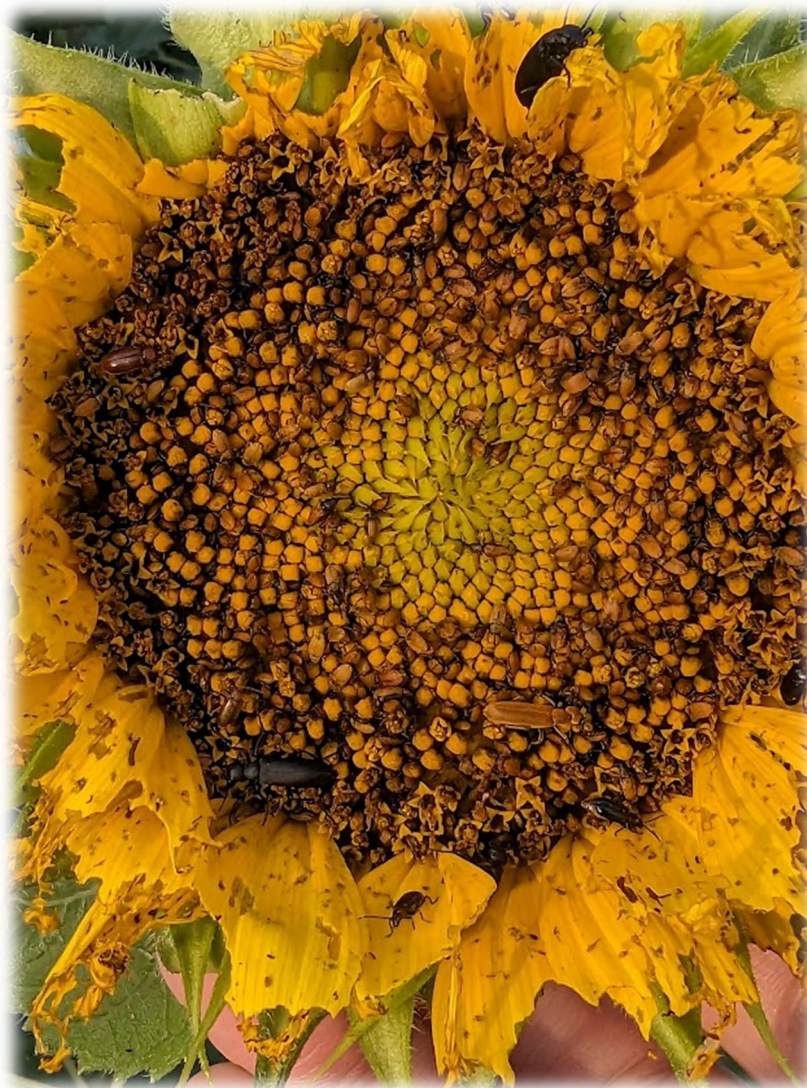


# **Update on Effects of Planting Date on Seed Weevil Damage and Other Yield Components**

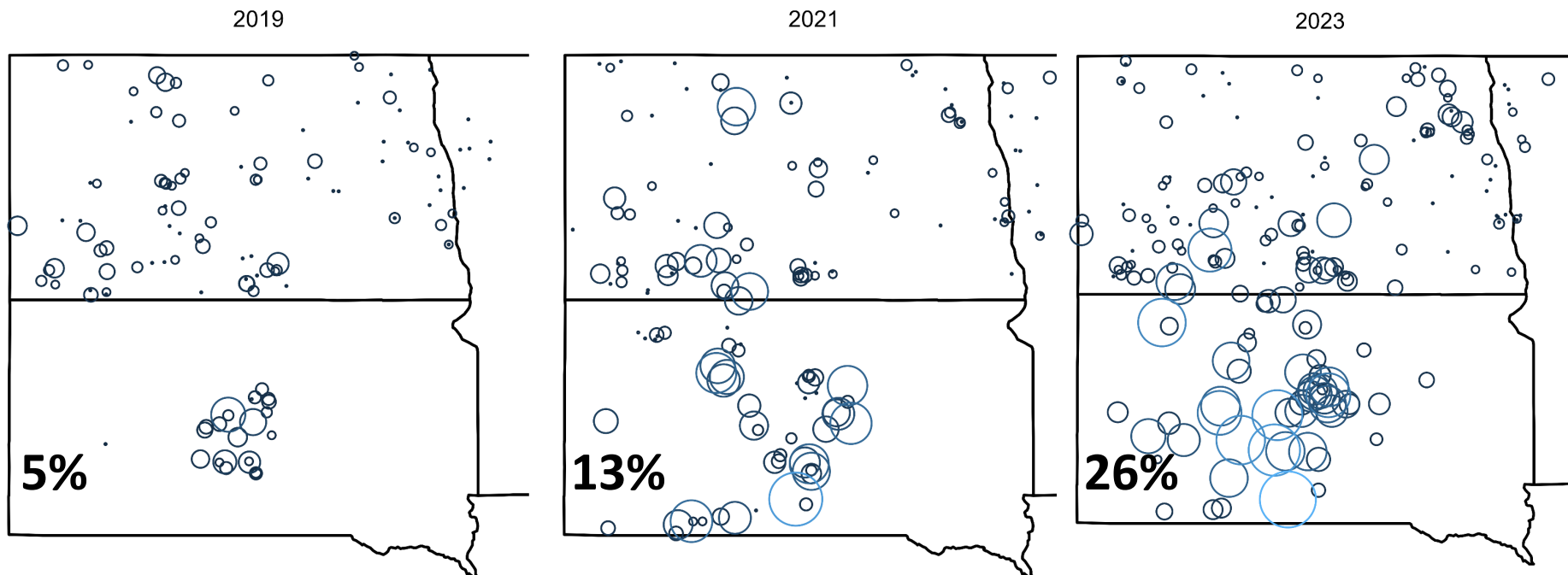
**Jarrad Prasifka  
Adam Varenhorst  
Kristin Simons  
Jeff Cluever  
Pat Wagner  
Sam Ireland**



**USDA-ARS, Fargo  
SDSU, Brookings  
NDSU, Carrington  
USDA-ARS, Fargo  
SDSU, Rapid City  
SDSU, Pierre**

# What's The Problem?

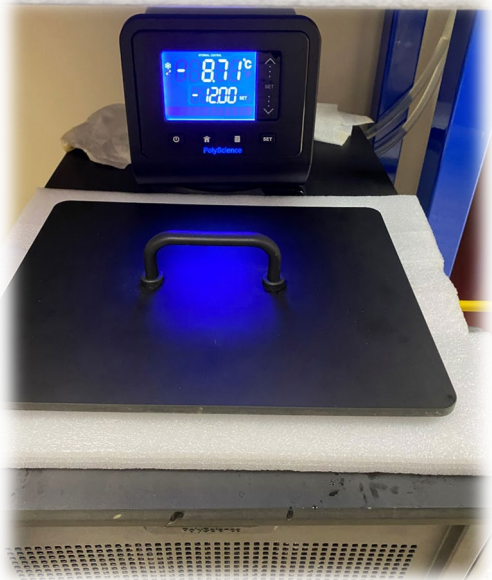
- Red seed weevils most damaging pest
- Up to 76, 90% damage in 2021, 2023
- SD  $\approx$  3X times damage in ND





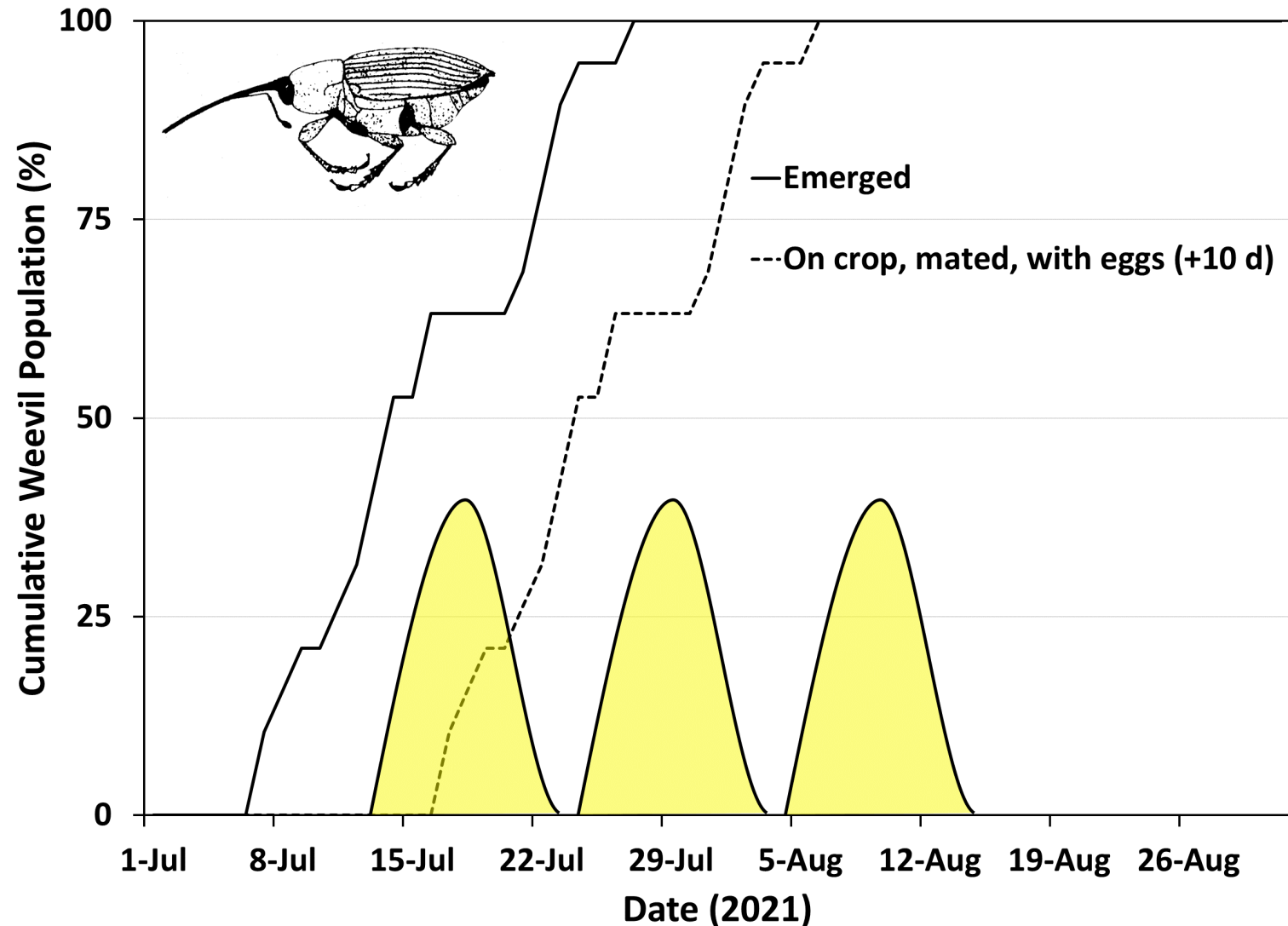
# Why Are Weevils Out of Control? (SD vs ND)

- Cold (-90%+)
- Tillage (-35%)
- Few insecticide options (AIs)
- Insecticide resistance (??)



# How Can We Manage This?

- Insecticide options
- Early planting
- Early hybrids
- Biological control
  - Parasitoids
  - Entomopathogens





# Why Aren't We 'Avoiding' Weevils Now?

- SDSU, NDSU, USDA trials in 1980's indicate this should work
- Yields poor with early planting
- Old results not valid (climate change)
- No time to plant\*



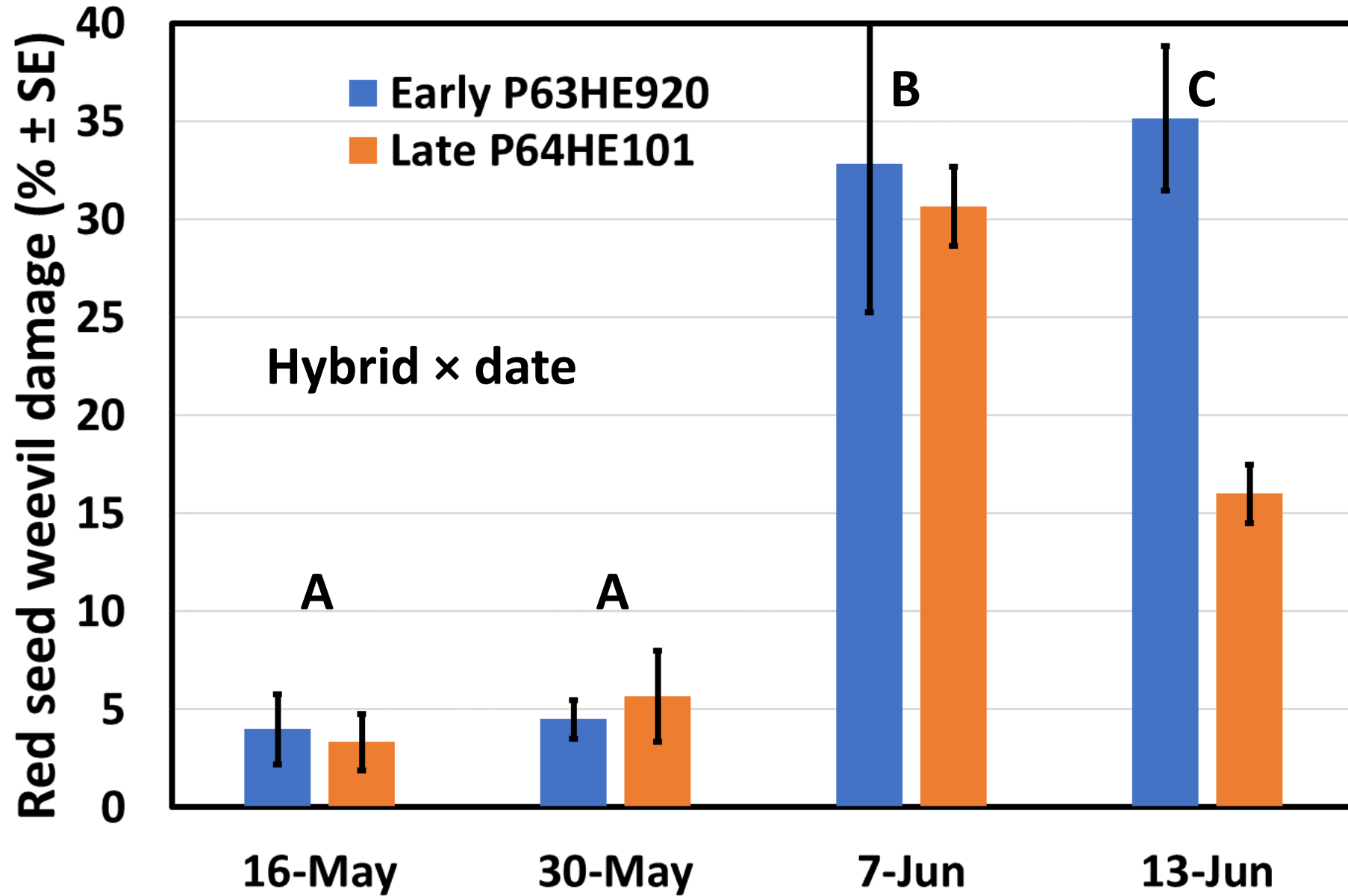
# Evaluating Early (+Early) for Weevil Avoidance

- **Dickinson, ND and Pierre, SD in 2022**  
**Less damage to early plantings, yield data not sufficient**
- **New, NSA-funded work in 2023, 2024**  
**Pierre and Sturgis (SD), Carrington (ND)**  
**Varied plot sizes, production practices by site**  
**Weevil damage (%), yield (lb/ac), oil (%)**  
**No insecticides for weevil management**

# Trials Overview for Sturgis, SD (2023–2024)

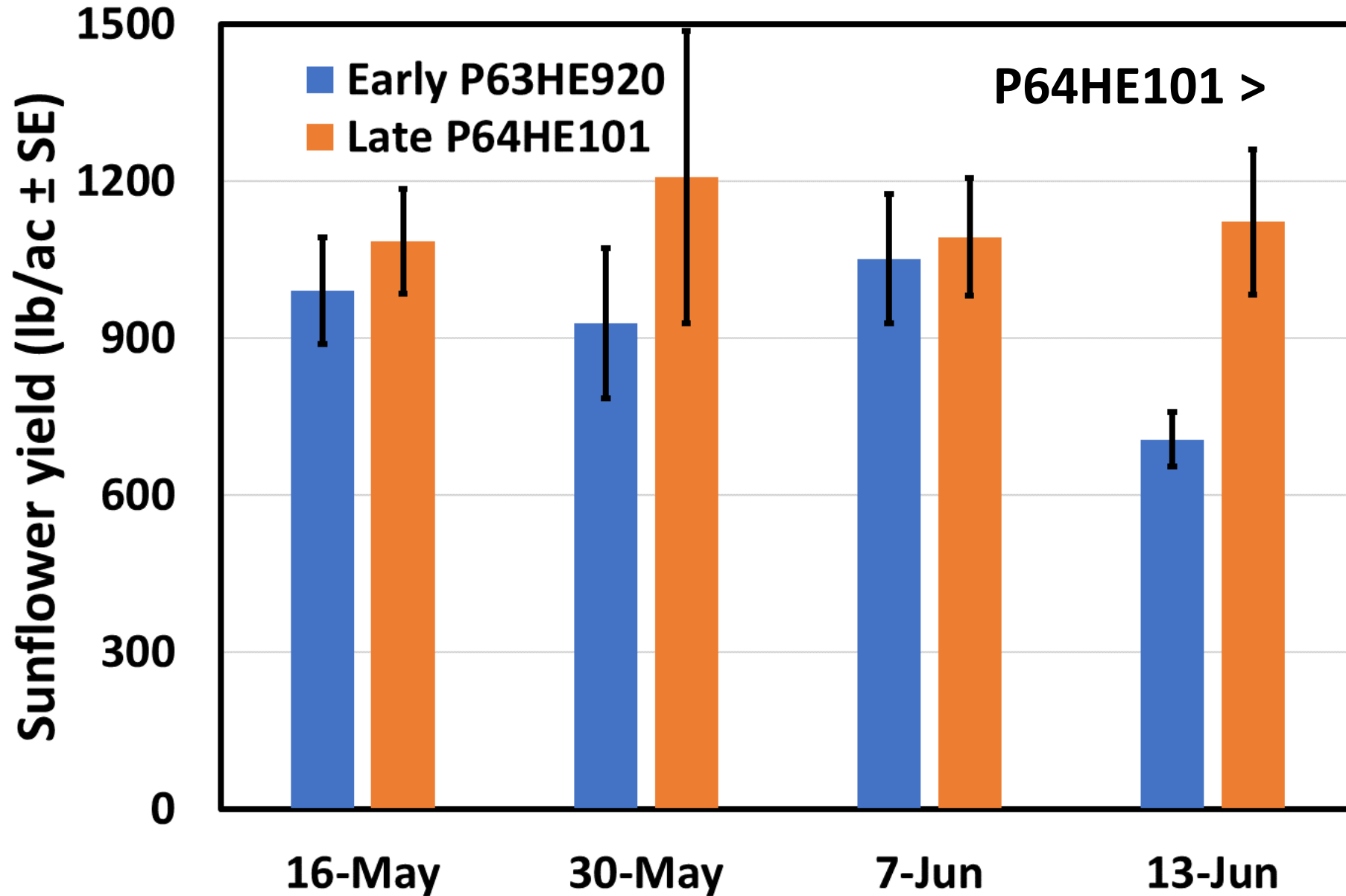
Location	Planting date	Hybrid 1	Bloom 1	Hybrid 2	Bloom 2
Sturgis, SD ('23)	May 8	P63HE920	July 18	P64HE101	July 20
	May 17		July 24		July 26
	June 1		August 4		August 4
	June 20		August 22		August 22
Sturgis, SD ('24)	May 13	N4H161CL	July 12	CP7919	July 26
	May 22		July 17		July 29
	June 4		July 29		August 5
	June 17		August 9		August 16

# Sturgis, SD (2023) Weevil Damage

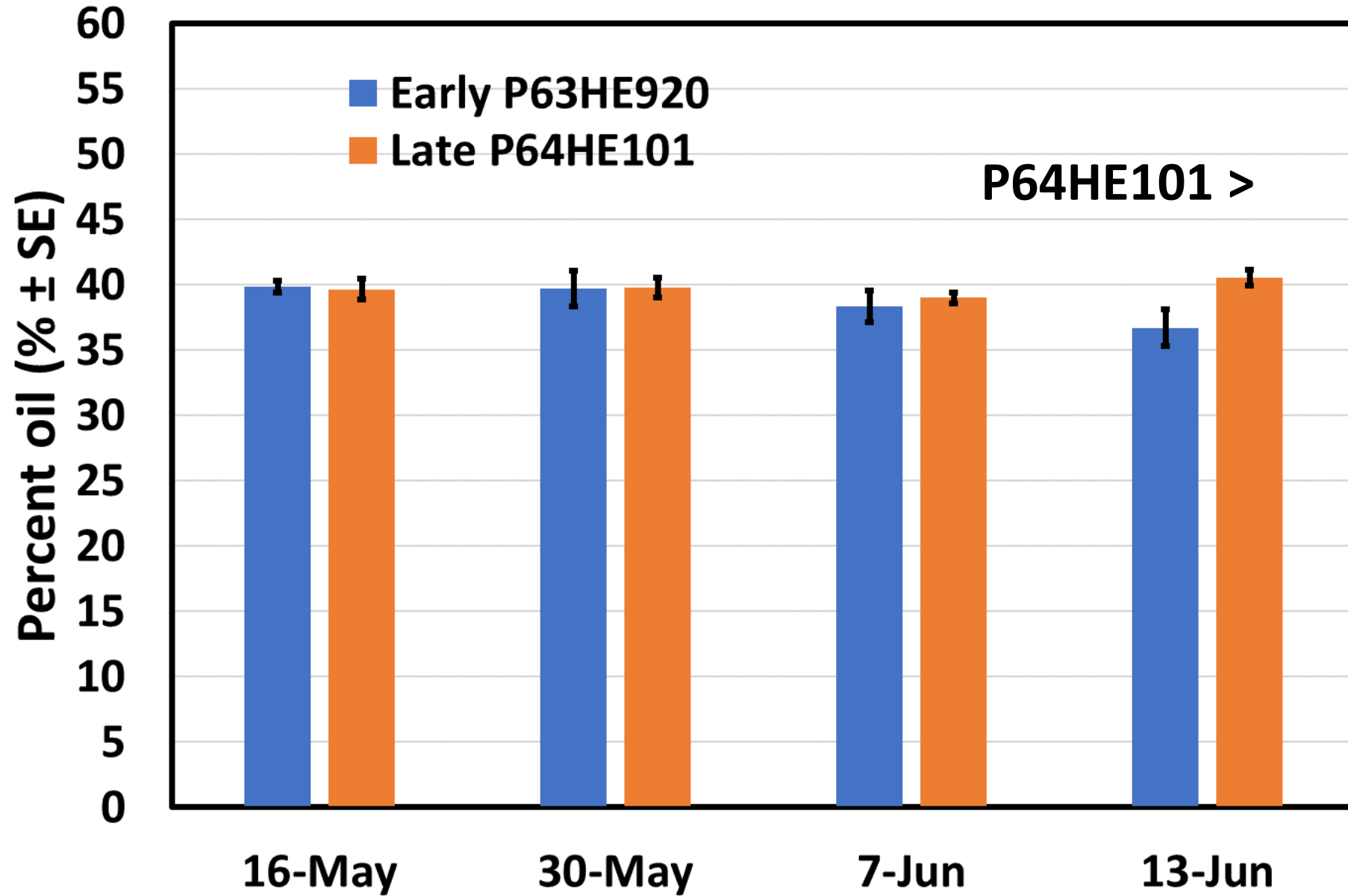




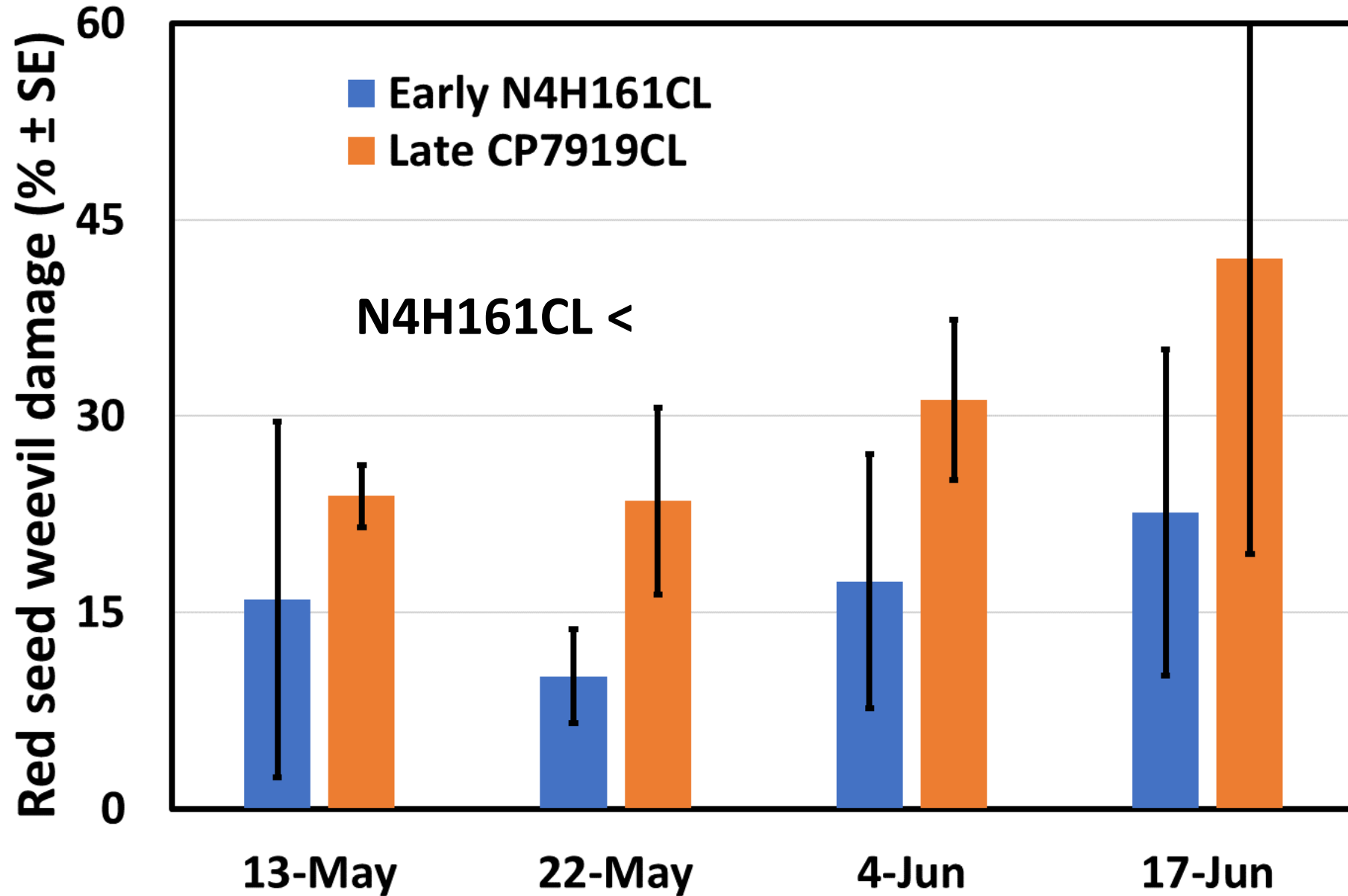
# Sturgis, SD (2023) Yields



# Sturgis, SD (2023) Oil Content

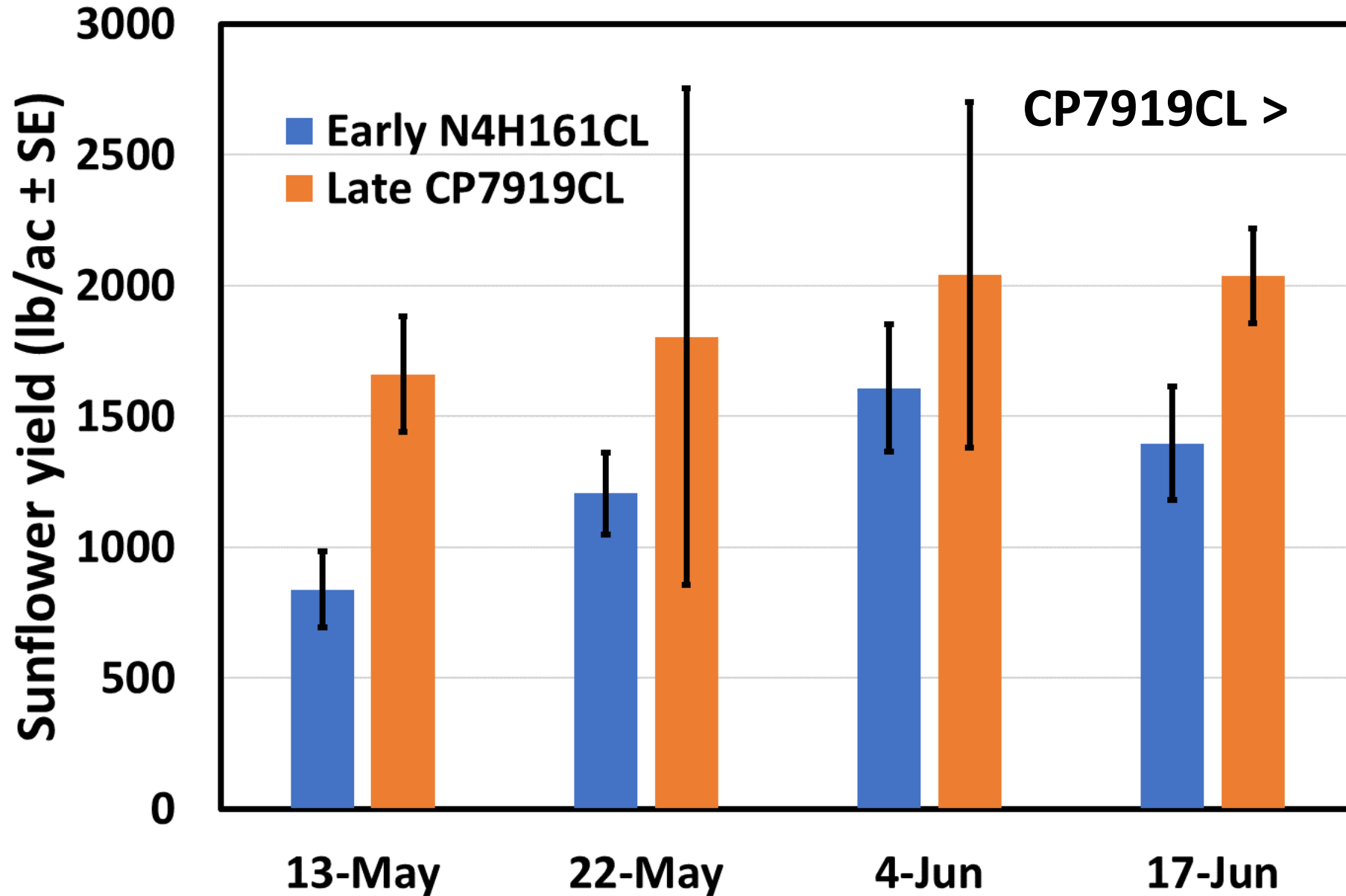


# Sturgis, SD (2024) Weevil Damage





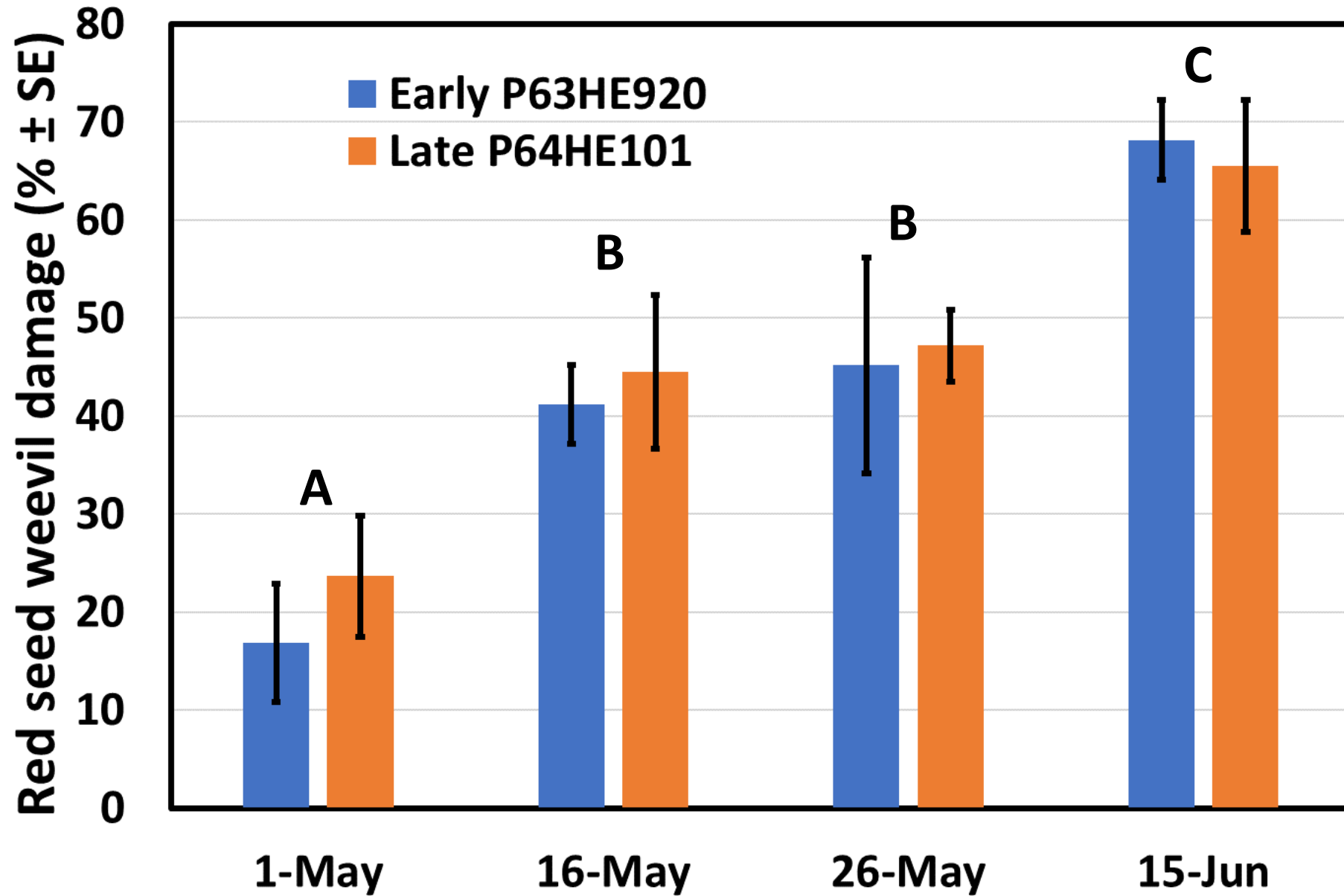
# Sturgis, SD (2024) Yields



# Trials Overview for Pierre, SD (2023–2024)

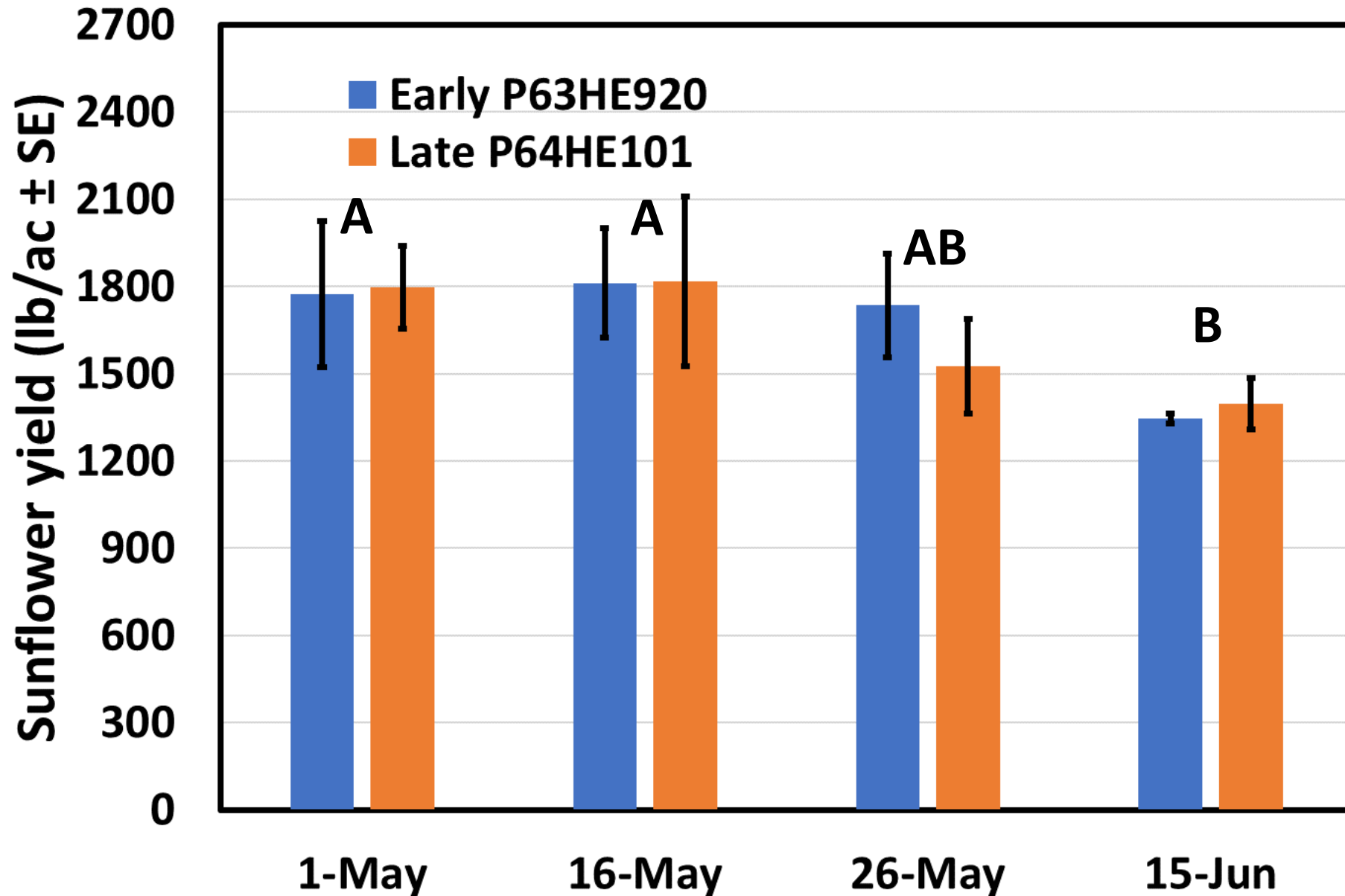
Location	Planting date	Hybrid 1	Bloom 1	Hybrid 2	Bloom 2
Pierre, SD ('23)	May 1	P63HE920	July 13	P64HE101	July 16
	May 16		July 21		July 24
	May 26		July 28		July 30
	June 15		August 15		August 15
Pierre, SD ('24)	April 25	N4H161CL	July 8	CP7919	July 16
	May 20		July 16		July 23
	June 6		July 22		July 27
	June 19		August 4		August 9

# Pierre, SD (2023) Weevil Damage

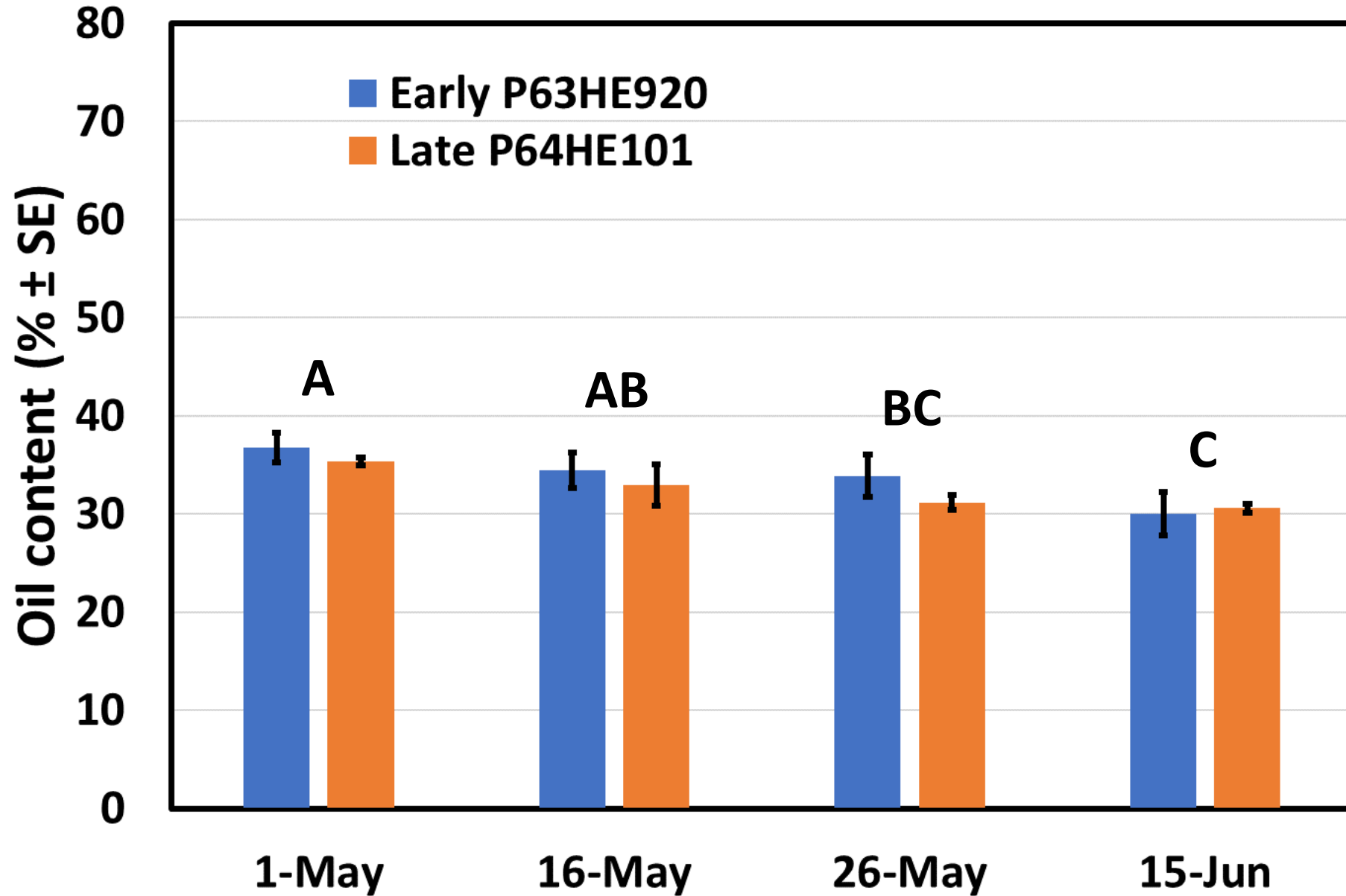




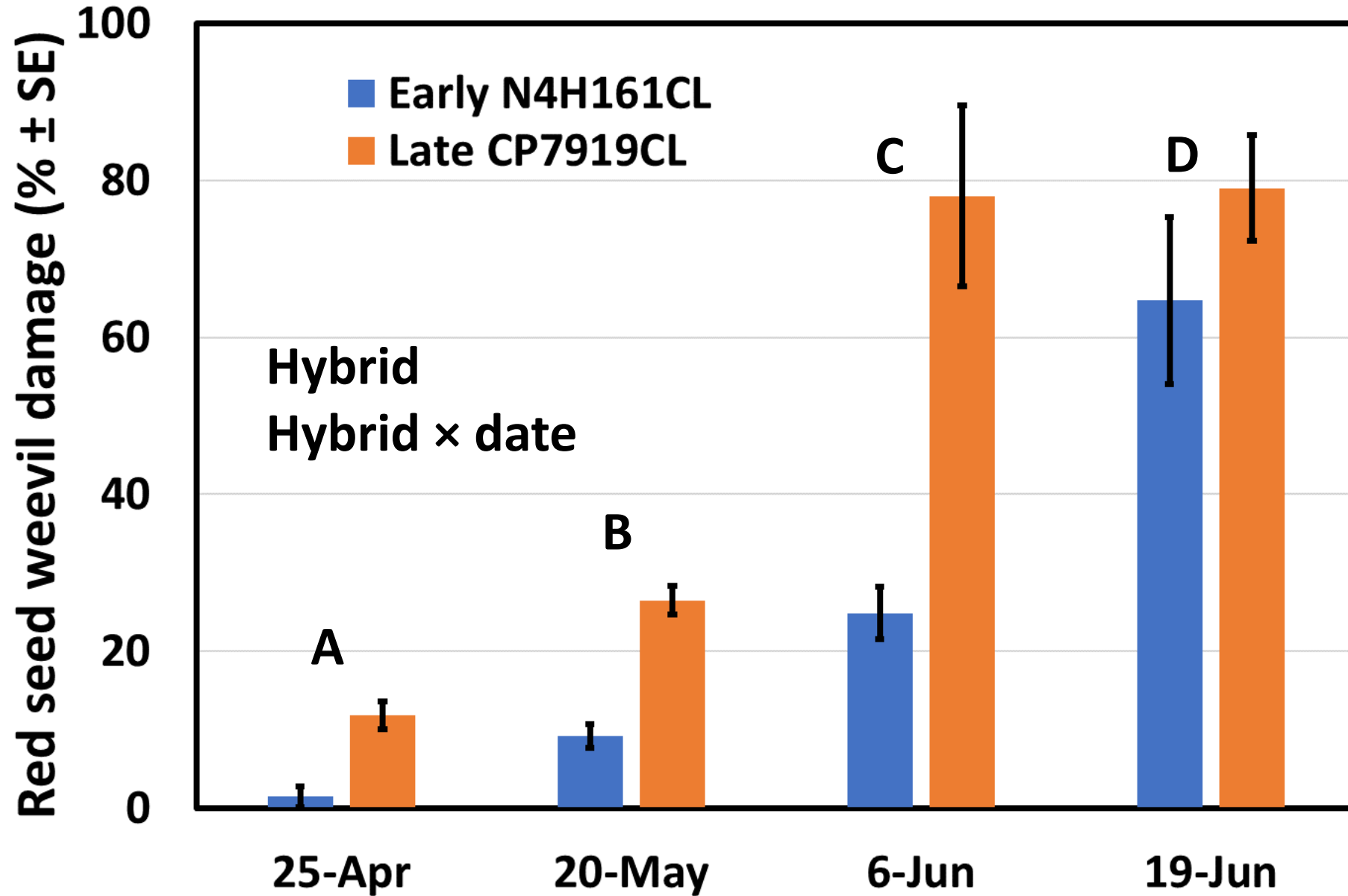
# Pierre, SD (2023) Yields



# Pierre, SD (2023) Oil Content

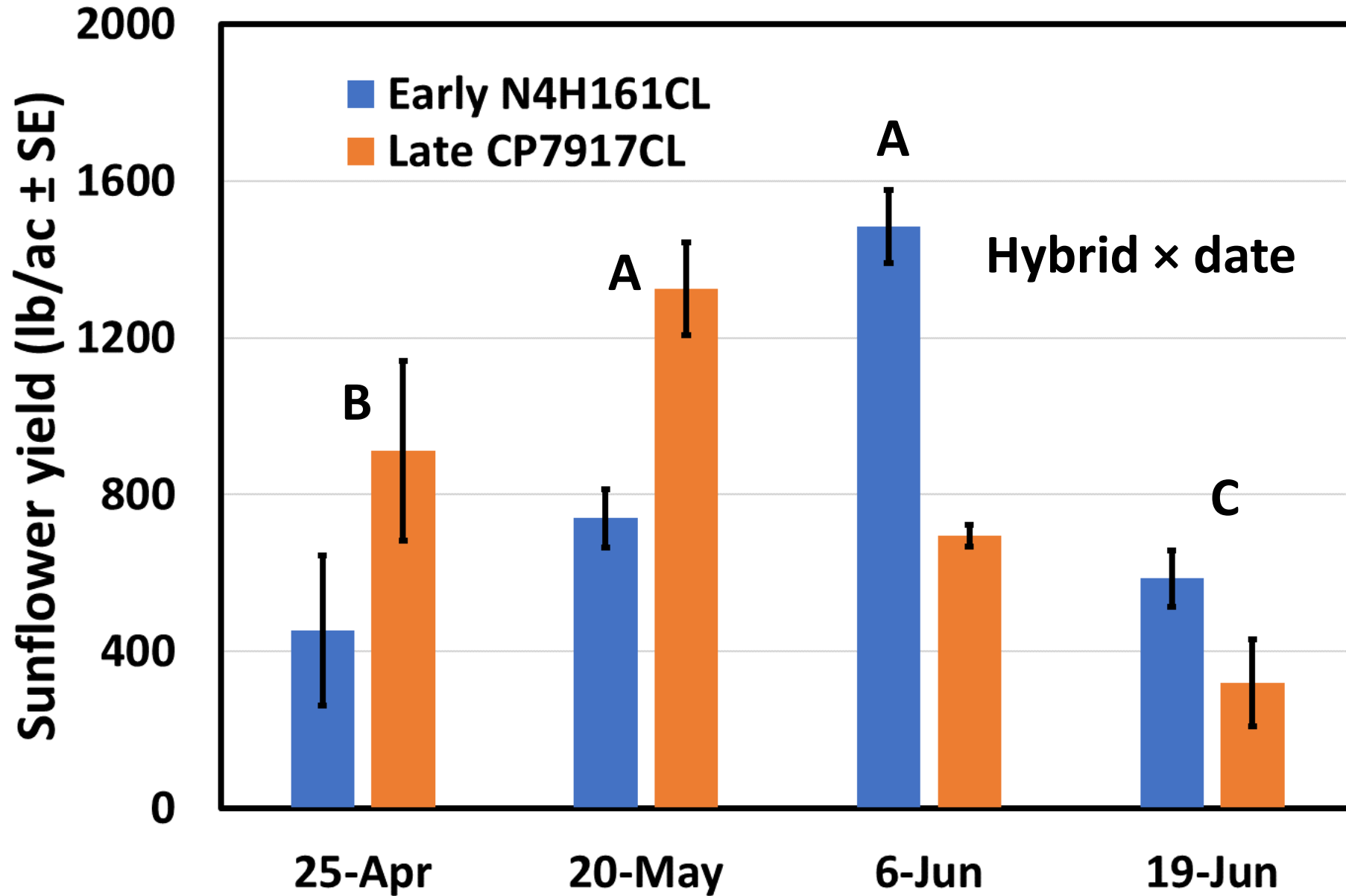


# Pierre, SD (2024) Weevil Damage

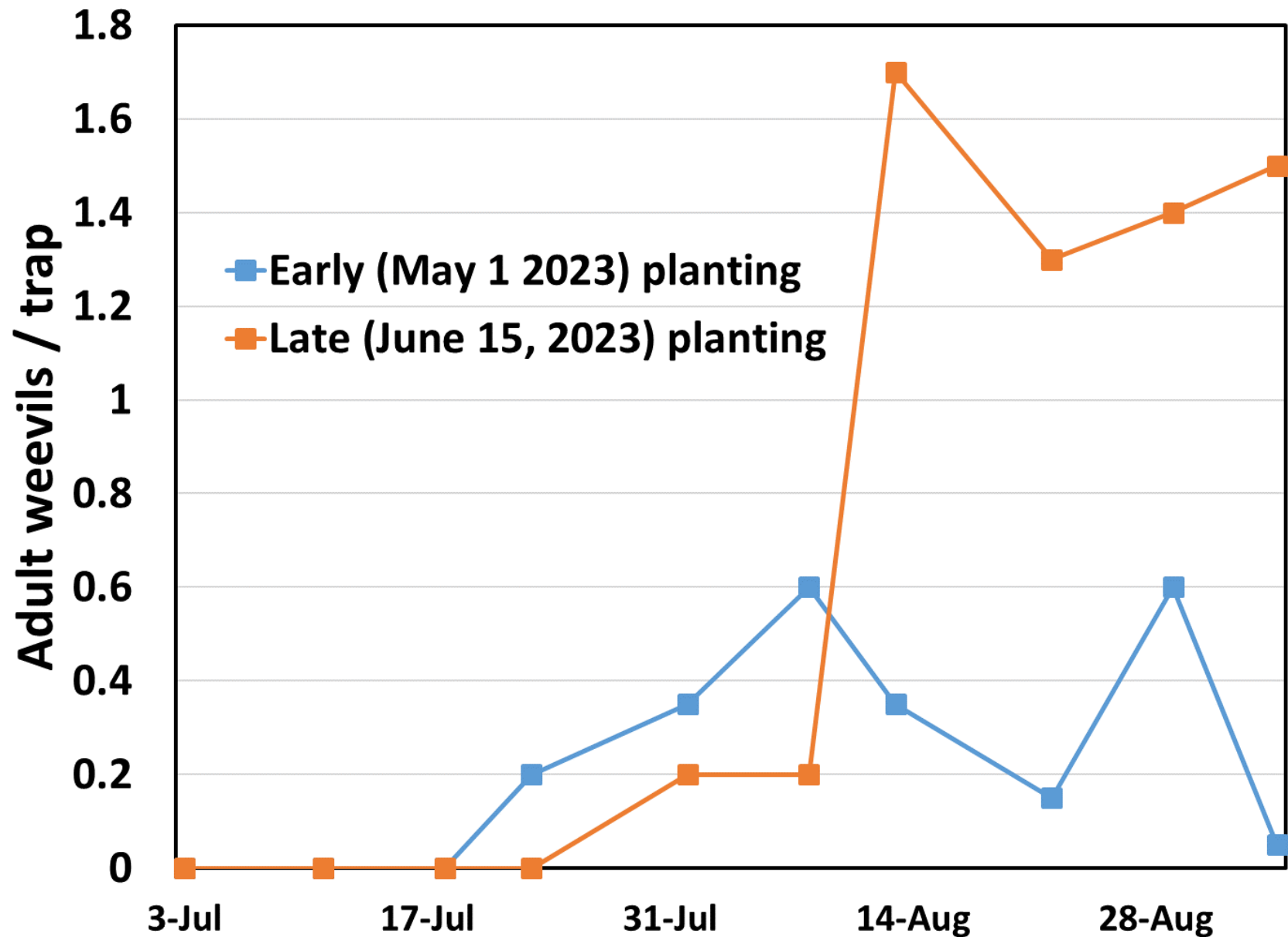




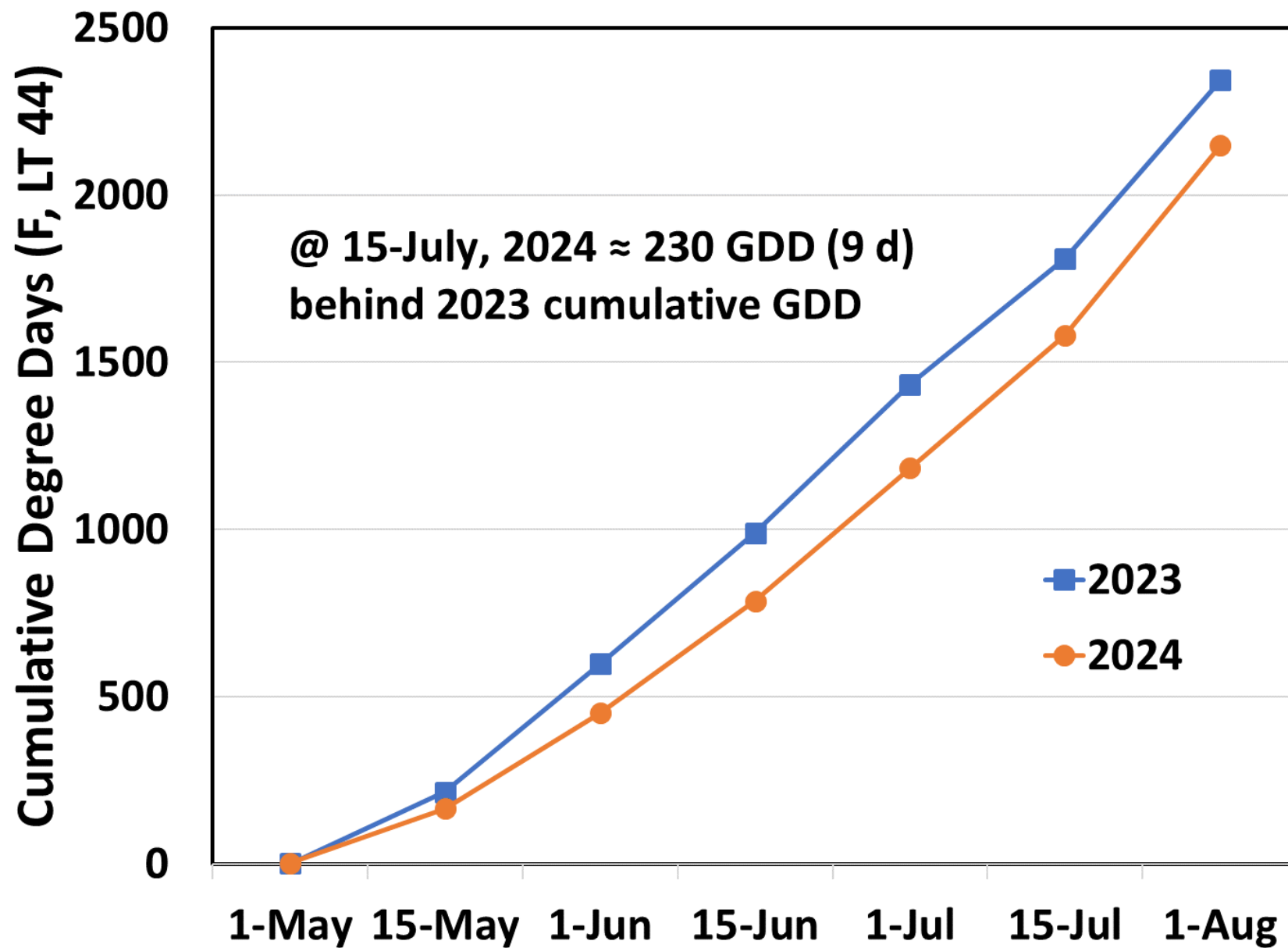
# Pierre, SD (2024) Yields



# Pierre, SD (2024) Emergence Traps



# Pierre, SD (2023–2024) Degree Days





# Summary of SD Trials



- **Sturgis, SD**

- 2023 – early planting = lower weevils**

- 2024 – early hybrid = lower weevils**

- **Pierre, SD**

- 2023 – yield, oil % equal (*greater*) early**

- 2024 – late April date was too early**

- 2024 – mid-May lowered weevils, preserved yields**

- 2024 – weevil emergence late, little effect of planting date**

# What's Coming Up?

- **Pierre-area grower planted May 1  
July 10 (2023) --> August harvest  
No sunflowers in 2024, 2025**
- **Weevil (plant) volatiles ongoing**
- **Natural product testing (NE)**
- **Combine early strategy with sprays (?)**
- **Need action from SD growers, industry to continue**





# Acknowledgements and Questions

- National Sunflower Association
- Adam V., Sam I. (Pierre)
- Pat W. (Sturgis)
- Kristin S. (Carrington)
  
- Pierre-area cooperators  
Mark Small, Rick Weber
  
- Zach Tarble (USDA-ARS)

