

# **Planting Dates and Methods for Spring Canola Establishment, Flowering and Yield in the U.S. Central High Plains**

Rob Aiken, Kansas State University

David Baltensperger, Texas A&M

James Krall, University of Wyoming

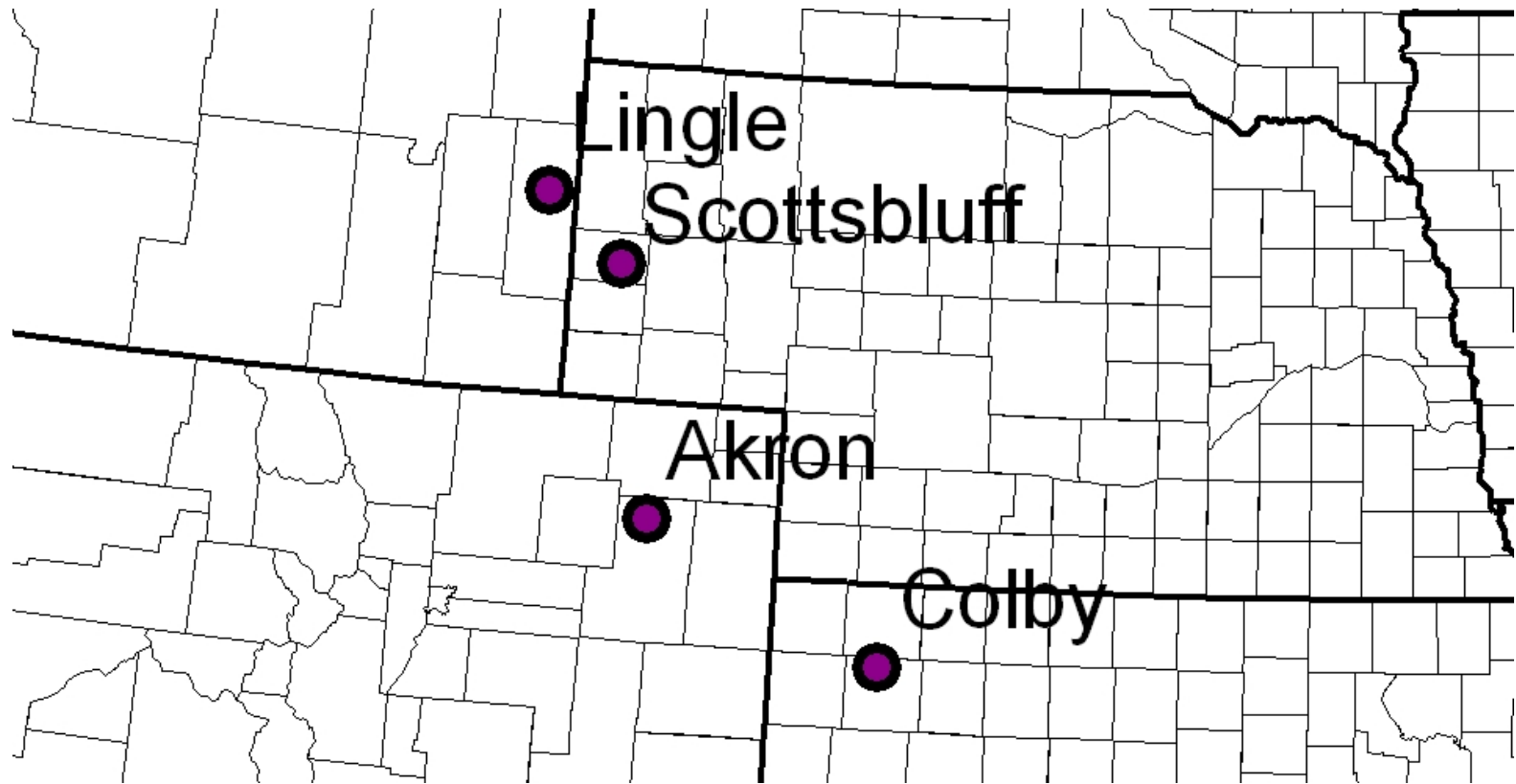
Jerry Johnson, Colorado State University

Alex Pavlista, University of Nebraska

# Spring Oilseed Field Trials

- Responses of stand establishment, floral development and oilseed yield
  - Planting Dates
  - Planting Methods
  - Harvest Methods

# Spring Oilseed Field Sites



# Spring Oilseed Field Studies

Location	Planting Date	Planting Method	Harvest Method
Akron, CO	X	X	
Colby, KS	X	X	X
Sidney, NE		X	
Lingle, WY		X	

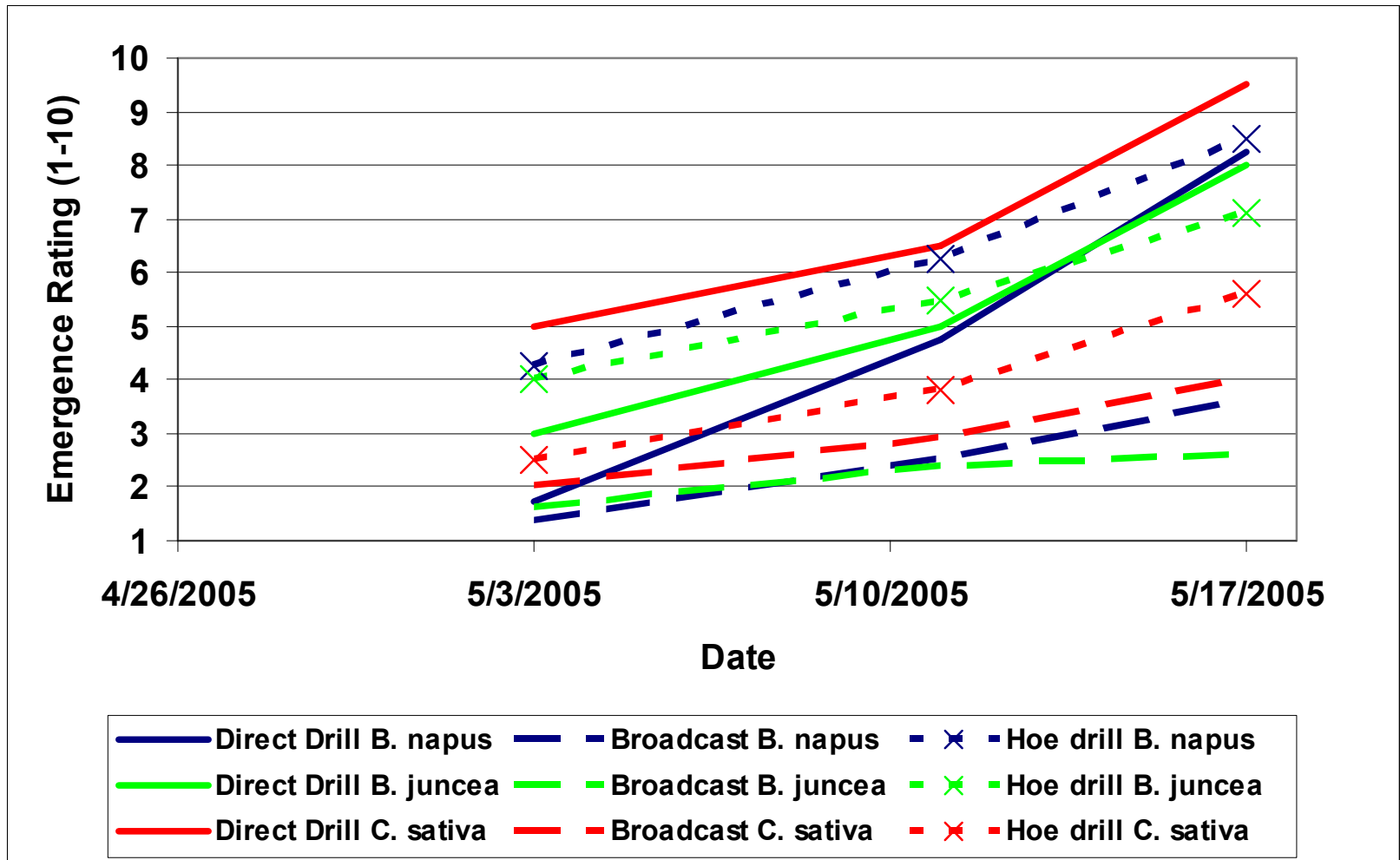
# Spring Oilseed Field Sites

Location	Spring Freeze	Fall Freeze	Cooling DD 20°C	Prec. mm
Akron, CO	May 14	Sept 28	179	416
Colby, KS	May 8	Oct 6	242	503
Scottsbluff, NE	May 7	Sept 24	173	407
Lingle, WY	May 13	Sept 16	126	407

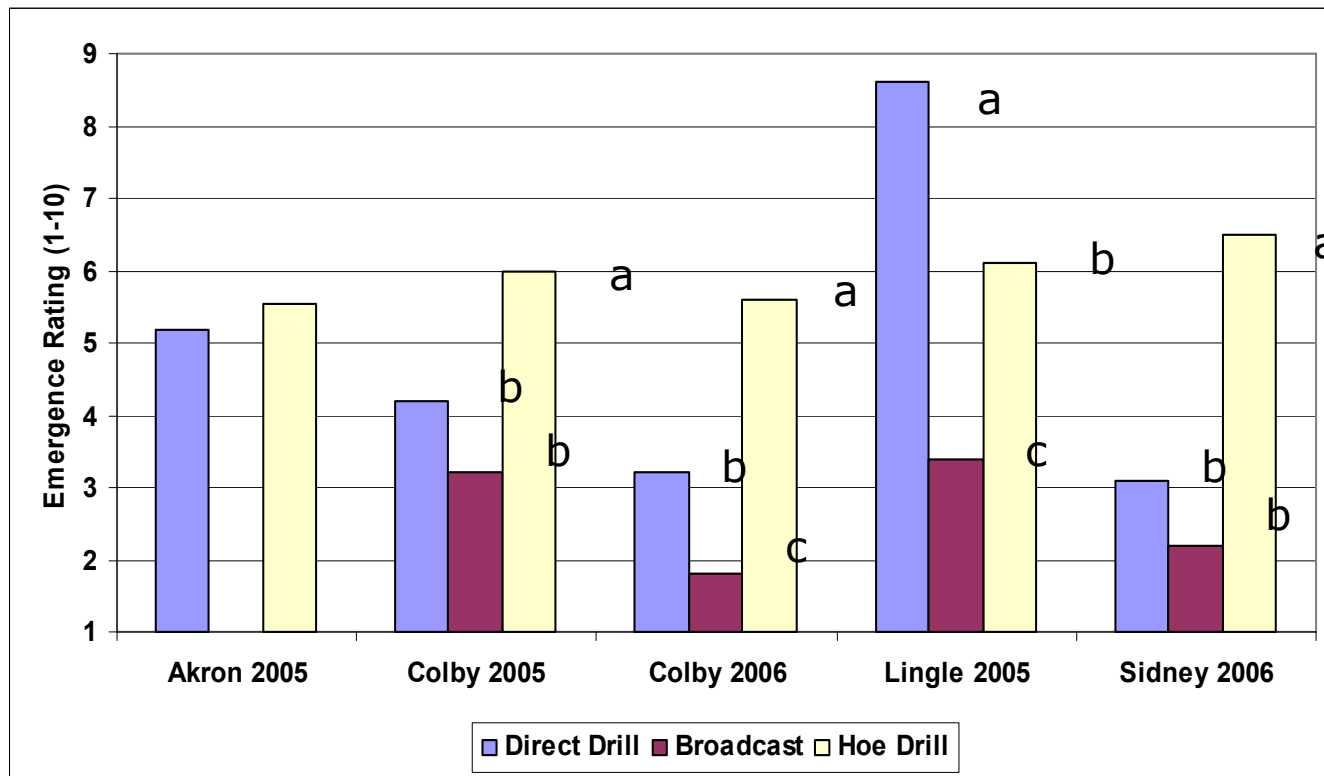
# Spring Oilseed Planting Methods

- Methods
  - No-till drill
  - Broadcast with shallow incorporation
  - Hoe-drill following primary tillage
- Oilseed species
  - Canola (*B. napus*)
  - Indian Brown Mustard (*B. juncea*)
  - Camelina (*C. sativa*)
  - RCBD, Split-Plot, 4 replicates

# Planting Method: Emergence Lingle, WY 2005

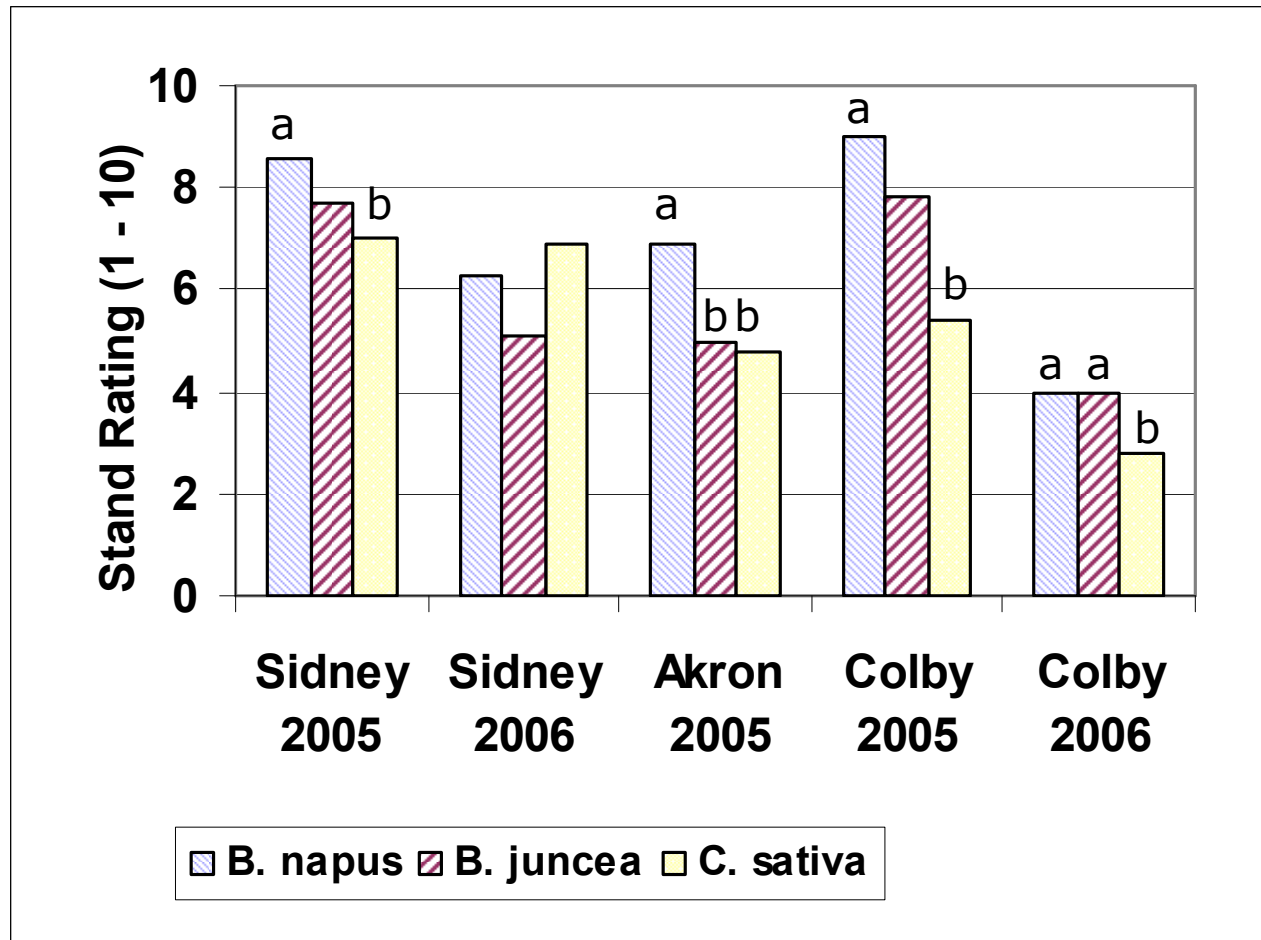


# Planting Method: Regional Emergence Ratings



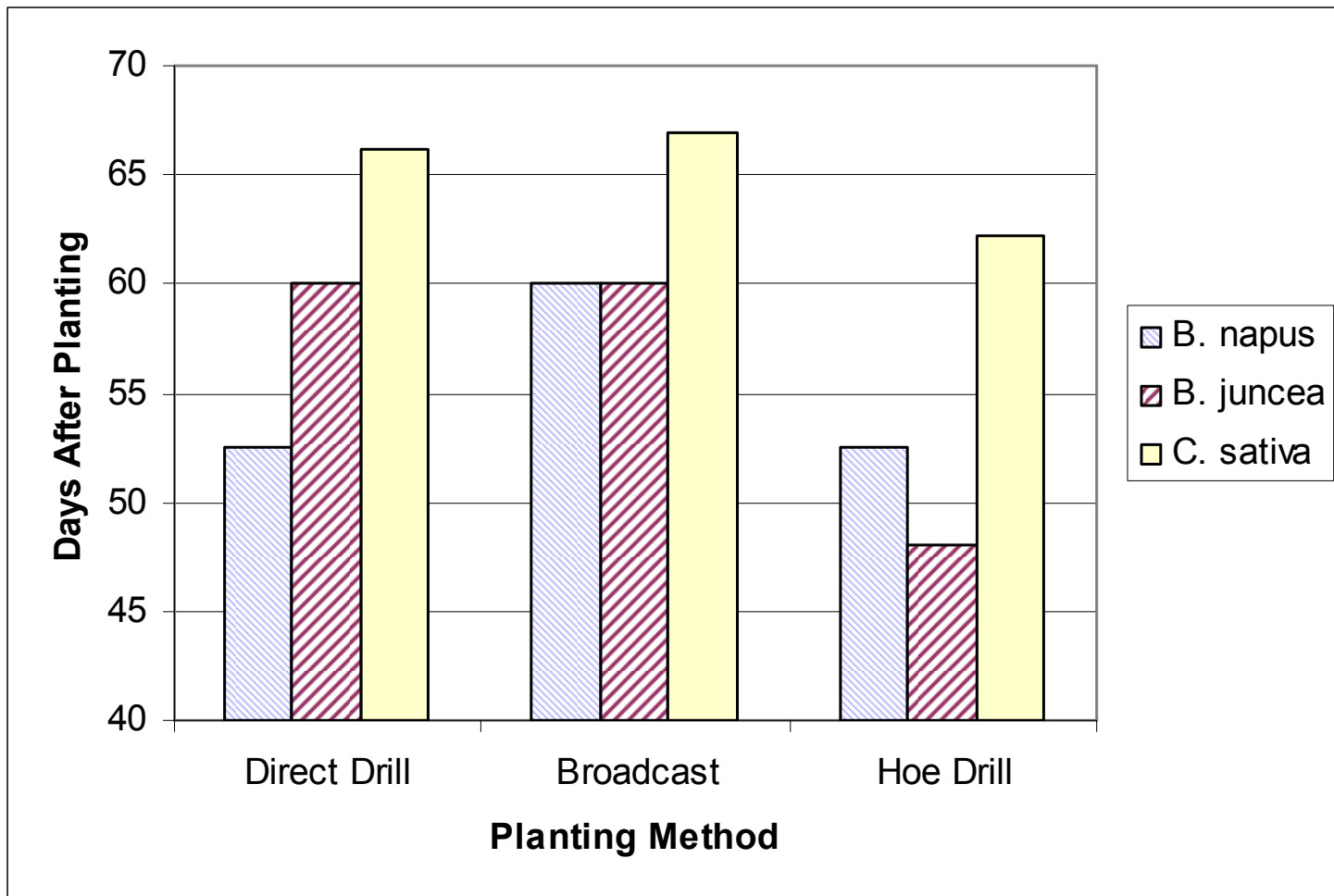


# Planting Method: Regional Stand Ratings

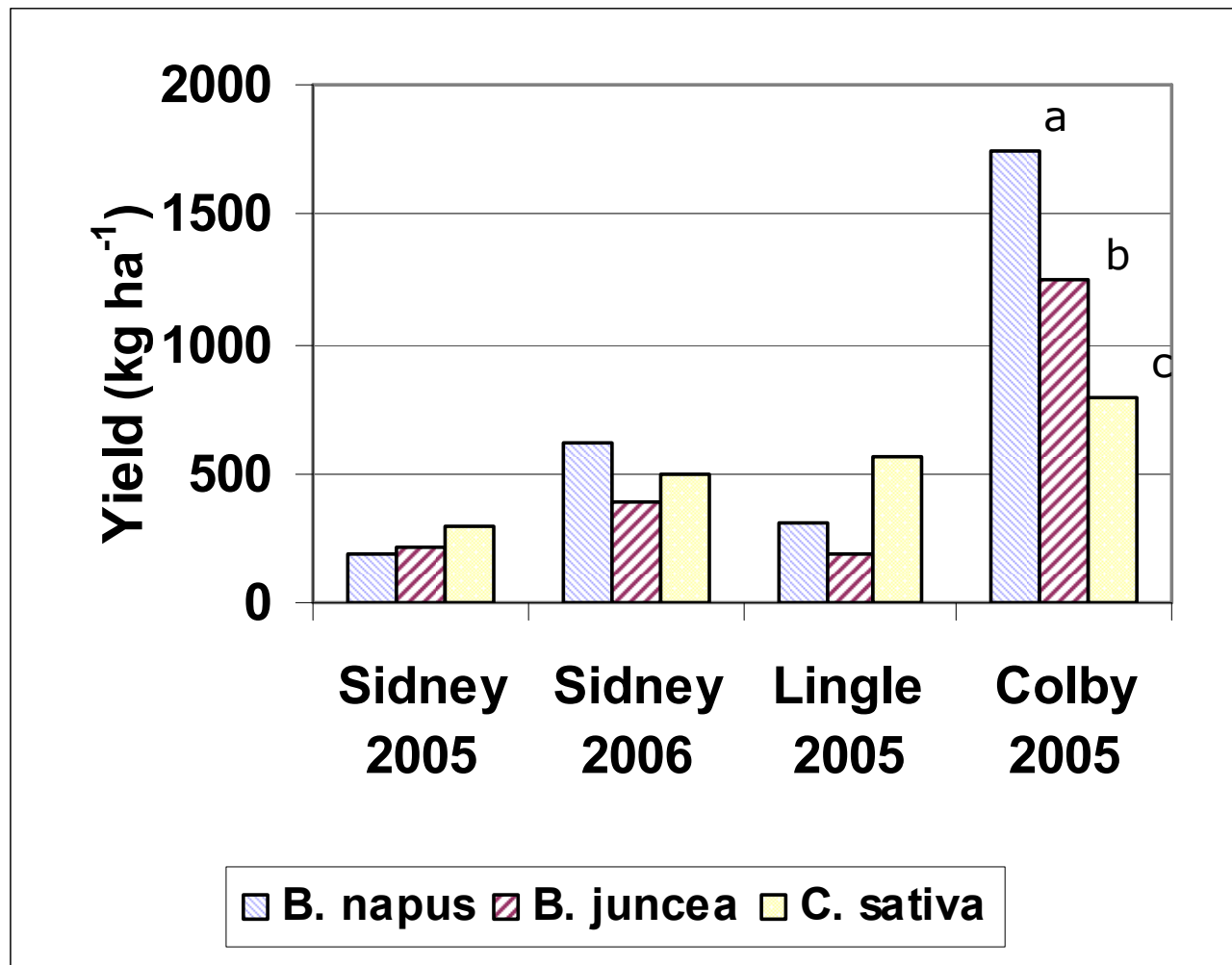


# Planting Method:

## Days to 50% bloom Colby, 2005



# Planting Method: Oilseed Yield



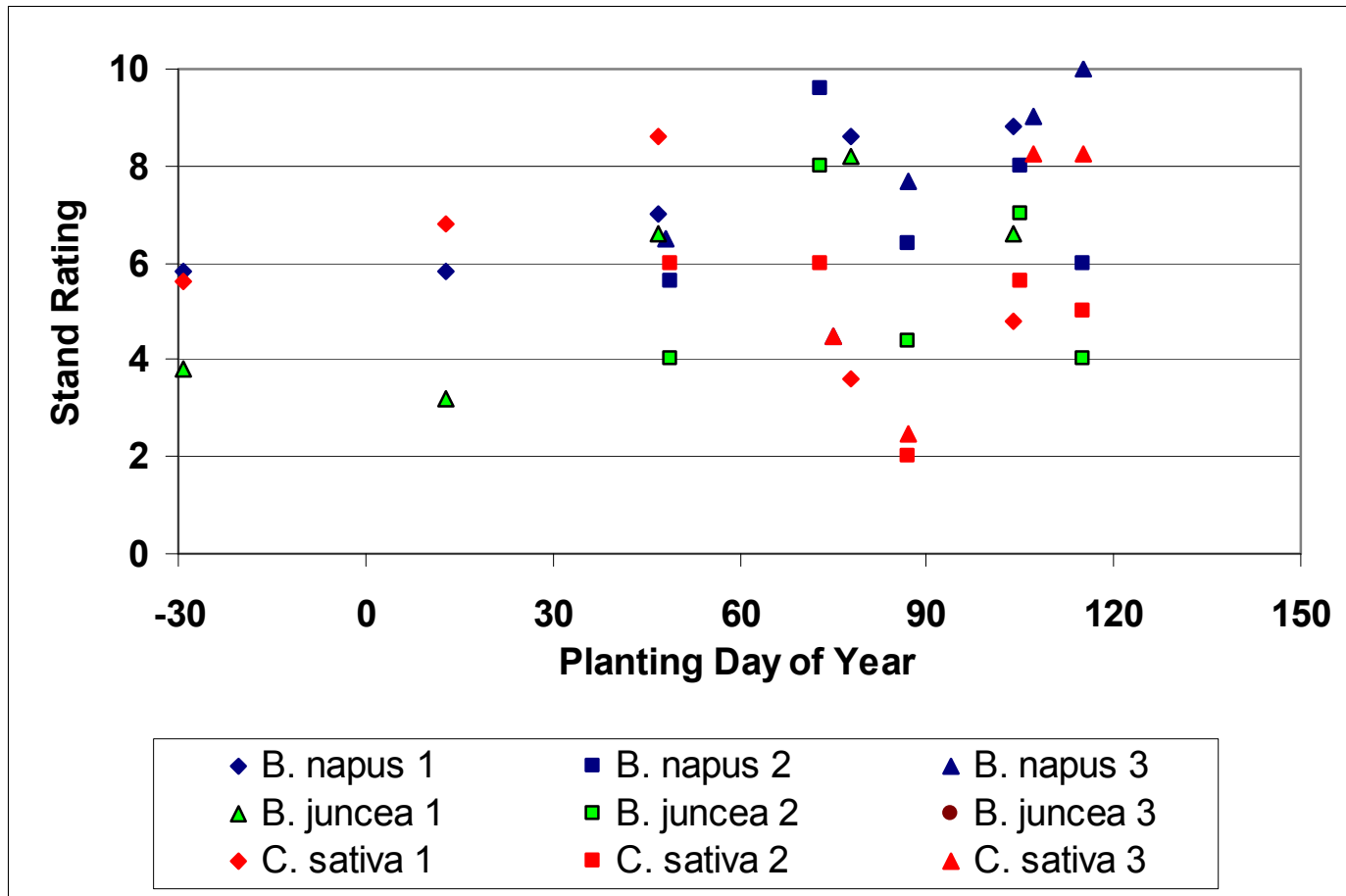
# Planting Method: Summary

- Emergence and stand:
  - Direct drill ~ Hoe-drill > Broadcast
  - *B. napus* ~ *B. juncea* > *C. sativa*
- G x PM affected 50% bloom date
- G x Location
  - exhibited yield variation
  - *B. napus* greater yields in favorable env.
  - *C. sativa* equivalent or greater yield in limiting env.

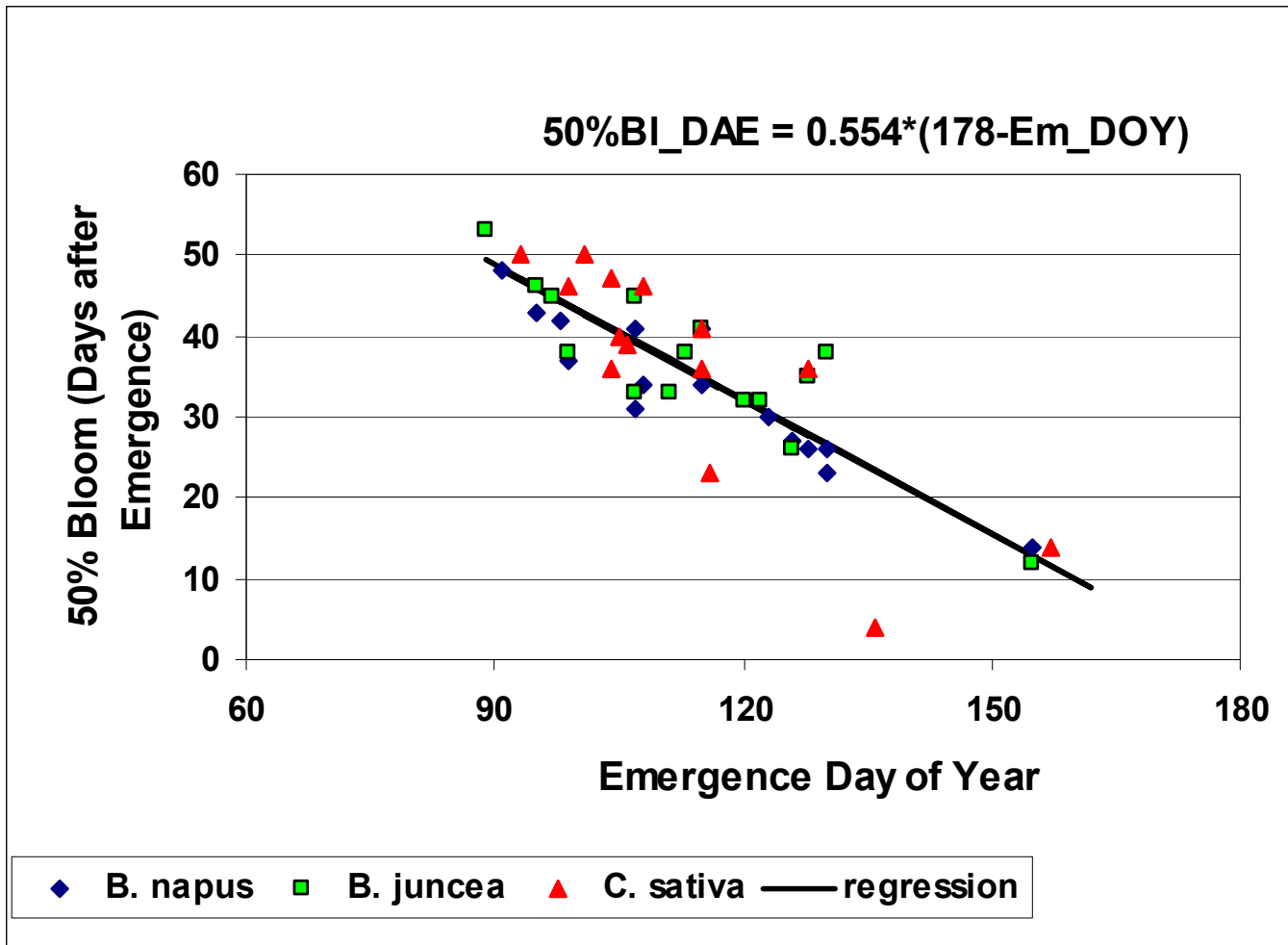
# Spring Oilseed Planting Dates

- Planted prior to last freeze
  - 4, 6, 8, 10, 14 weeks
  - Bracket optimal planting period
- Oilseed species
  - Canola (*B. napus*)
  - Indian Brown Mustard (*B. juncea*)
  - Camelina (*C. sativa*)
- RCBD, Split-Plot, 4 replicates

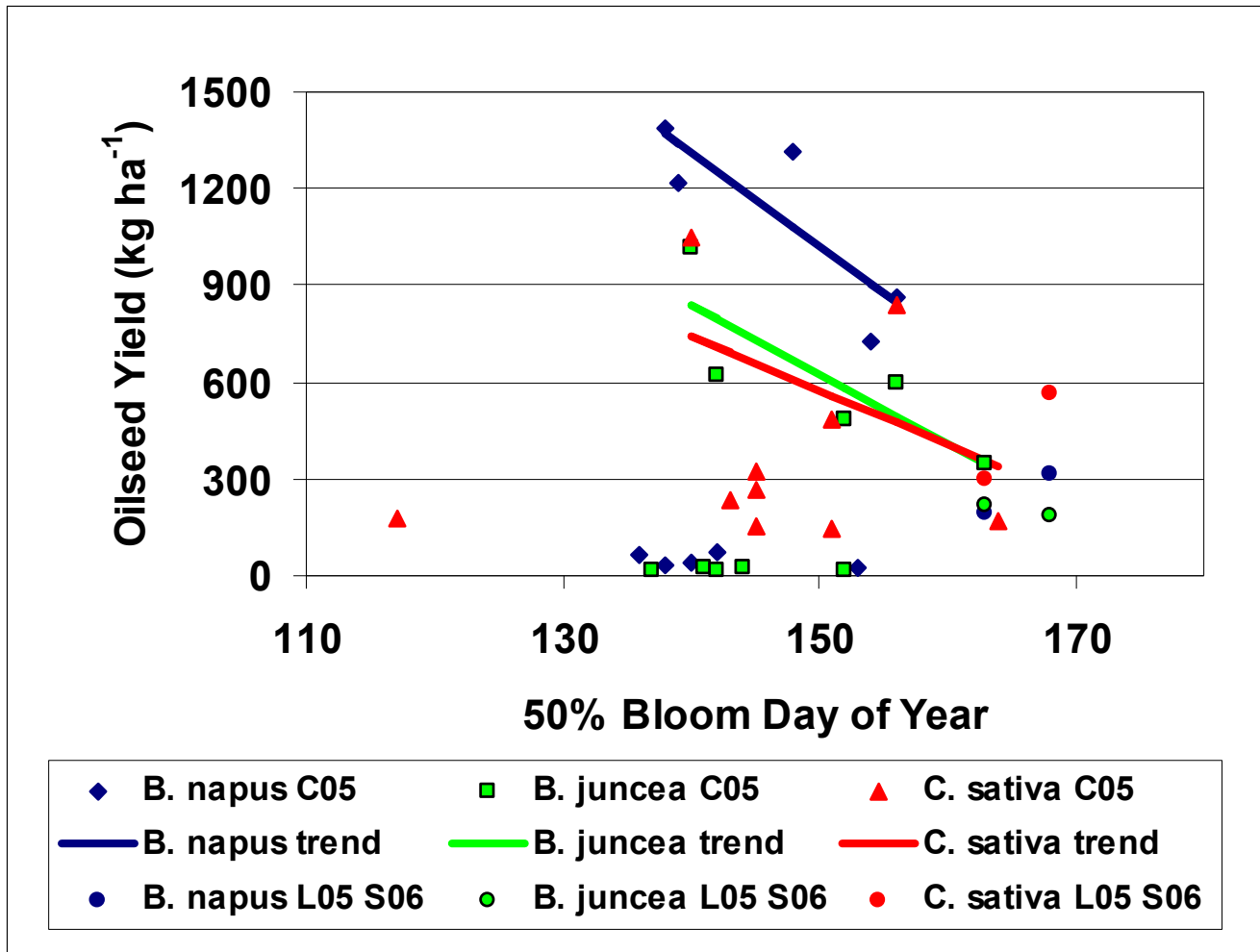
# Planting Date: Stand Establishment



# Planting Date: Floral Development



# Planting Date: Oilseed Yield

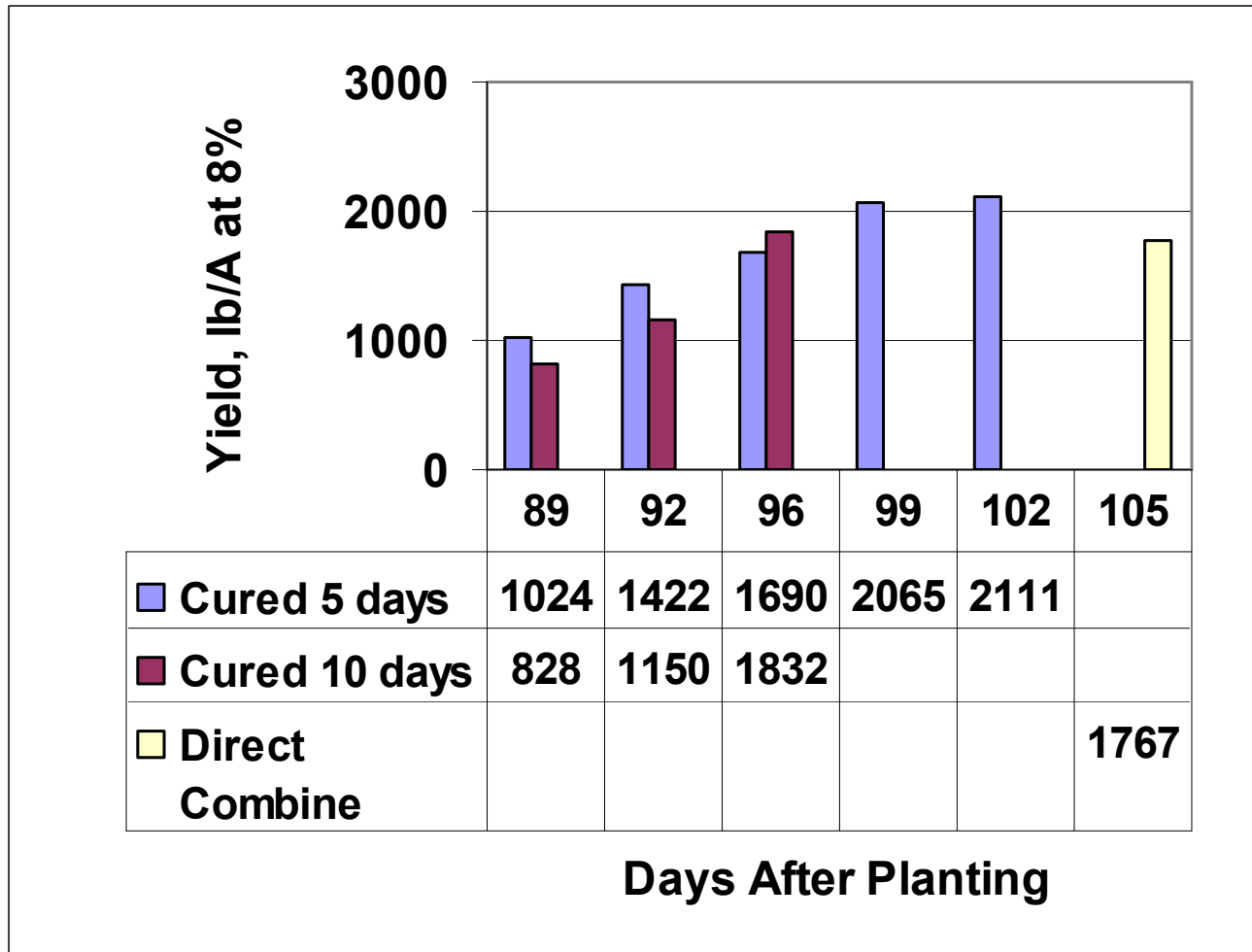




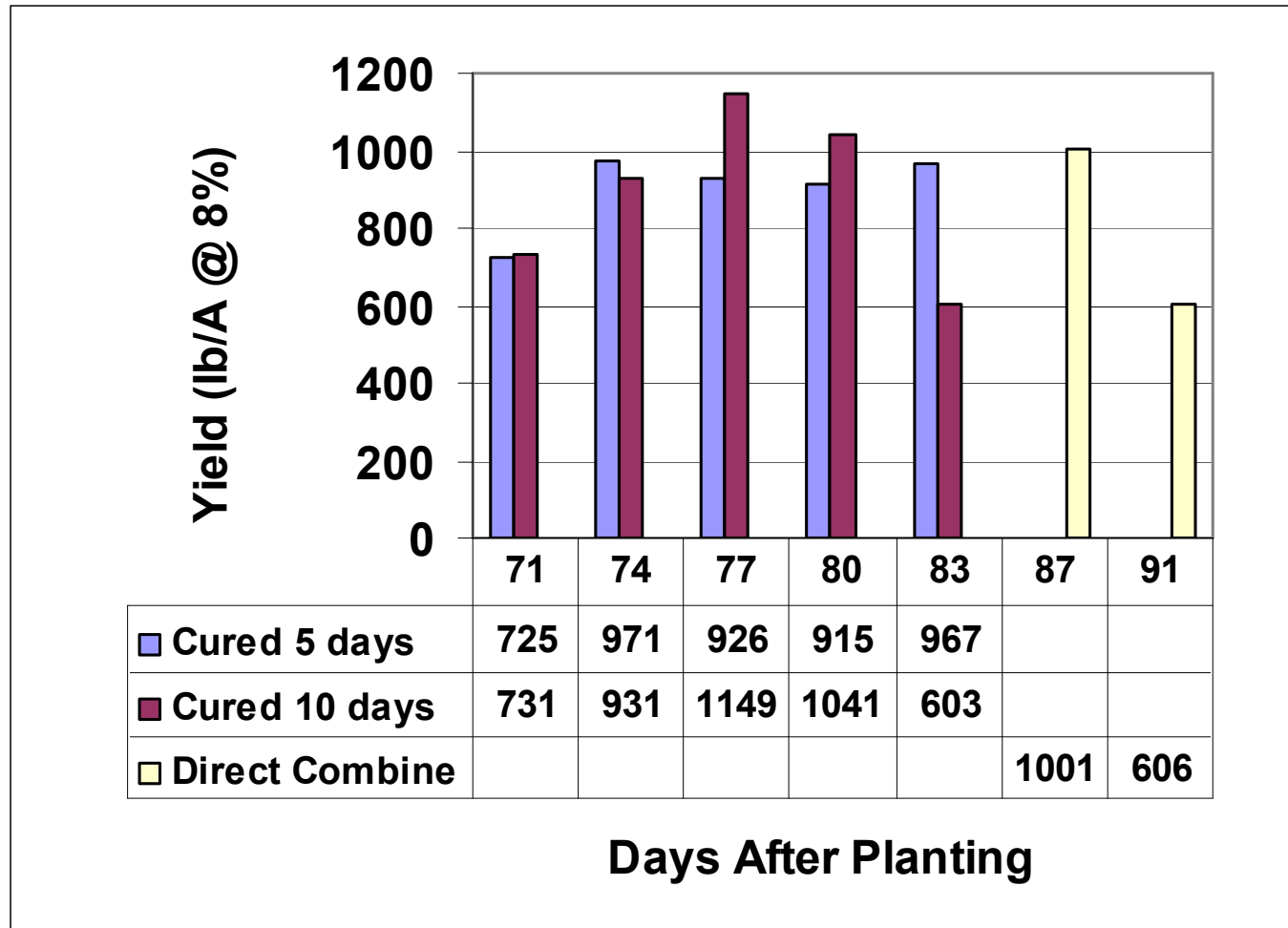
# Planting Date: Summary

- Stand establishment
  - Best with early spring planting
  - Adequate for *B. napus*, *C. sativa* with dormant (winter) planting
- Yields
  - Maximized with earliest bloom
  - Declined 15-30 kg/ha-day after mid-May bloom date

# Harvest Method: Swathing and curing, 2005



# Harvest Method: Swathing and curing, 2007



# Conclusions

- Direct drill (NT) or hoe-drill (CT) acceptable planting methods
- Best stands with spring seeding, acceptable stands (B. napus, C. sativa) with dormant seeding
- Days to floral development declined in linear relation to date of maximum emergence
- Yield potential declined 15 – 30 kg/ha-day with 50% bloom after mid-May
- Swathing 5 – 10 days and curing prior to normal harvest can increase harvested yield 15-19%

# Acknowledgements

- This work was supported by
  - Blue Sun Biodiesel
  - Colorado Agricultural Experiment Station
  - Kansas Agricultural Experiment Station
  - Nebraska Agricultural Experiment Station
  - Wyoming Agricultural Experiment Station