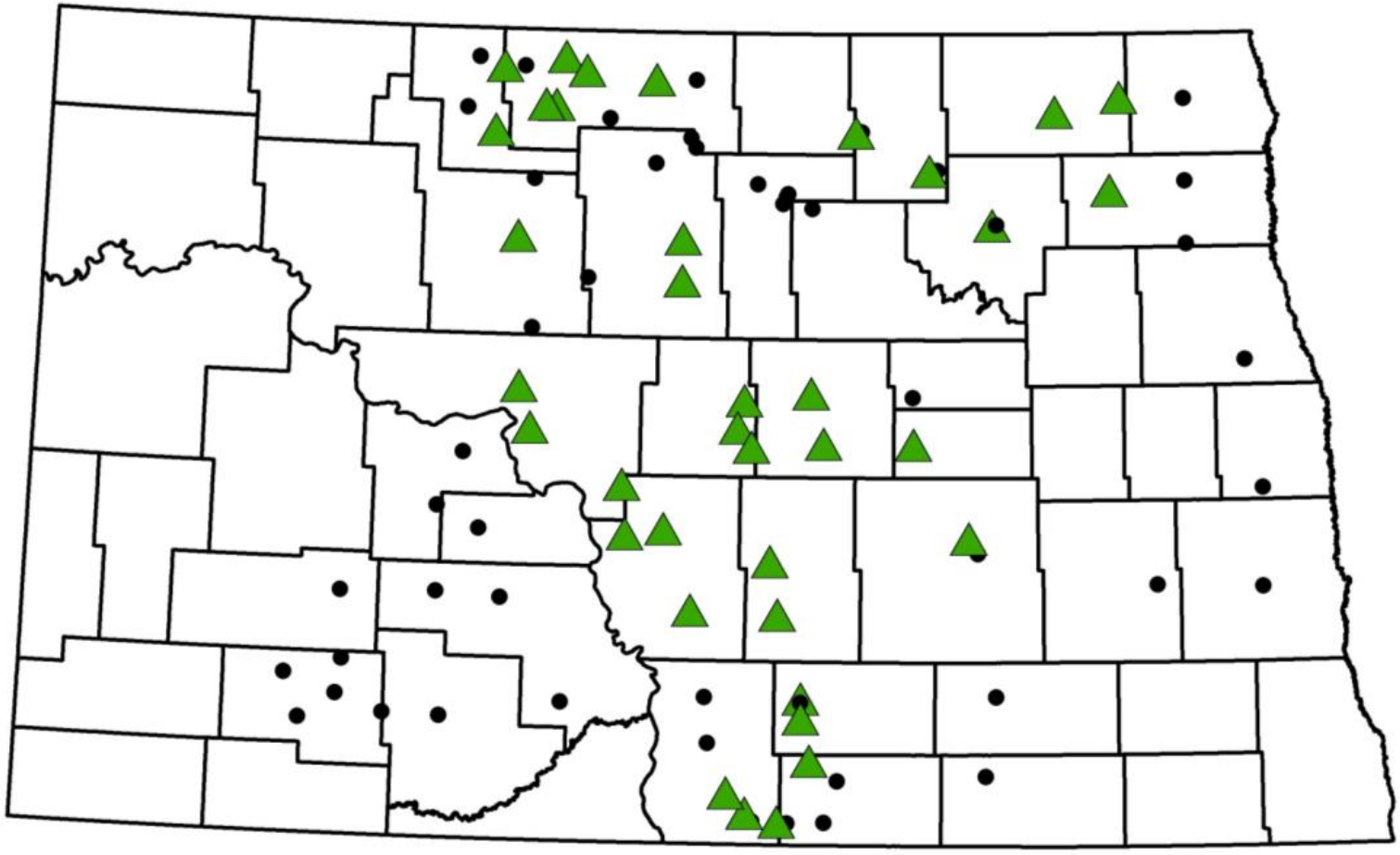
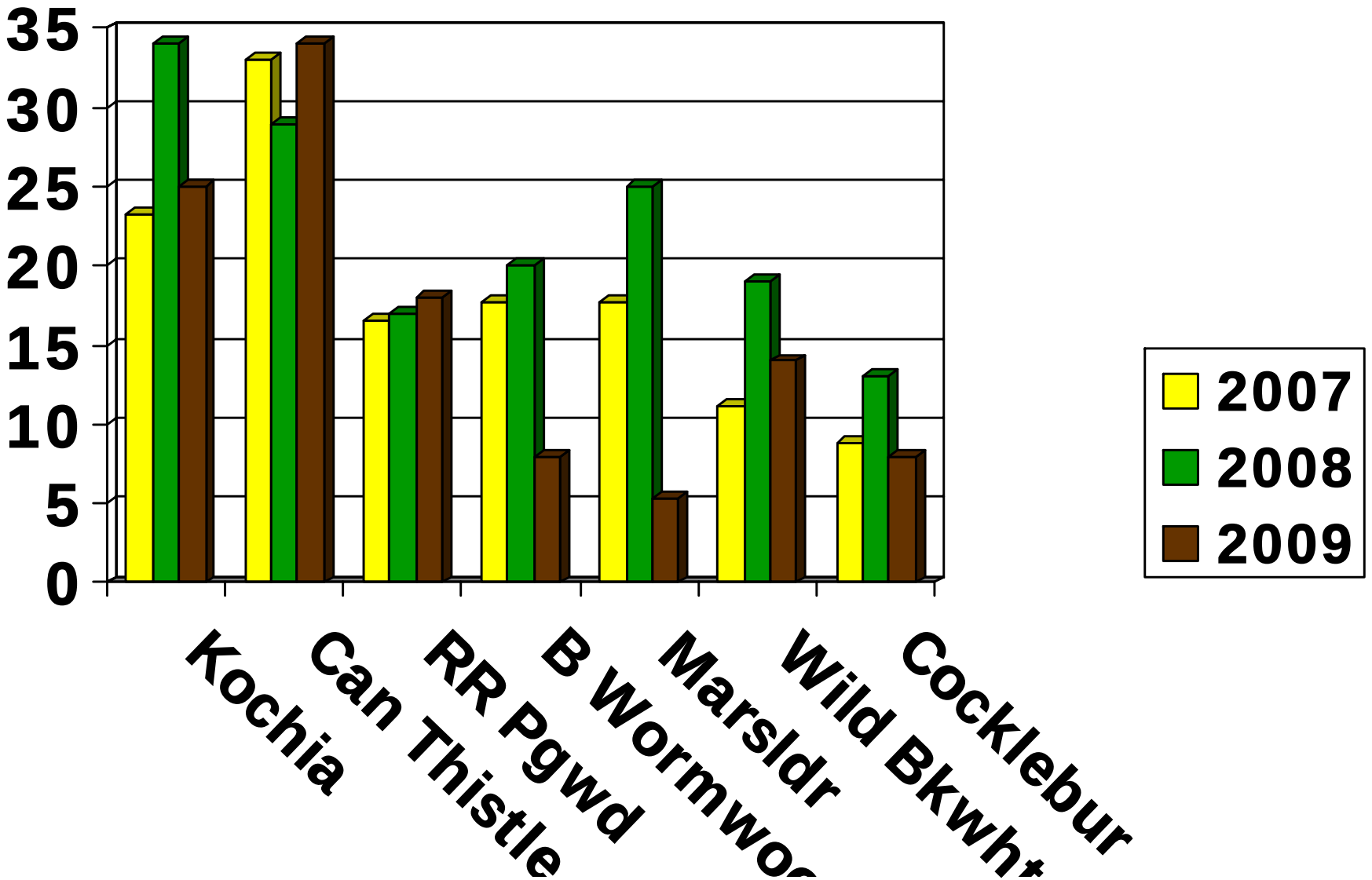
# 2009 Sunflower Survey

## *Canada Thistle*



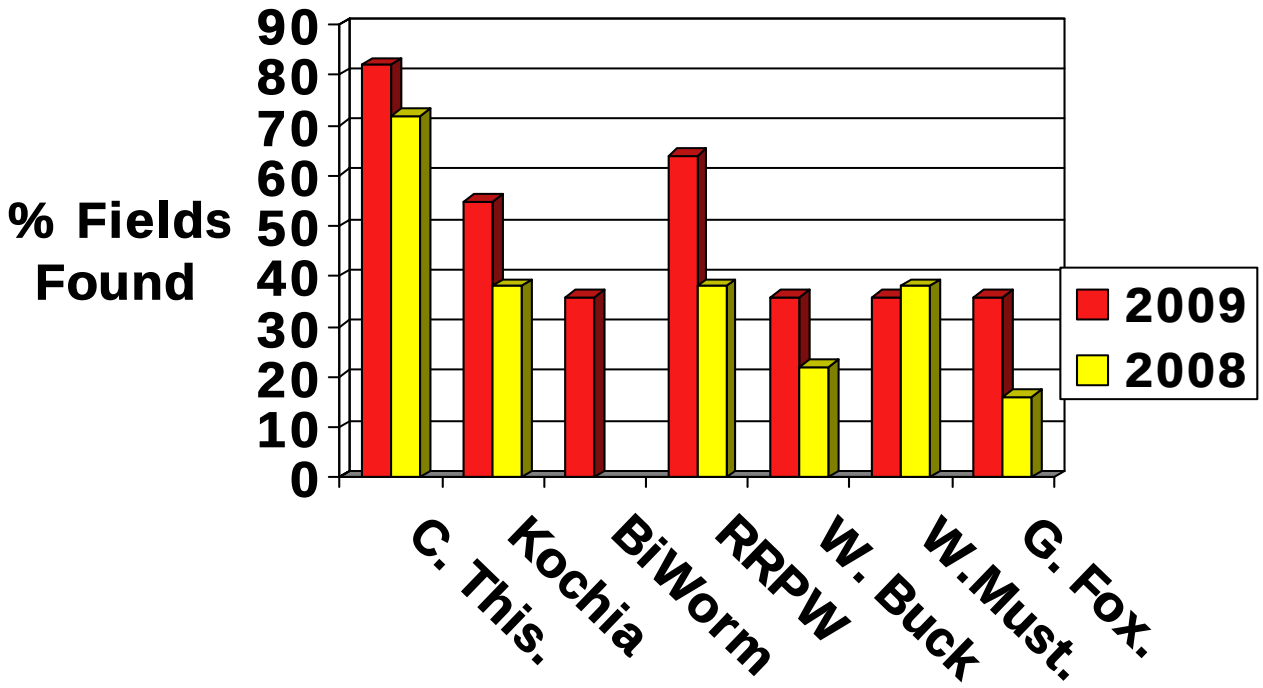
- None
- Light: Plant species found in field
- Moderate: 1 plant per 1ft of 30" row
- Heavy: more than 1 plant per 1ft of 30" row

# Incidence of Broadleaf Weeds ND/MN 2007, 2008 & 2009



# Express herbicide tolerant sunflower

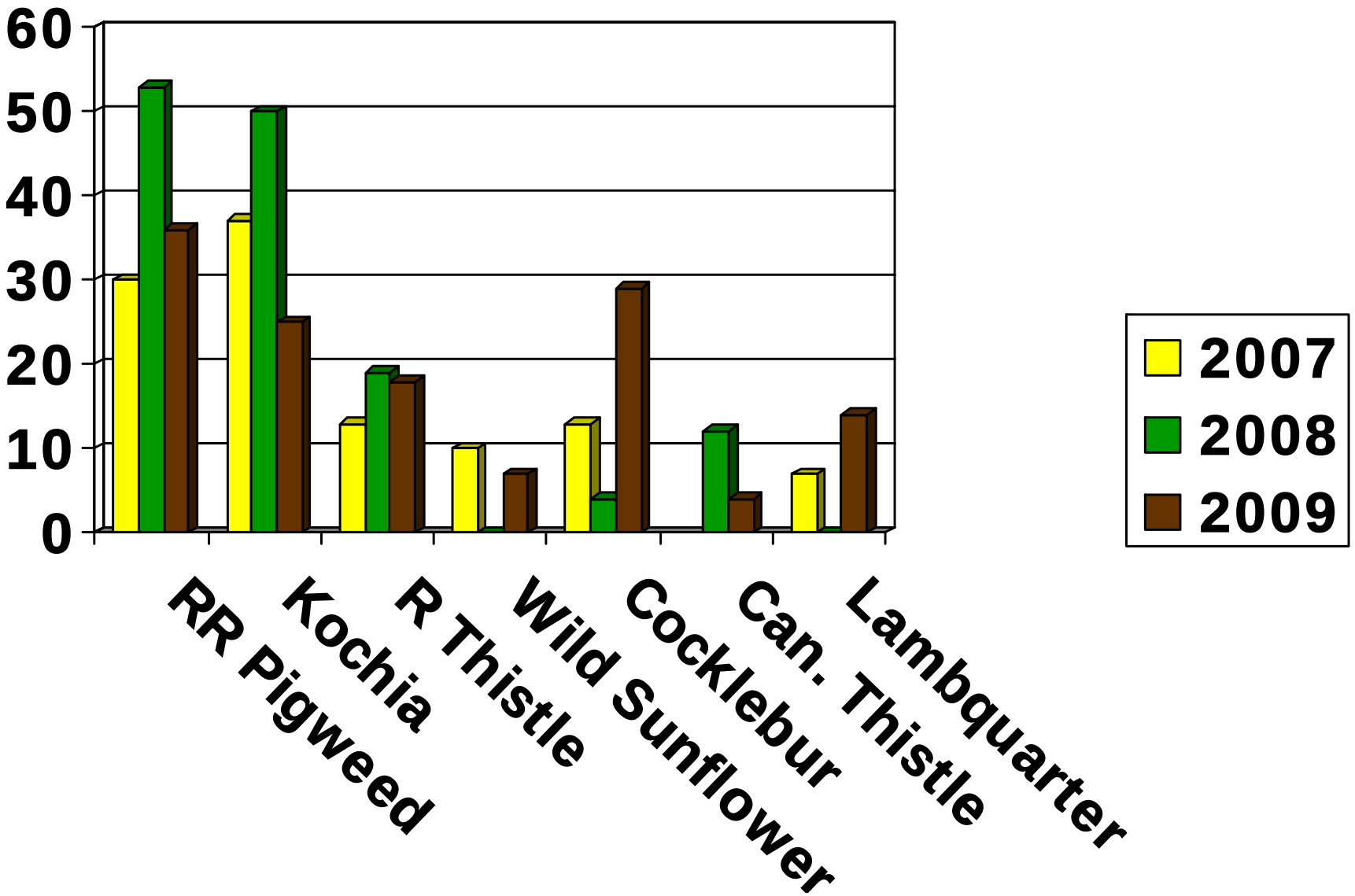
# Incidence of Weeds Observed in Manitoba



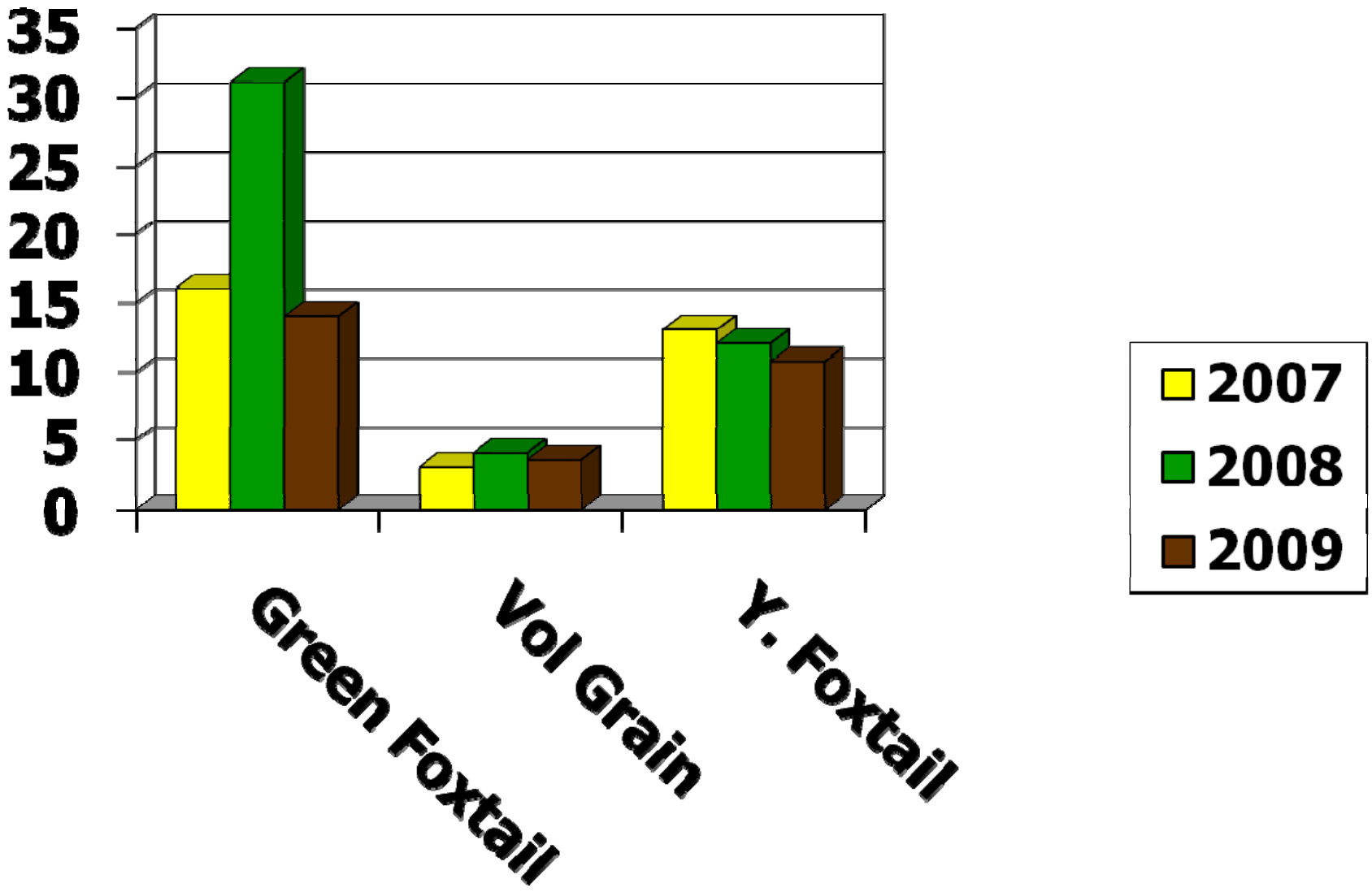
# Top Five Weeds in South Dakota 2009

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

# Incidence of Broadleaf Weeds South Dakota 2006, 2007 & 2008



# Incidence of Grassy Weeds South Dakota 2007,2008 & 2009

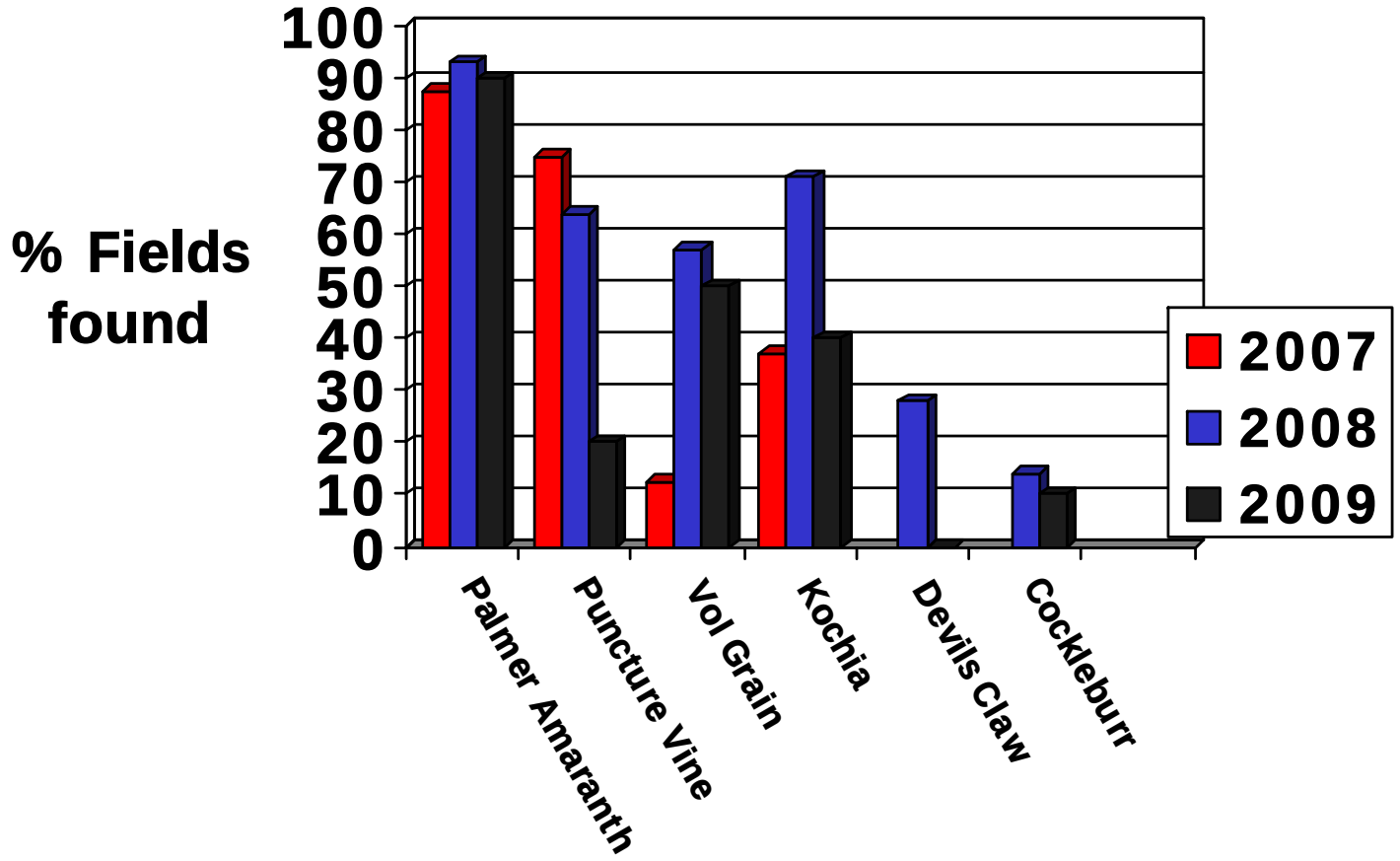


# Top Weeds Observed: 2009

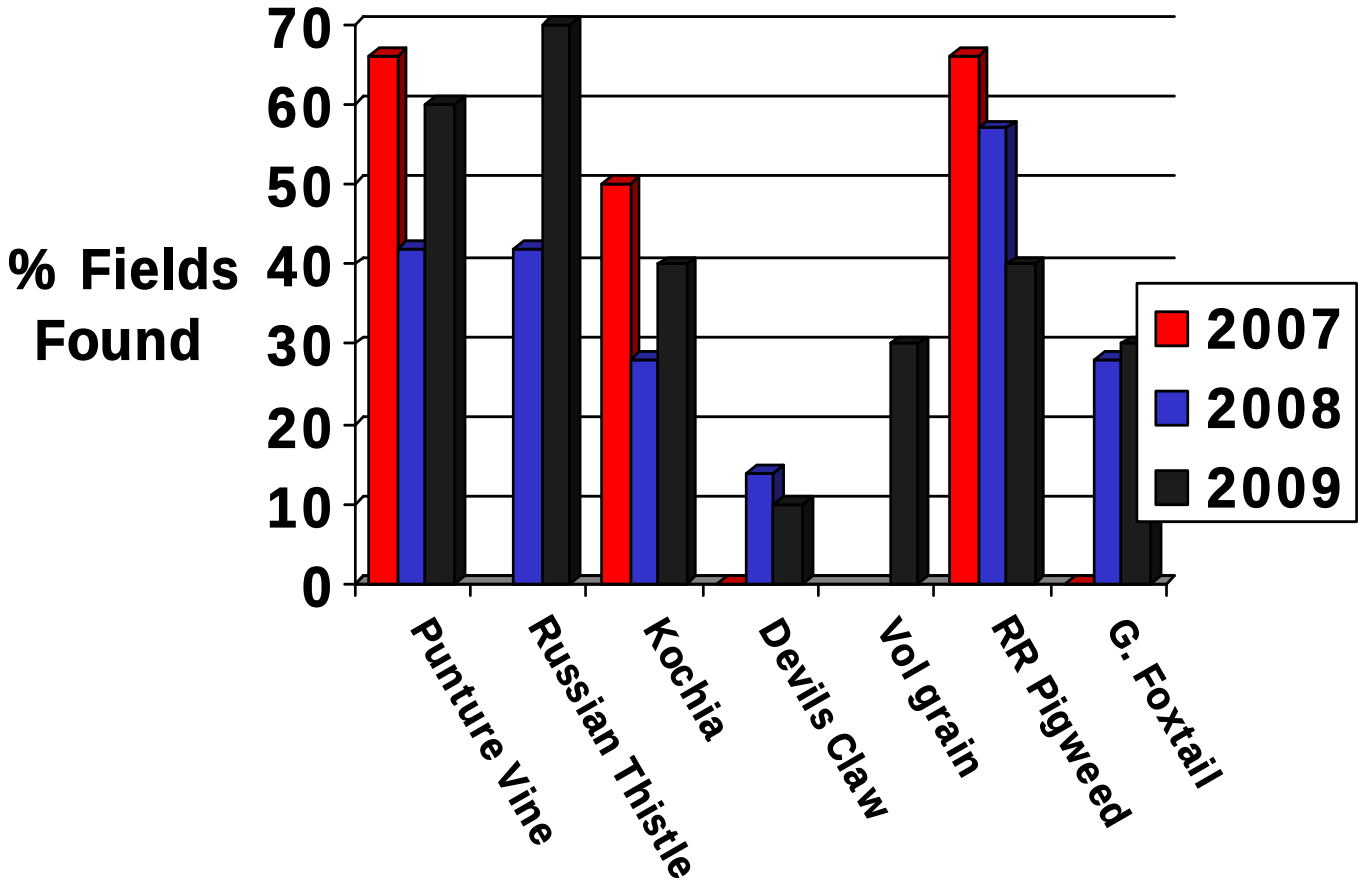
- **Colorado weeds**
- Russian Thistle
- Puncture vine
- Kochia
- Volunteer Grain
- Lance leaf sage
- Green foxtail

- **Kansas Weeds**
- Palmer Amaranth
- Volunteer grain
- Kochia
- Redroot Pigweed
- Puncture vine

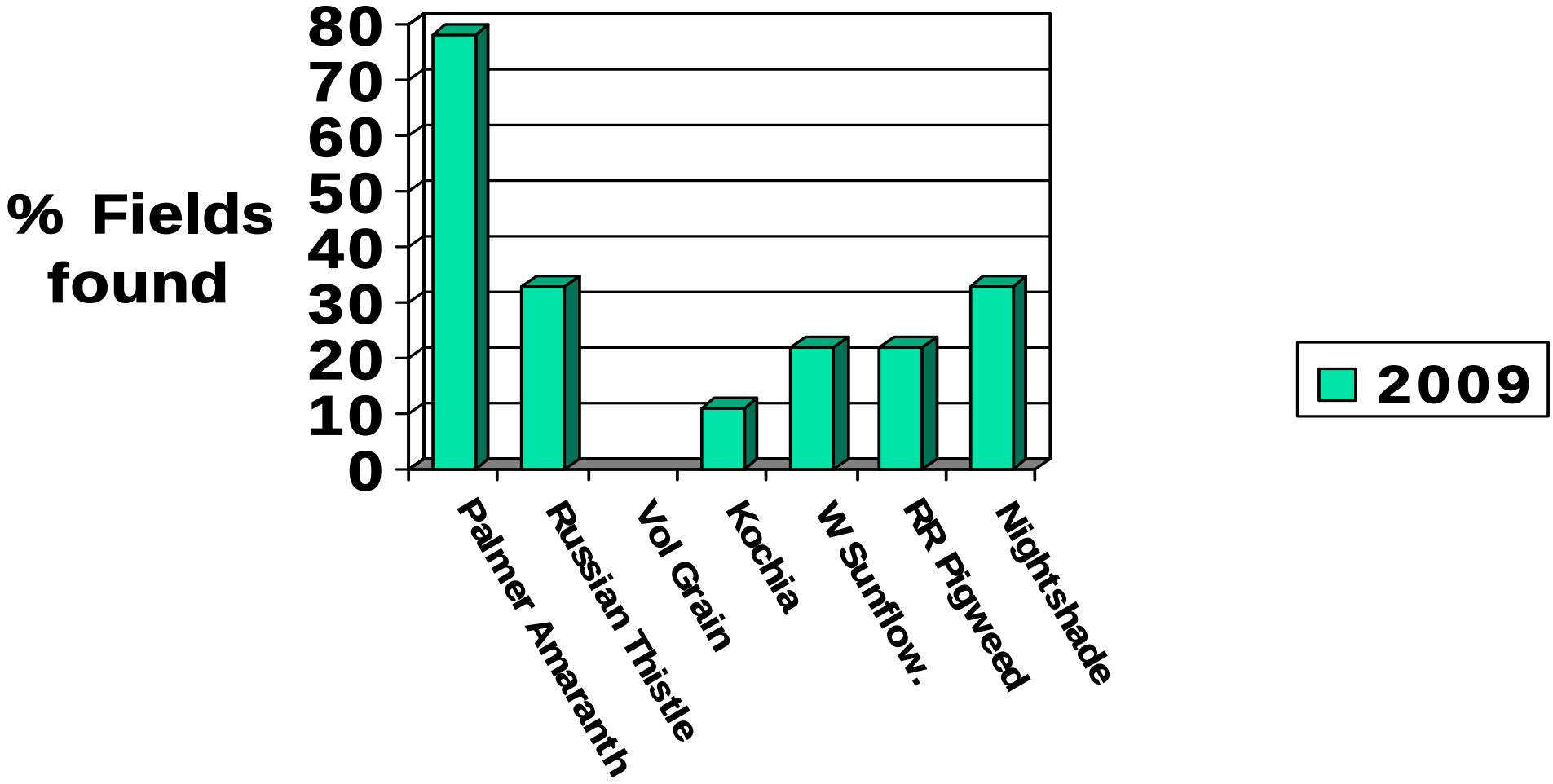
# Incidence of Weeds in Kansas



# Incidence of Weeds in Colorado



# Incidence of Weeds in Texas



# Conclusions and Summary of 2009 National Sunflower Survey

- Yields are good to excellent in the Northern Great Plains
- Kansas and Nebraska reported the highest yield potentials with high % fields under irrigation.
- N.D. and S.D. yields are similar to past two years.

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# Conclusions and Summary of 2009 National Sunflower Survey

- Yield limiting factors in ND were Diseases, plant spacing, Weeds and Birds.
- Yields limiting factors in SD were Plant spacing, Birds, Disease and variety of other problems.
- Minnesota also had issues with Disease, plant spacing and Bird pressure.

# Conclusions and Summary of 2009 National Sunflower Survey

Weeds were holding back yields in both Kansas and Colo.

- Also plant spacing problems and some disease issues in Colo.
- ND had the most sunflower planted in narrow row spacings while SD led all states with No-till plantings.

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# Conclusions and Summary of 2009 National Sunflower Survey

- Rust incidence was higher in both Colorado and Kansas than in prior years.
- N.D. rust incidence was similar to the past 2 years whereas, S.D. was up slightly and Mn. down slightly.
- Sclerotinia Head rot was a lot higher in both N.D. and MN in 2009 than 2008.

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# Conclusions and Summary of 2009 National Sunflower Survey

- Phomopsis was high in Mn., ND and SD compared to prior years.
- Phoma incidence ranged from 20% in Kansas to over 80% in ND.
- Webbing in sunflower heads was fairly high with damage as documented with lab. results!

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# Conclusions and Summary of 2009 National Sunflower Survey

- Banded moth incidence was highest in Manitoba followed by ND, SD and Minn.
- Sunflower moth was noted only in Kansas and North Dakota.
- Seed weevil damage was highest in ND followed by SD and Kansas.
- Brown spot damage in Conf. Sunflower was most severe in Manitoba followed by ND and Minnesota.

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# Conclusions and Summary of 2009 National Sunflower Survey

- Long horned beetle damage appeared to be much greater in Colo and about the same in S.D. and less in N.D.
- Bird Damage ranged from 0.5 % in SD to just over 4% in ND. No bird damage reported in Kansas. Mn. had just over 2% while Colo was over 1.2 %. Neb. Reported over 5% losses due to birds.

# Conclusions and Summary of 2009 National Sunflower Survey

- Broadleaf weeds continue to be more of a problem than most grassy weed species.
- Palmer Amaranth is a major problem weed in sunflower in both Kansas and Colorado. Its in the pigweed family of weed species.

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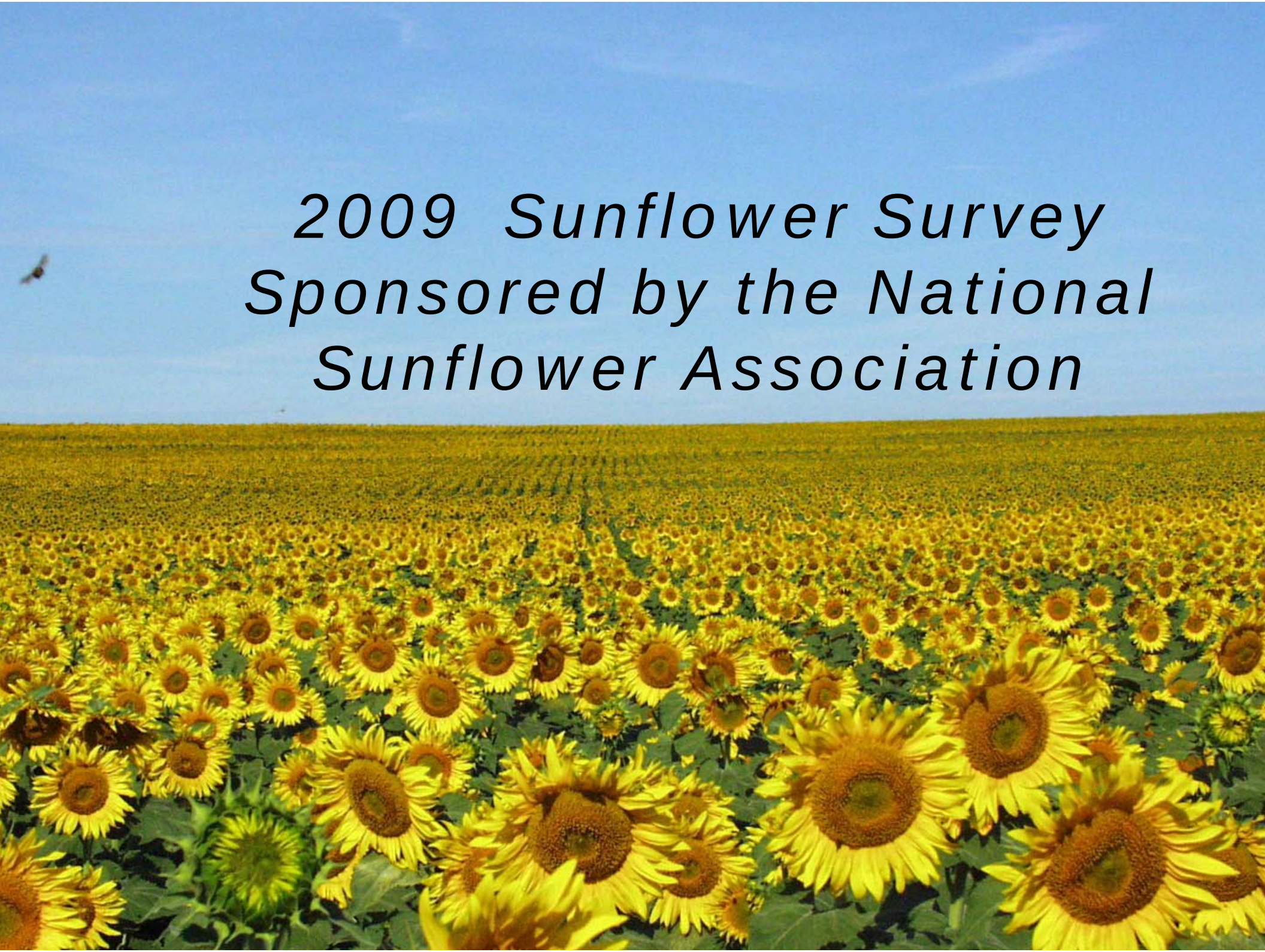

# 2009 Sunflower Survey Sponsored by the National Sunflower Association