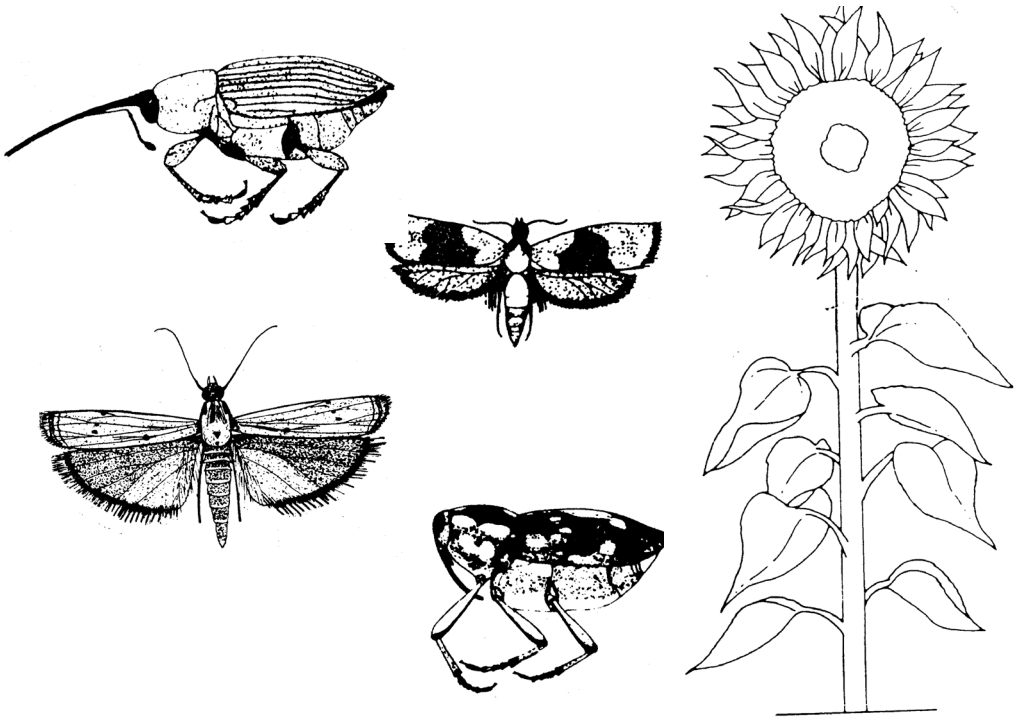
2021 National Sunflower Production Survey – Insects (*and Birds*)



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NSA Survey Insect Evaluations

1 . In-field assessments

Observations of symptoms or insects (Dectes)

Scored as incidence (% of plants)

2. Seed samples

Shipped to USDA-ARS in Fargo

X-ray imaging of seeds (weevil, caterpillar)

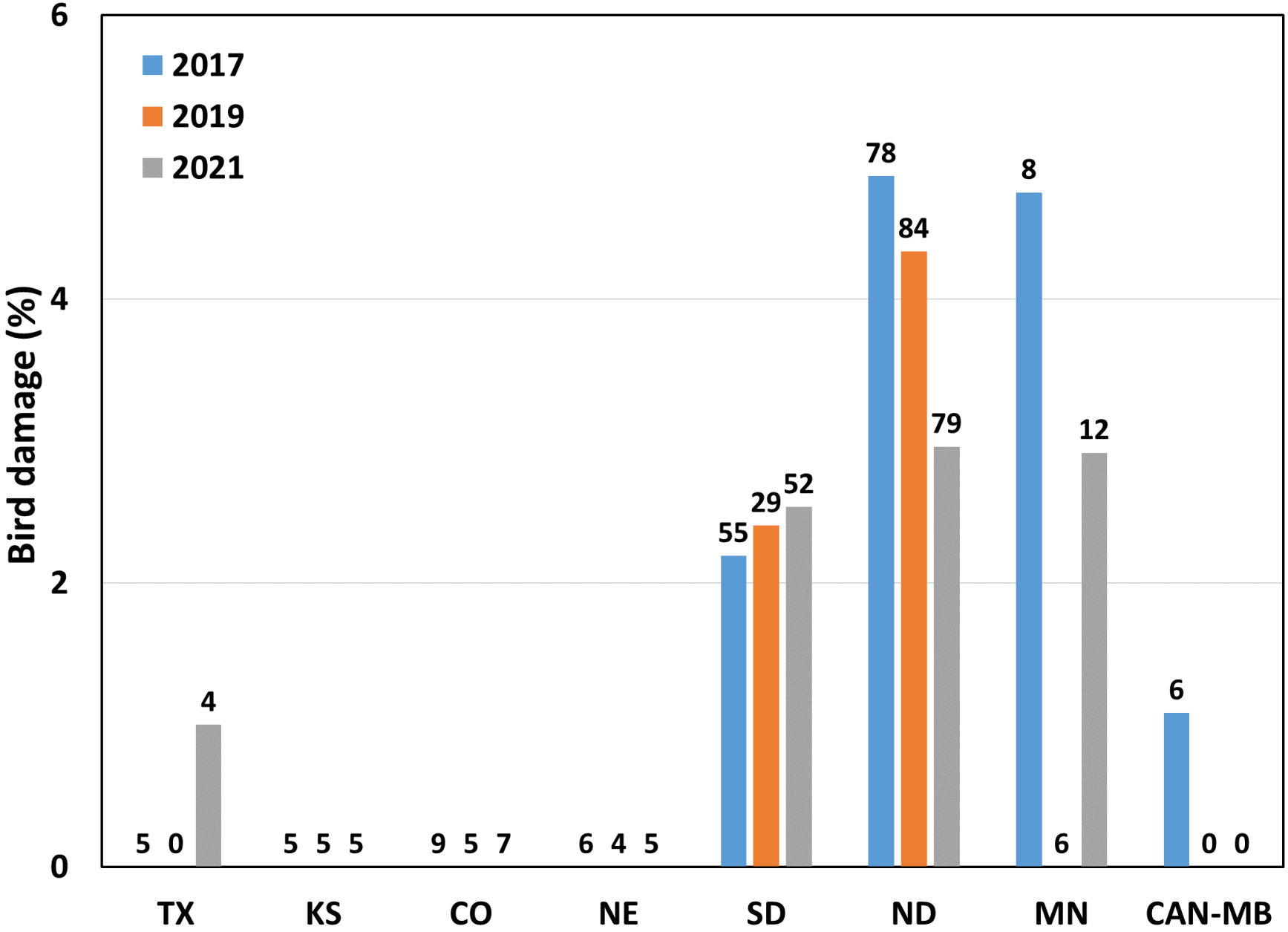
Dehulling and inspection (Lygus)

In-Field Assessments

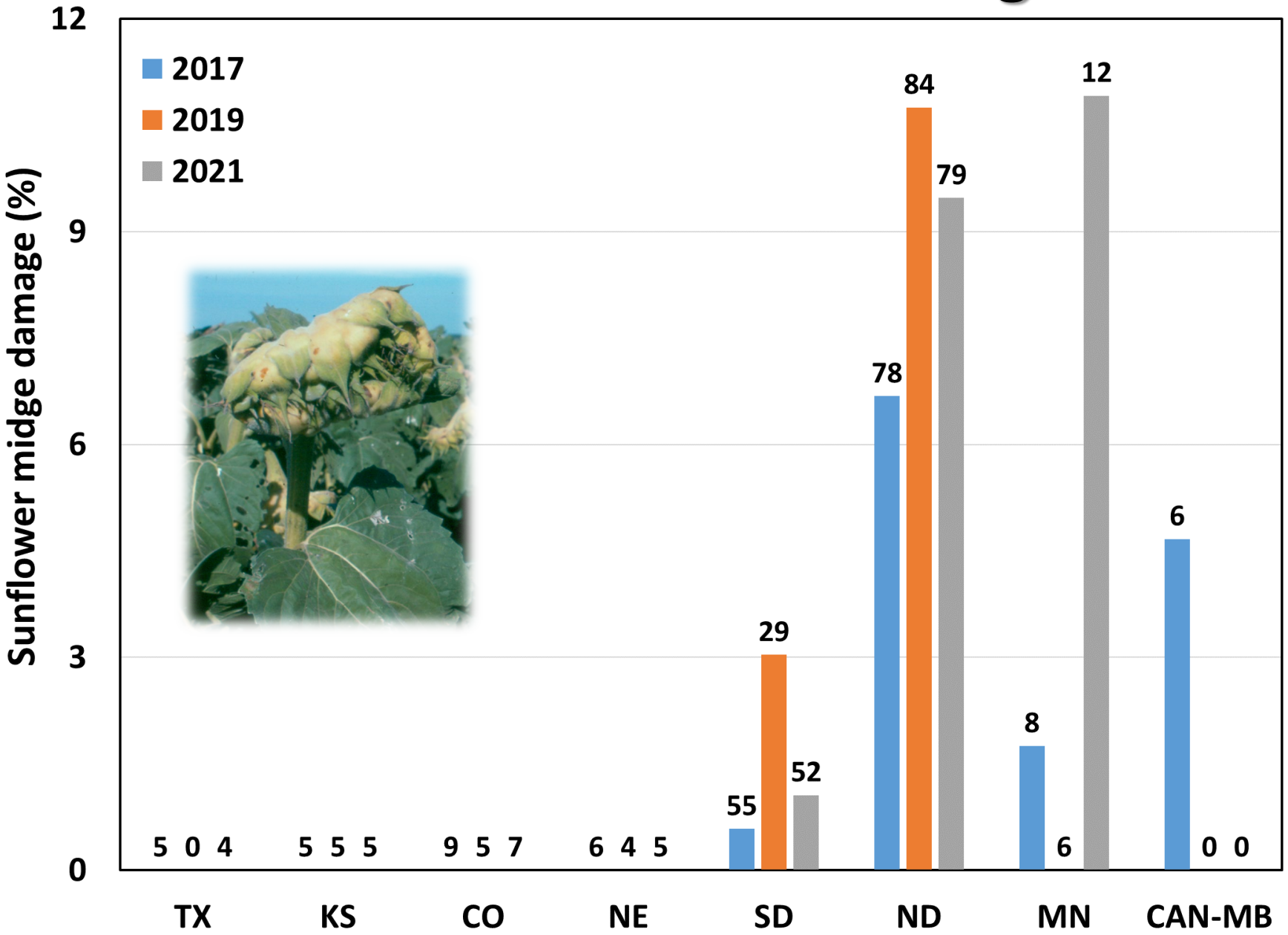
- Sunflower midge, bud moth, seed maggot
- Deform heads, confused w/ other causes
- Dectes stem borer (larvae in stem)

- Insects, incidence ≈ severity
- Bird losses (%) estimated directly

In-Field Assessments - Birds



In-Field Assessments - Midge



In-Field Assessments – Seed Maggot

In-Field Assessments – Bud Moth

In-Field Assessments – Dectes

	TX	KS	CO	NE	SD	ND	MN	CAN-MB
	5	5	9	6	55	78	8	6
	0	5	5	4	29	84	6	0
	4	5	7	5	52	79	12	0

Dectes stem borer damage (%)

100
80
60
40
20
0

In-Field Assessments – Summary

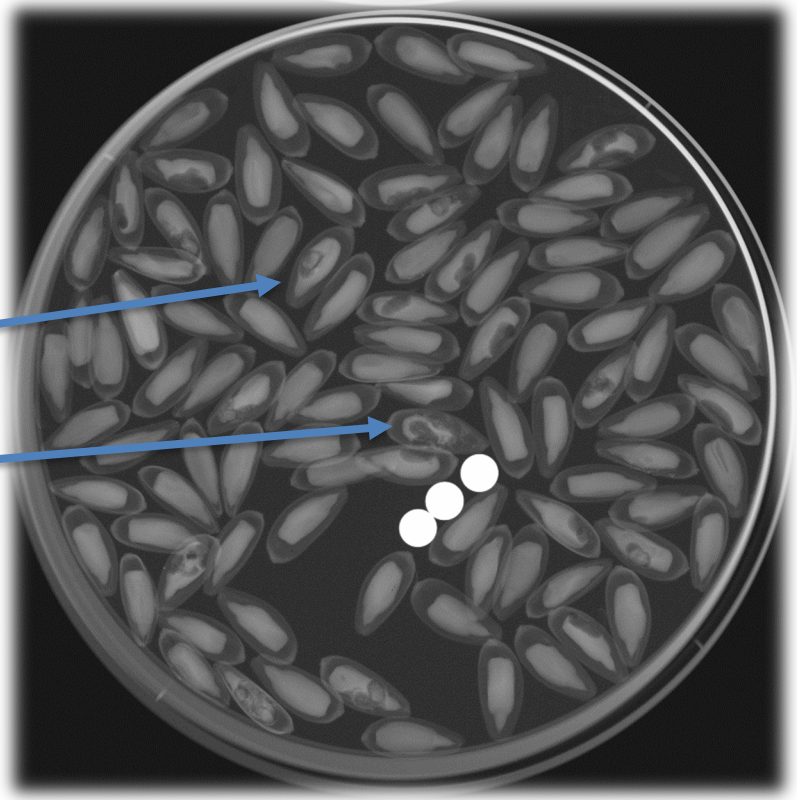
- **Secondary pests (midge, bud moth, maggot) similar to 2017, 2019**
- **Those + birds mostly absent south of Dakotas**

- **Dectes common in KS, CO and 'up' in SD, ND**
- **In 93 fields with some Dectes, effects unclear**
- **Fields with ≥ 80% Dectes, lodging = 2.4%**
- **Fields with 0% Dectes, lodging = 1.8%**

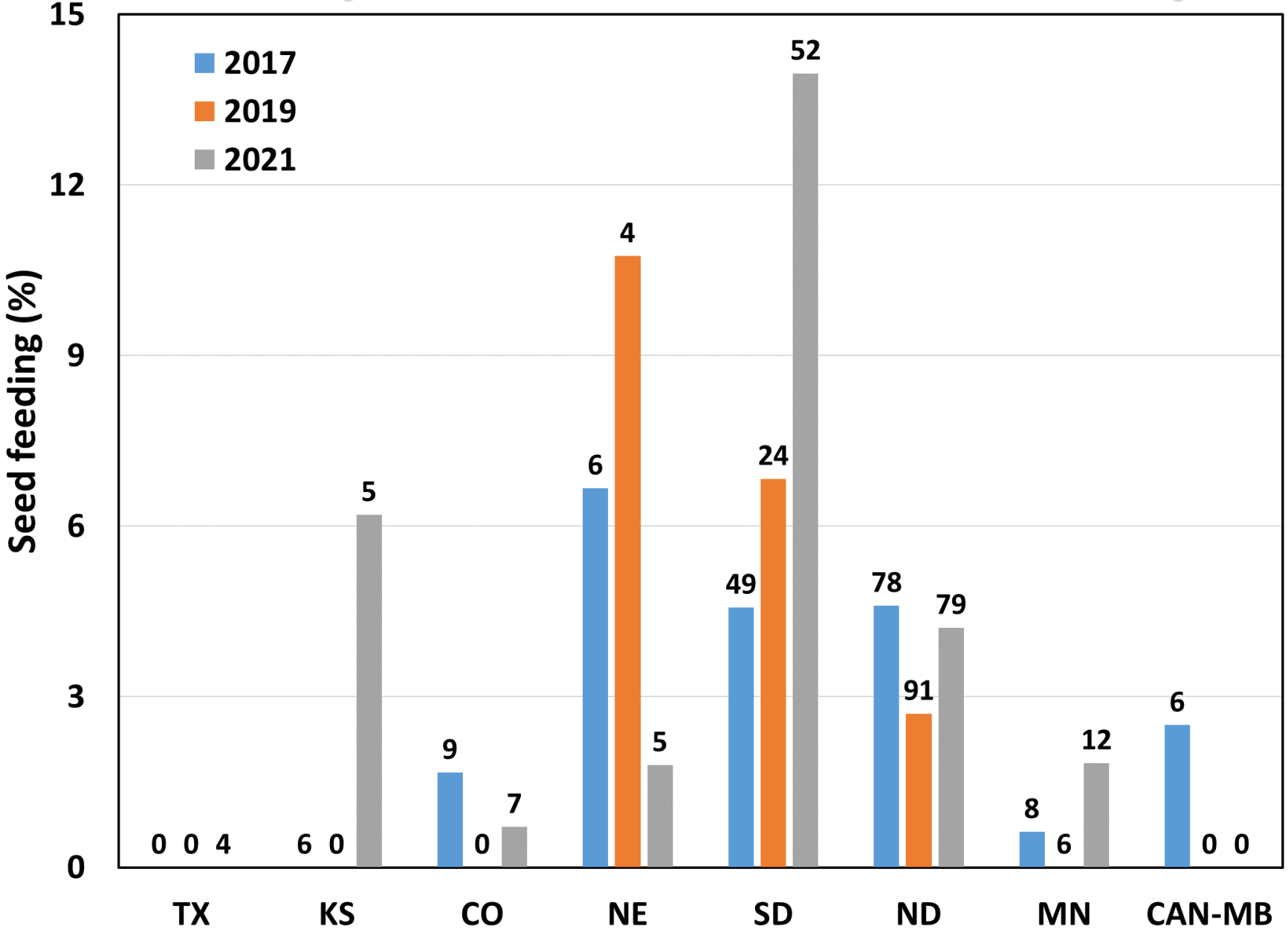
Seed Samples – X-rays

- Red sunflower seed weevil
- Banded sunflower moth
- Sunflower moth
- <u>Percent damaged seed</u>

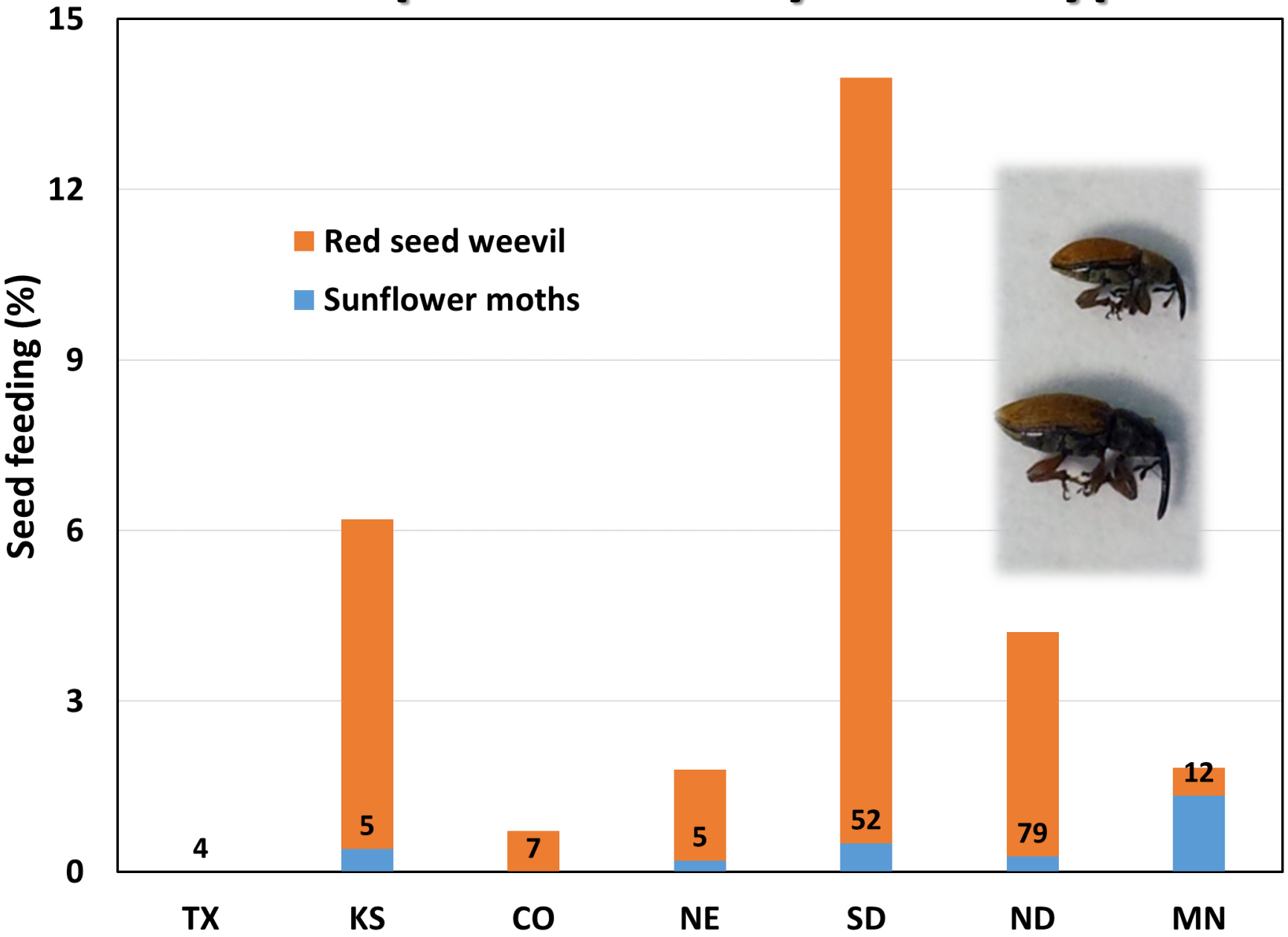
- Weevil VS caterpillar



Seed Samples – 2017, 2019, 2021 X-rays



Seed Samples – 2021 By Insect Type



Seed Samples – Lygus & Summary

- **Lygus (brown spot) damage low**
  - **≤ 1% for 13 of 15 confection fields**

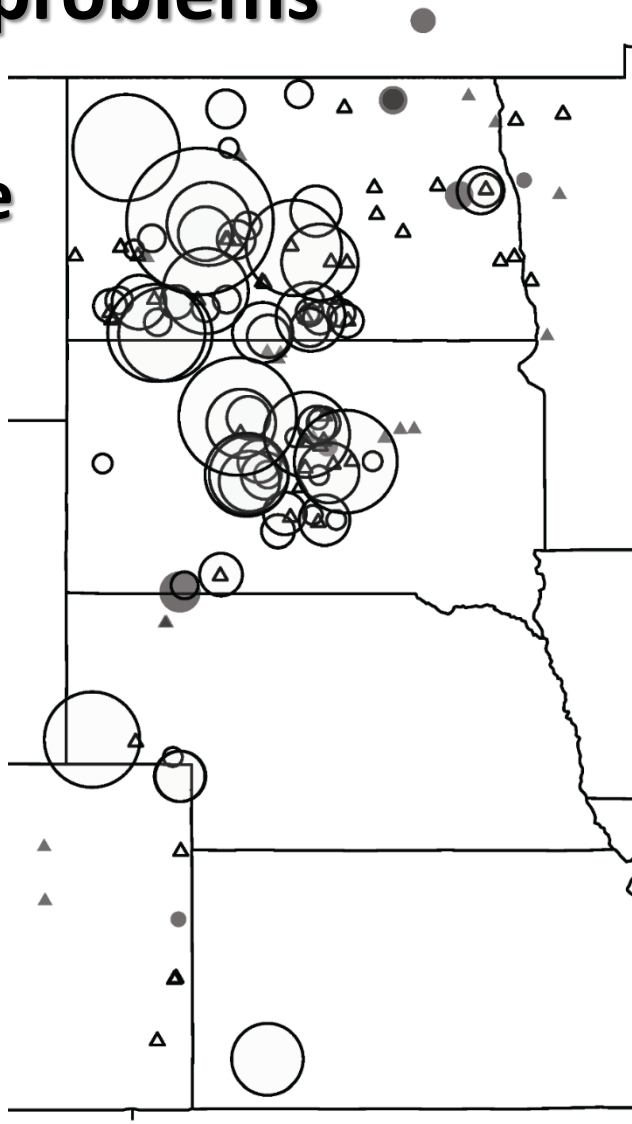
- **<u>Seed damage up (3.7--->7.2%), about twice 2019</u>**

- **More high-damage (> 20%) fields**
  - **2019 – 1 of 120 fields (36%)**
  - **2021 – 26 of 207 fields (21–76%)**

Summary

- **Most insects community-wide problems**
  - **(-) Shared among neighbors**
  - **(+) Management benefits everyone**

- **Failure to manage 'collectively'**
  - **Same challenge as with birds**
  - **Many growers w/ little damage**
  - **Some not managing (76%!)**
  - **Organic growers in ND just fine…**
  - ***<u>in isolation</u>***



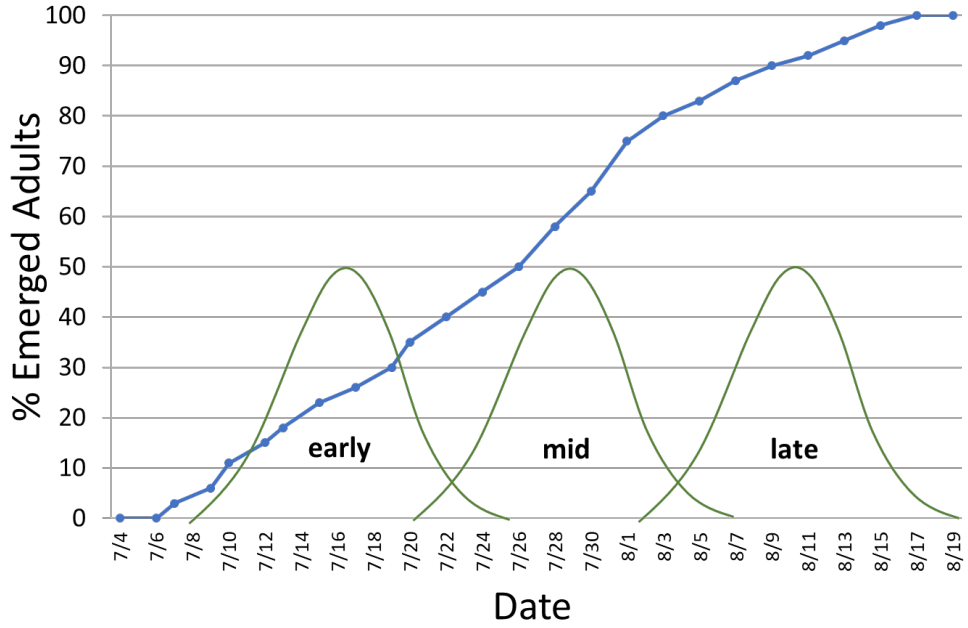
Summary

- **Planting date trials in SD (1980s) w/ early hybrid**

  early May = 1%

  mid May = 14%

  early June = 56%



- **Need to use all tools available**

  Monitoring, early planting, insecticides

  Talk to your neighbors?!

Acknowledgements and Questions

- National Sunflower Association
- Ryan Buetow (NDSU)
- Beth Ferguson (USDA)
- Shawna Pantzke (NDSU)
- Zach Tarble (USDA ---->)

- Questions?