Planting Later than the RMA FPD in South Dakota On-Farm Research Study

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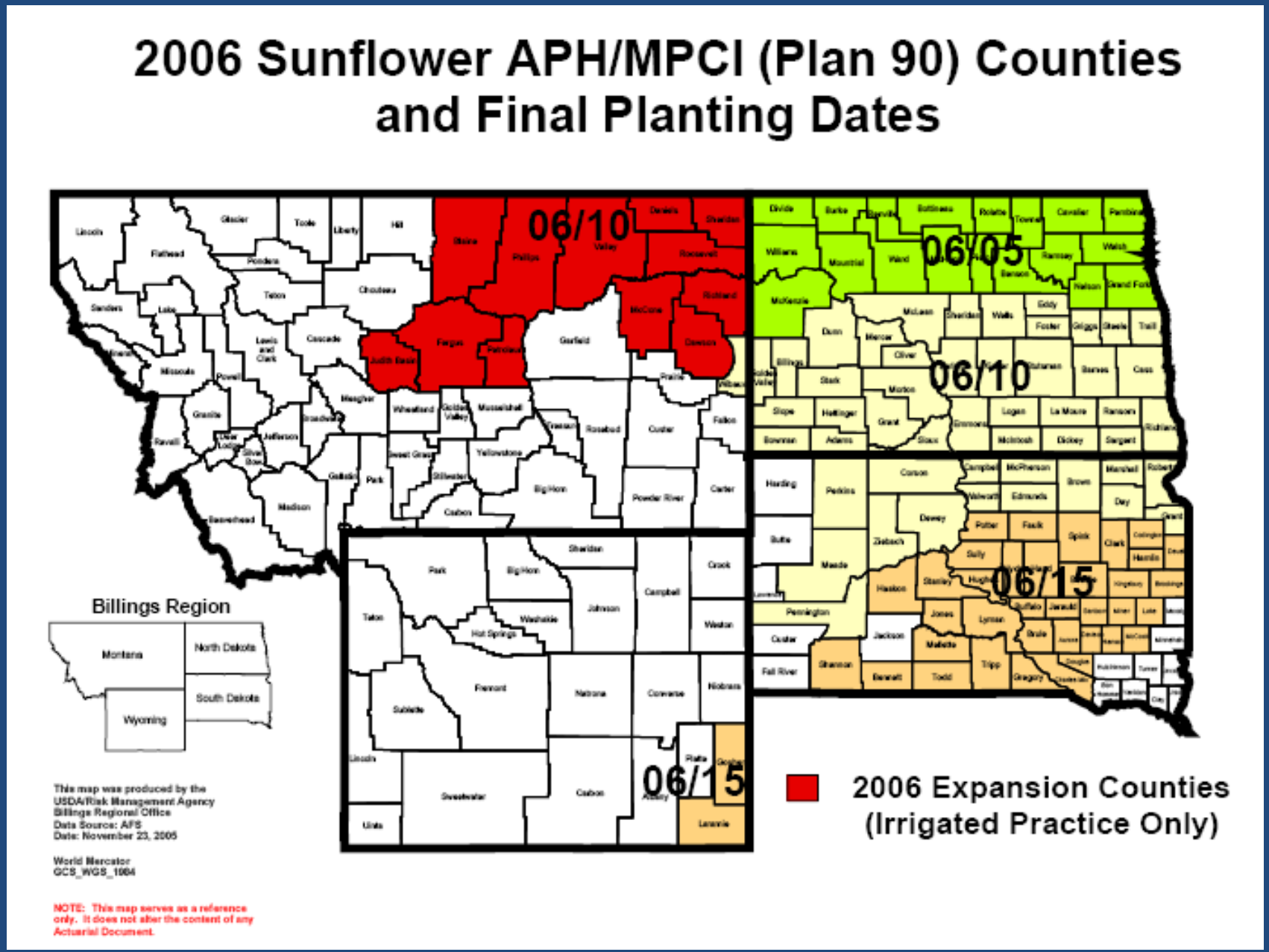
Situation

- Approximately 95% of sunflower grown in SD is covered by some form of federal crop insurance.
- Currently, producers cannot fully insure sunflower planted after June 10th in northern SD or after June 15th in southern SD.
- Many producers believe they can plant later than these dates without suffering major yield or quality losses.
- RMA requires data to consider changing the current FPD's.

Crop Insurance Final Planting Dates for Sunflower



On-Farm Sunflower Planting Date Study

- Conducted 2007-2009.
- Funded by National Sunflower Association and South Dakota Oilseeds Council.
- Objectives
  - Determine if the current FPD's for sunflower in SD should be changed (moved later).
  - Assist growers in making planting date/replant decisions.
- Planted and harvested by farmer-cooperators using their own equipment.
- Plots monitored by local county Extension educators.

Materials and Methods

Planned

- 3 years, 7 locations per year.
- Plot size of at least 0.5 acre.
- Three planting dates per zone.
  - June 10 zone (June 10, 15, 20 target dates)
  - June 15 zone (June 15, 20, 25 target dates)

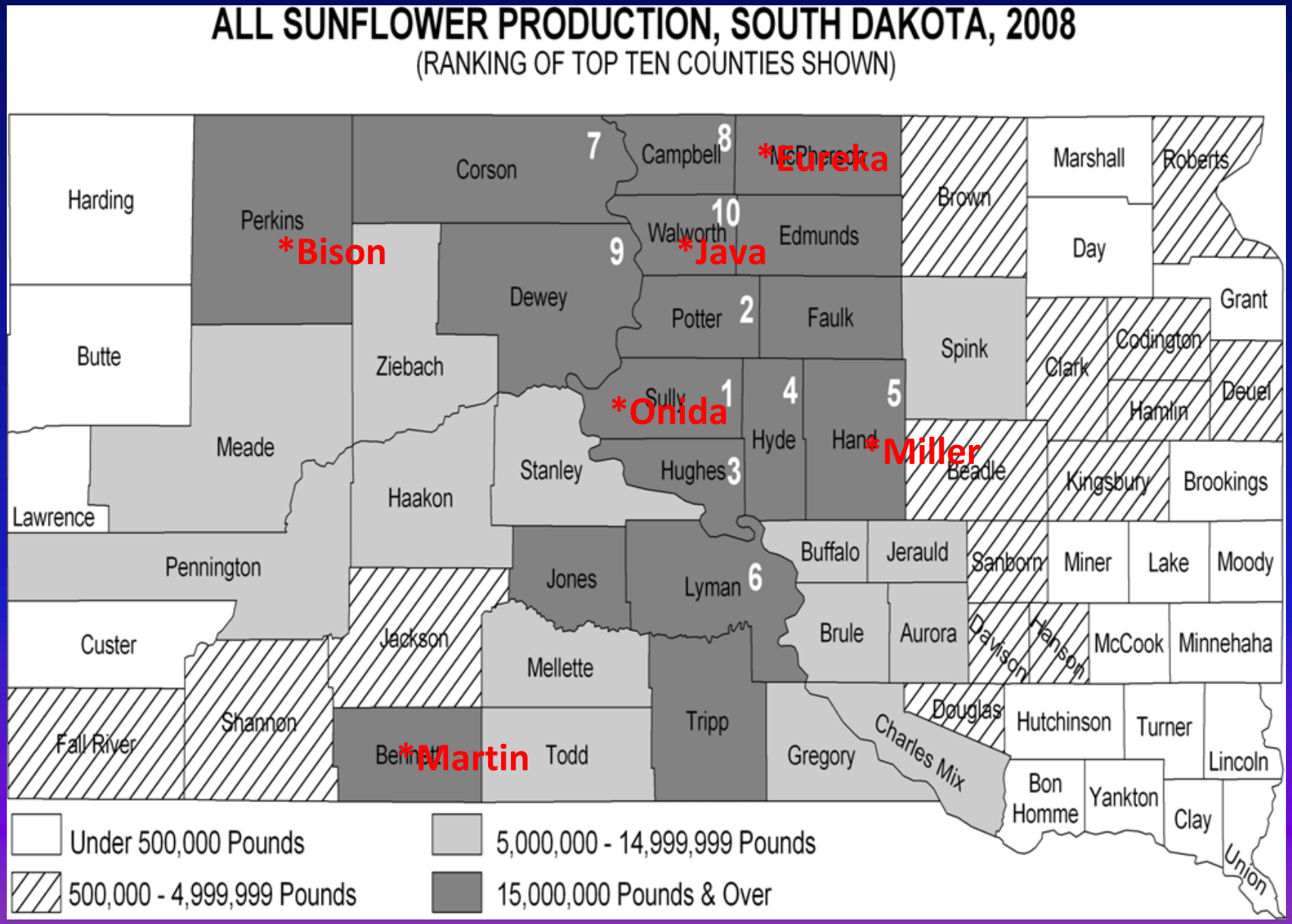
Actual

- 2007—5 locations
  2008—6 locations (4 harv.)
  2009—2 locations
- Plot size ranged from 0.5 to 1.8 acres.
- Four planting dates per zone.
  - June 10 zone (June 10, 15, 20, 25)
  - June 15 zone (June 15, 20, 25, 30)

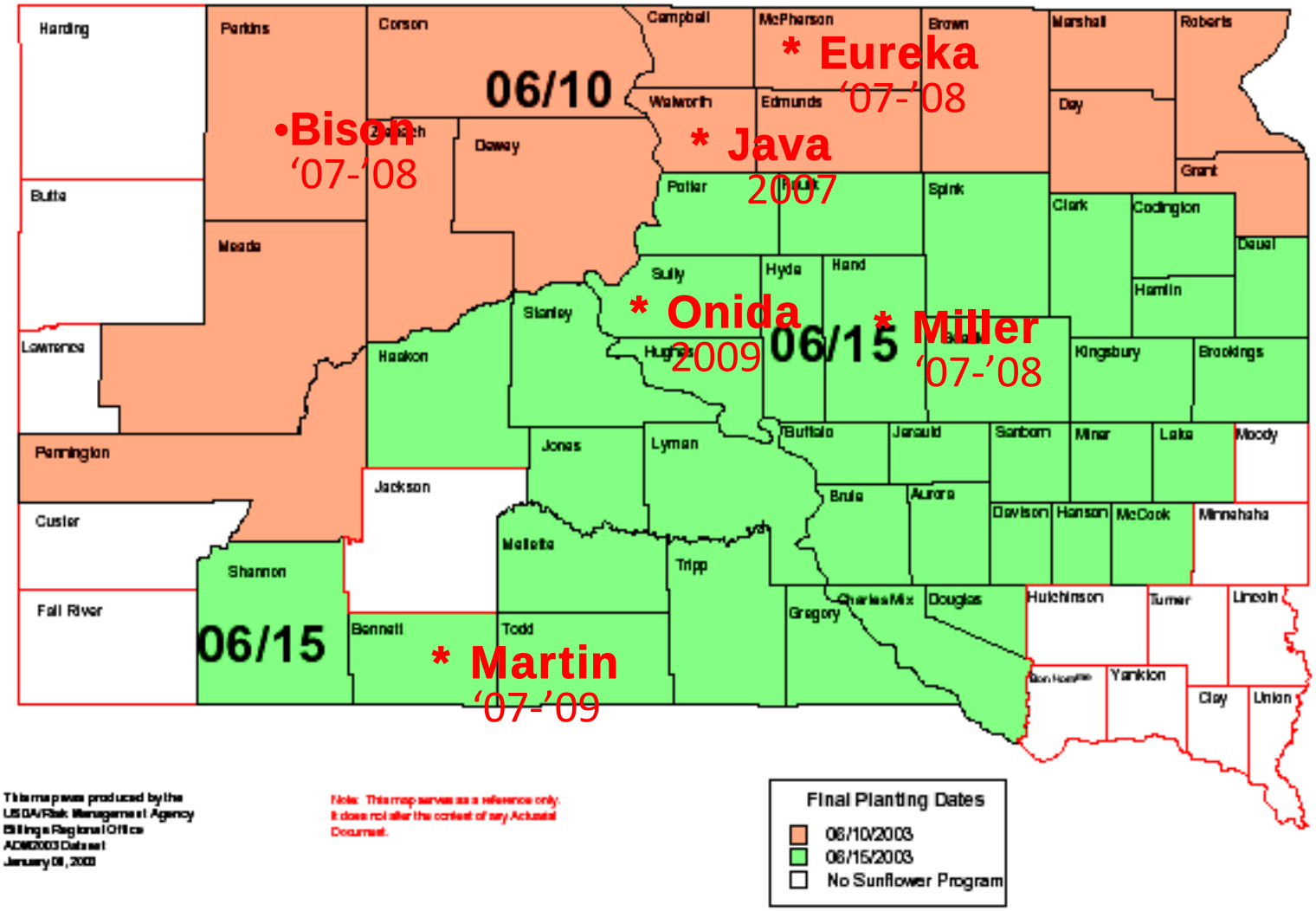
Materials and Methods

- Randomized complete block with 3 reps.
- All plots at a location were treated similarly regarding hybrid, fertility, planting rate, and pest control.
- Each plot harvested separately and plot weight measured by weigh wagon.
- Moisture and test weight also measured and seed sample sent to SDSU for oil analysis.

South Dakota Sunflower Production



Test Sites for 2007-2009 Sunflower Planting Date Study



Climate Summary

Year	Temperature	Precipitation (Jun-Sept)	Killing Frost (≤24°F)
2007	Warmer than normal[1].	Bison, Martin—drier than normal[2]. Eureka, Java, Miller—wetter than normal.	8-18 days later than normal.
2008	Near normal.	Martin—drier than normal. Bison, Eureka, Miller—wetter than normal.	8-18 days later than normal.
2009	Cooler than normal.	Onida—near normal. Martin—wetter than normal.	5-10 days earlier than normal.

[1]Normal = 30-year average at each site.
[2]Normal precipitation, Jun-Sept:
Bison-7.8”, Martin-8.9”, Eureka-9.7”, Java-9.0”, Onida-9.5”, Miller-9.3”

Production Practices

Year-Location	Current FPD	Plot size	Row Spacing	Hybrid	APH or County T-Yield
2007 Bison	10-Jun	1.73 acre	12"	Pioneer 64H41	850-900
2008 Bison	10-Jun	1.35 acre	12"	Mycogen 8N358	850-900
2007 Java	10-Jun	0.5 acre	30"	Pioneer 64H41	1,600
2007 Eureka	10-Jun	0.5 acre	30"	Pioneer 64H41	1,800
2008 Eureka	10-Jun	0.5 acre	30"	Pioneer 64H41	1,381
2007 Miller	15-Jun	0.9 acre	38"	Mycogen 8N272	1,532
2008 Miller	15-Jun	1.7 acre	30"	Mycogen 8N358	1,532
2007 Martin	15-Jun	1.1 acre	30"	Mycogen 8N272	1,097
2008 Martin	15-Jun	0.5 acre	30"	Seeds 2000 Defender Plus	1,097
2009 Martin	15-Jun	0.5 acre	30"	Mycogen 8N358	1,097
2009 Onida	15-Jun	1.8 acre	30"	Syngenta DKF 38-75 NS	1,507

Actual Planting Dates

June 10 Zone

Target Date	Bison '07	Bison '08	Java '07	Eureka '07	Eureka '08
Jun 10	Jun 10	--	Jun 10	Jun 10	Jun 10
Jun 15	Jun 15	Jun 14	Jun 16	Jun 15	Jun 14
Jun 20	Jun 20	Jun 19	--	Jun 19	Jun 19
(Jun 25)	--	Jun 24	Jun 24	--	--

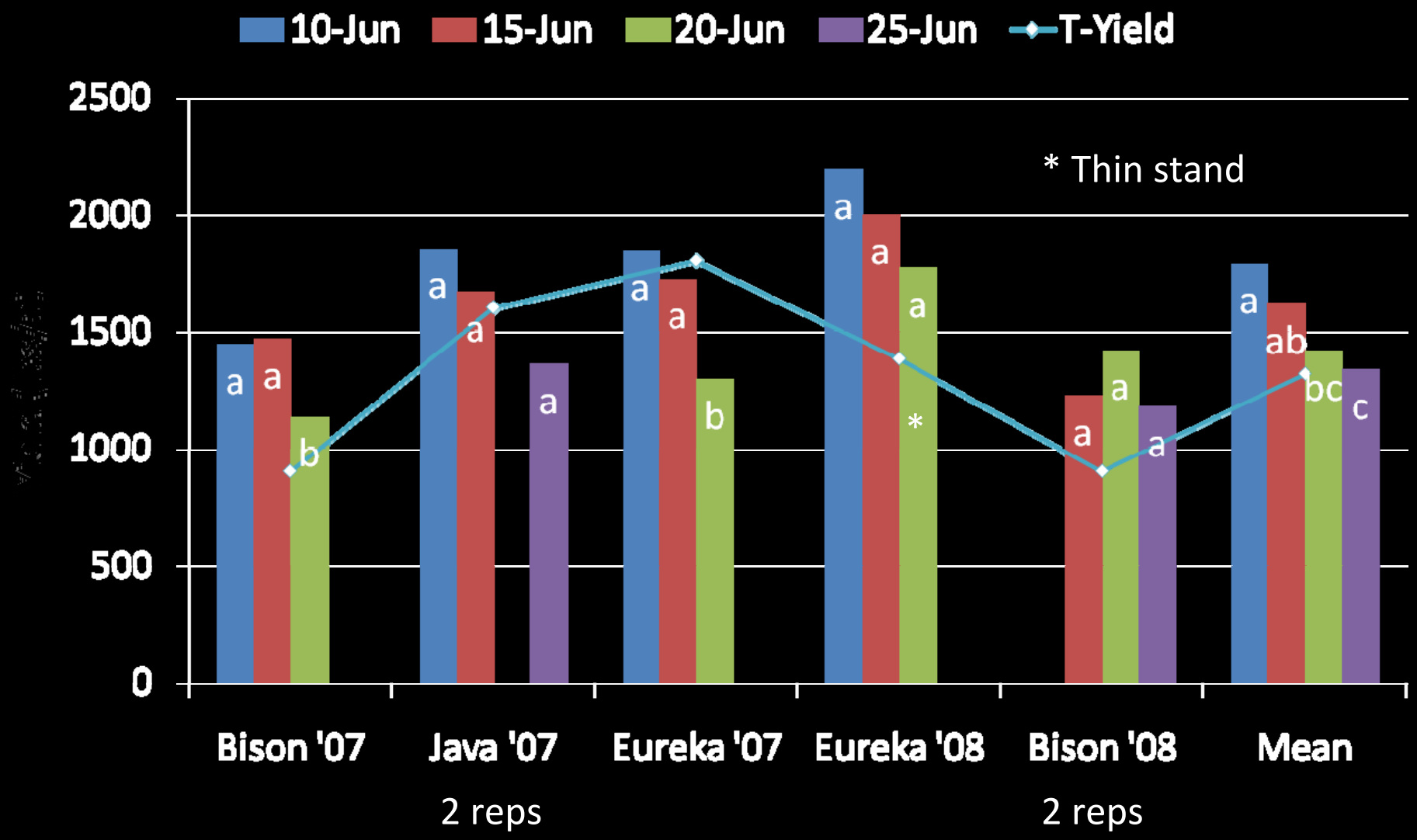
June 15 Zone

Target Date	Miller '07	Miller '08	Martin '07	Martin '08	Martin '09	Onida '09
Jun 15	--	Jun 15	Jun 17	Jun 14	Jun 17	Jun 15
Jun 20	Jun 20	Jun 20	Jun 22	Jun 21	Jun 22	Jun 20
Jun 25	Jun 24	Jun 25	--	--	--	Jun 25
(Jun 30)	Jun 28	--	Jun 28	Jun 28	Jun 29	--

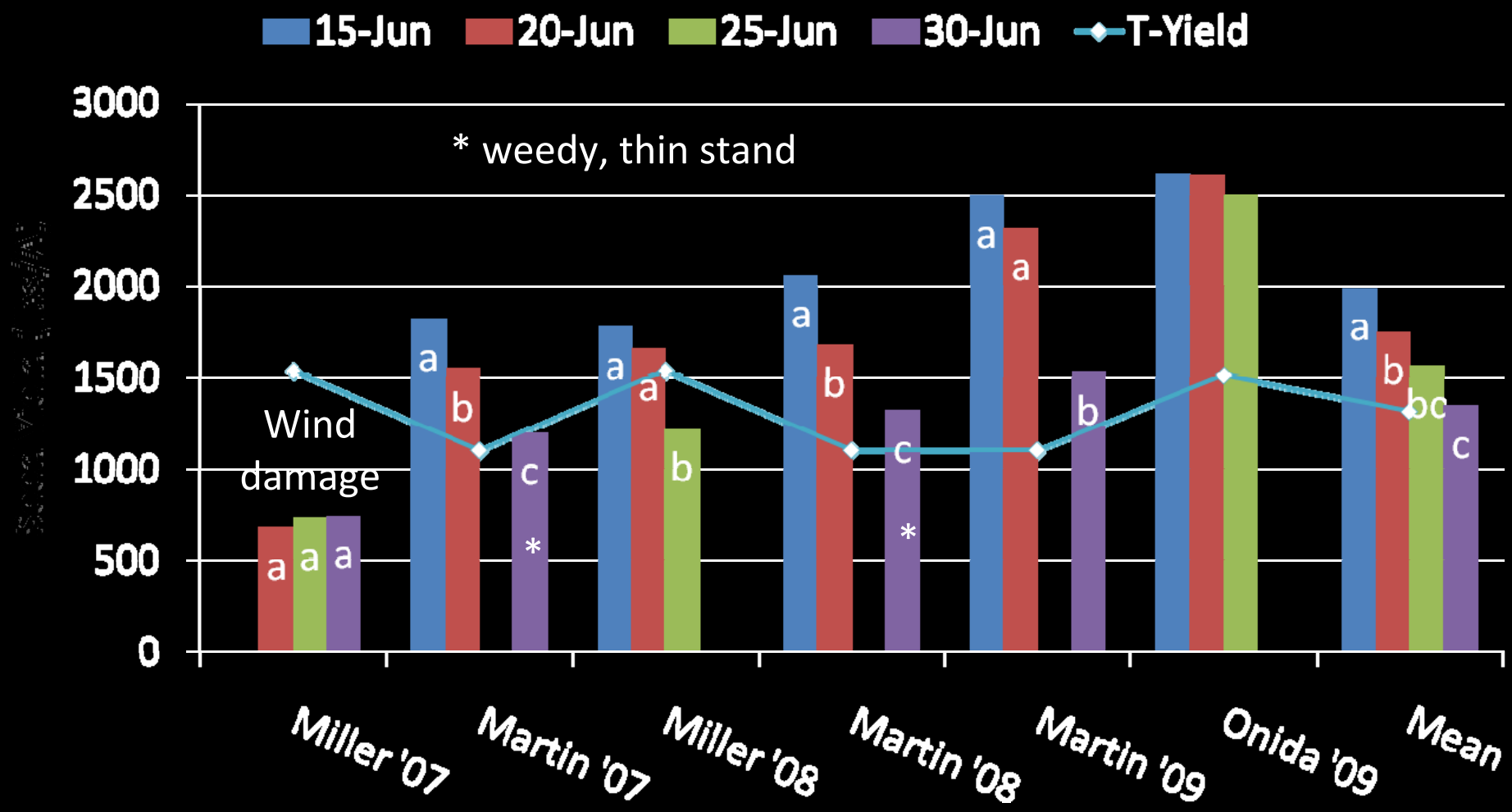
2007 Java at Flowering

2007 Java Near Maturity

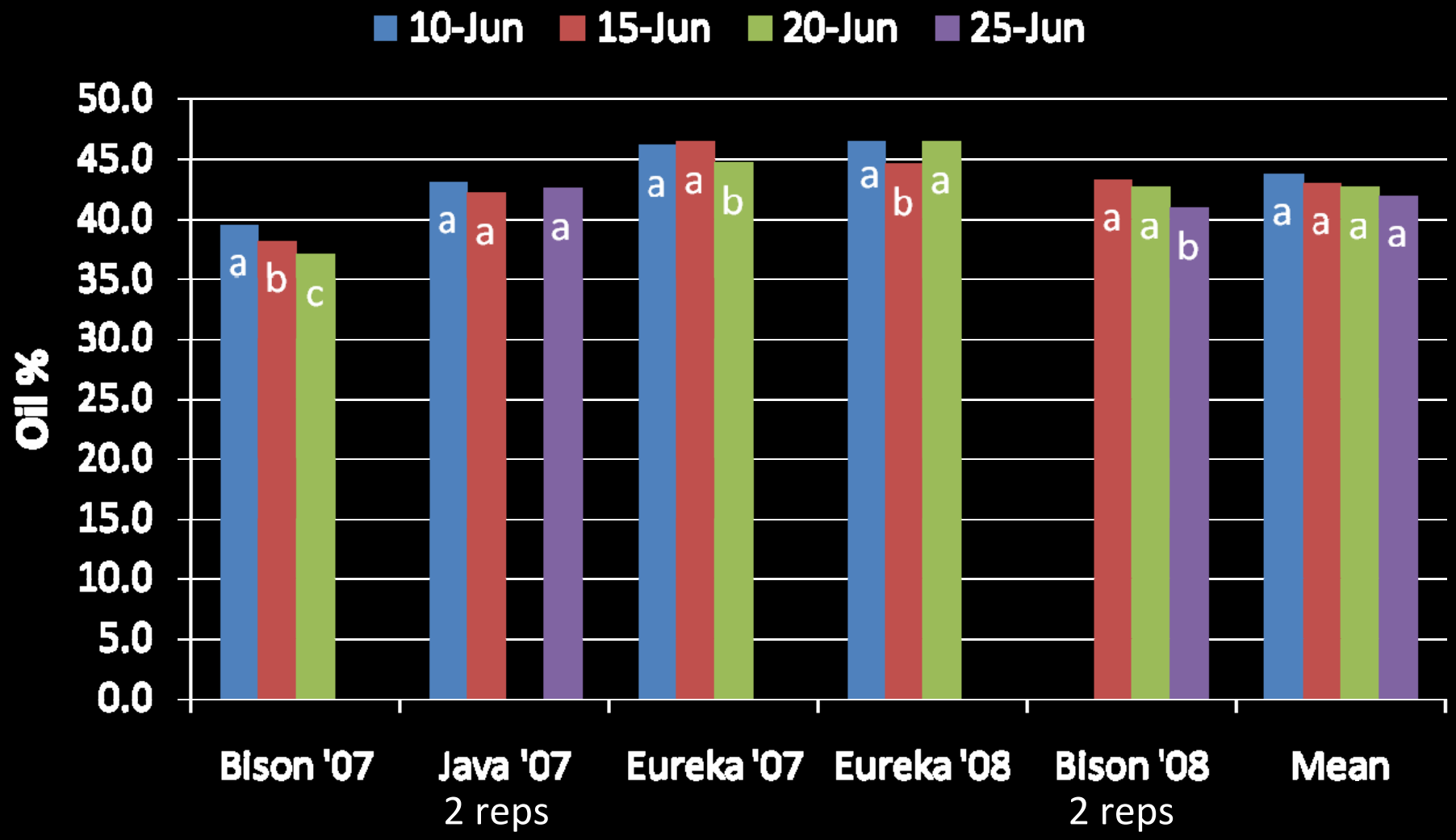
Seed Yield—June 10 Zone



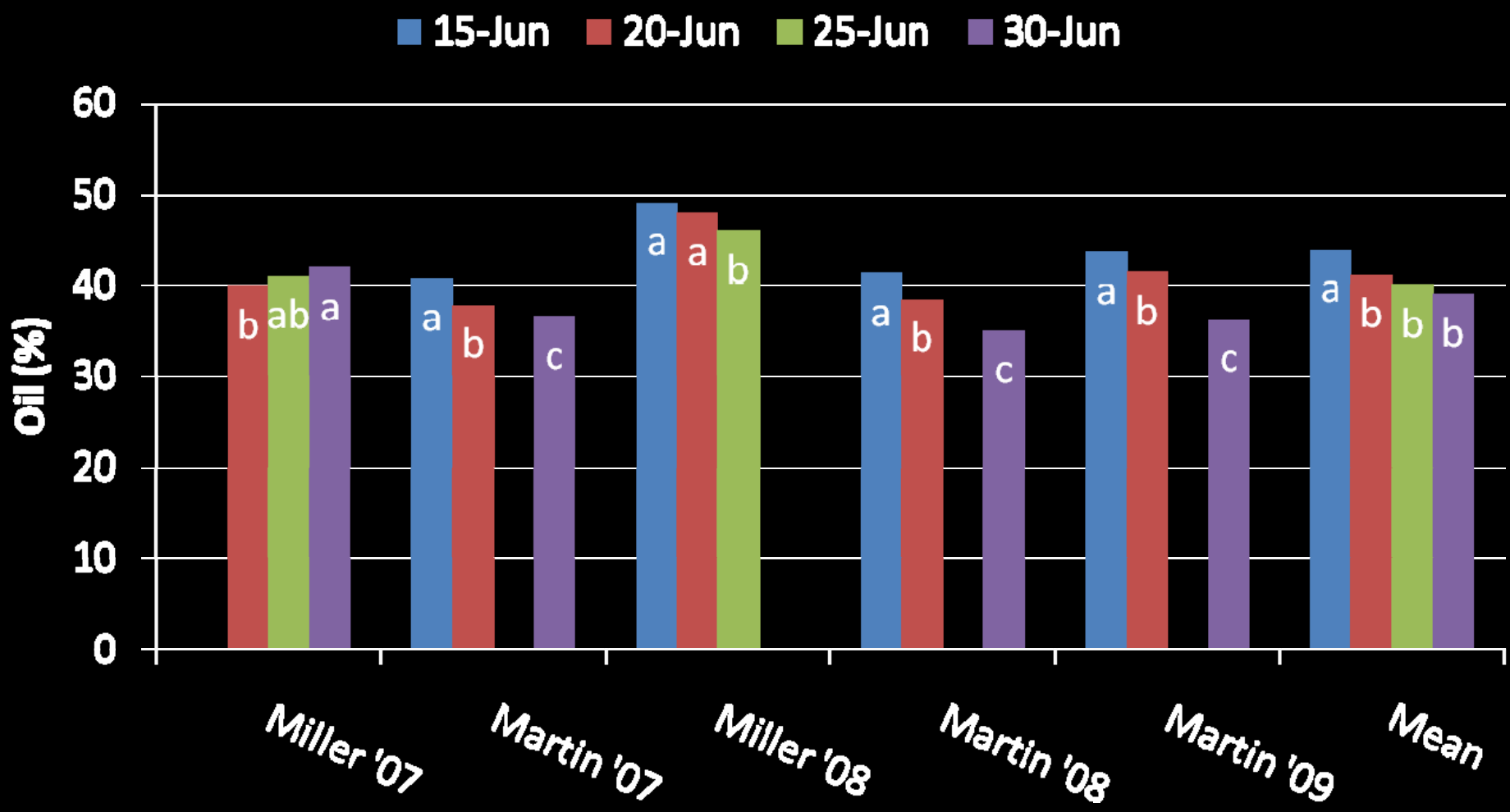
Seed Yield (lbs/A) – June 15 Zone



Oil %--June 10 Zone

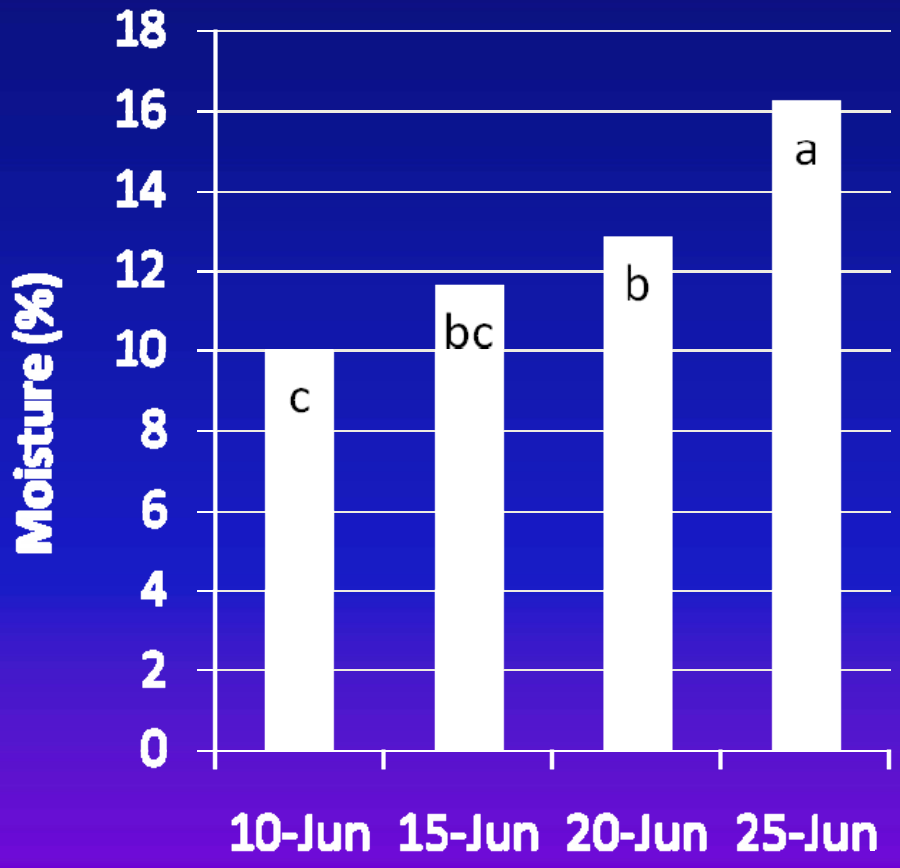


Oil % -- June 15 Zone

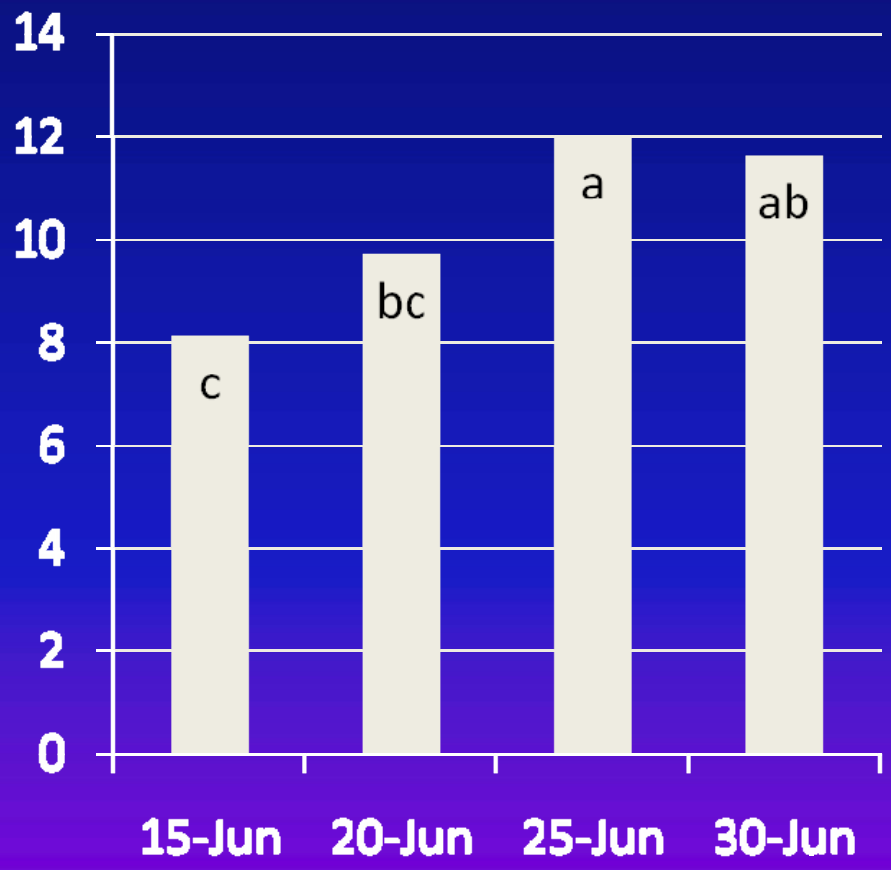


Moisture at Harvest

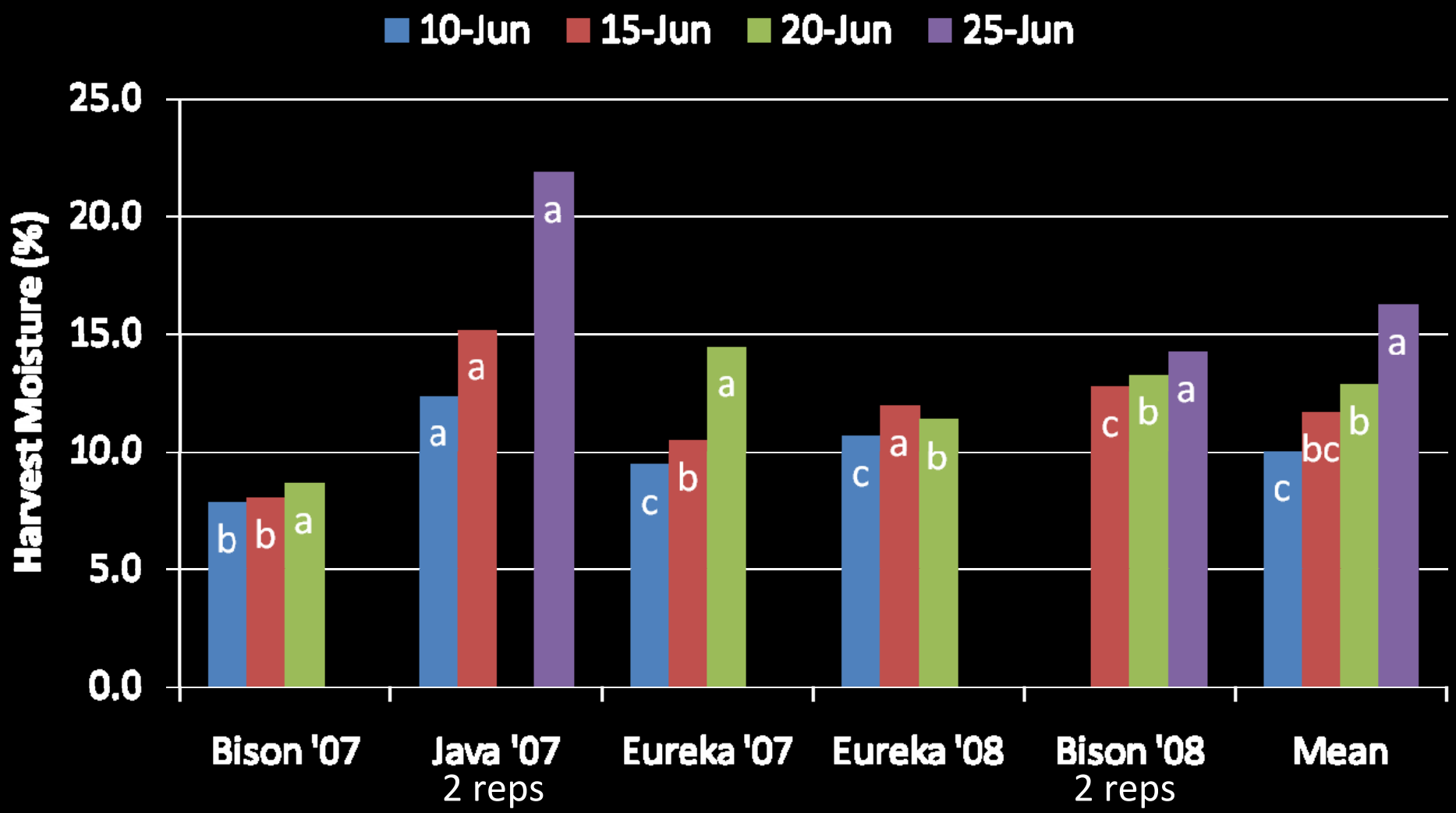
June 10 Zone



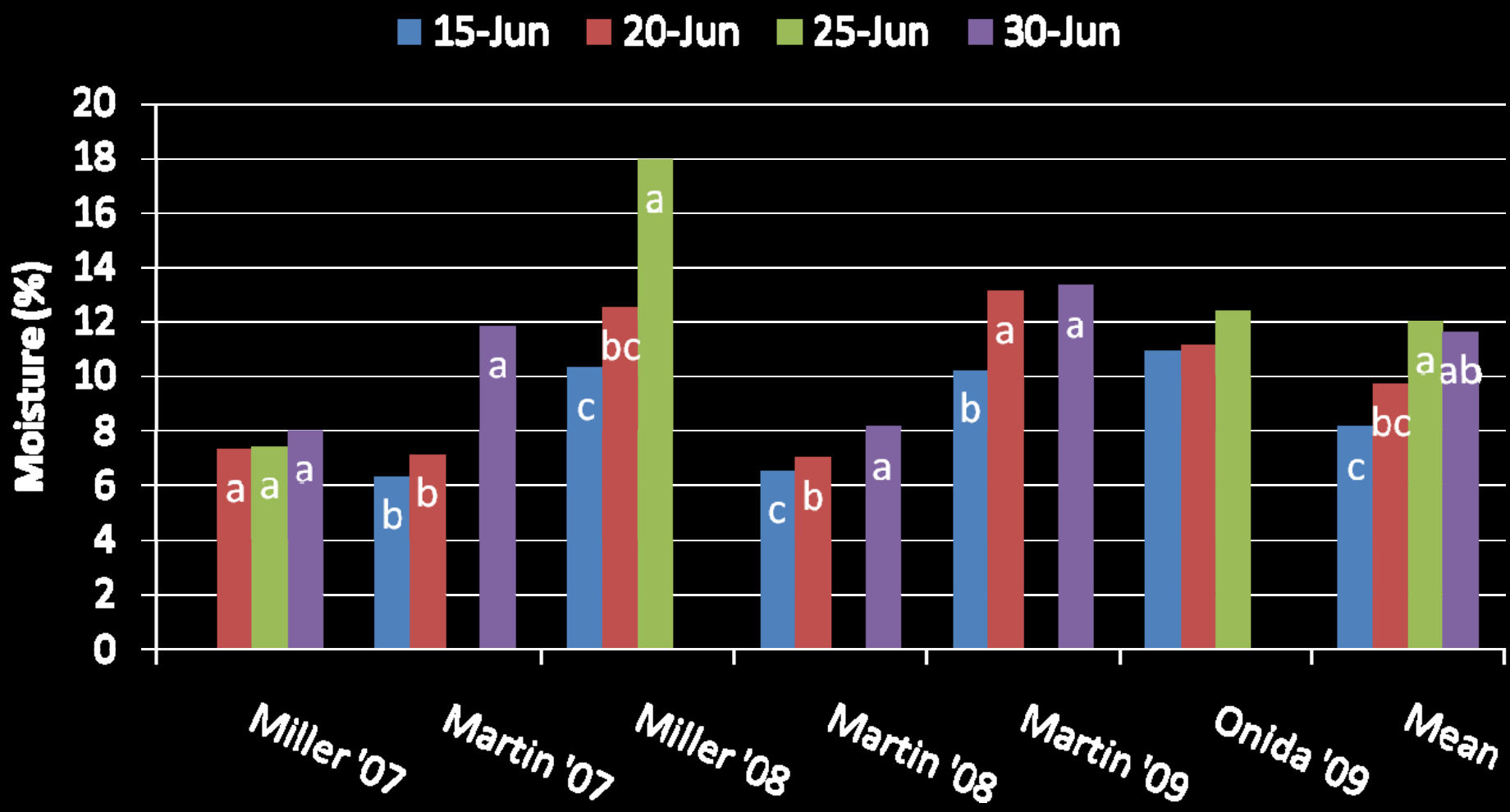
June 15 zone



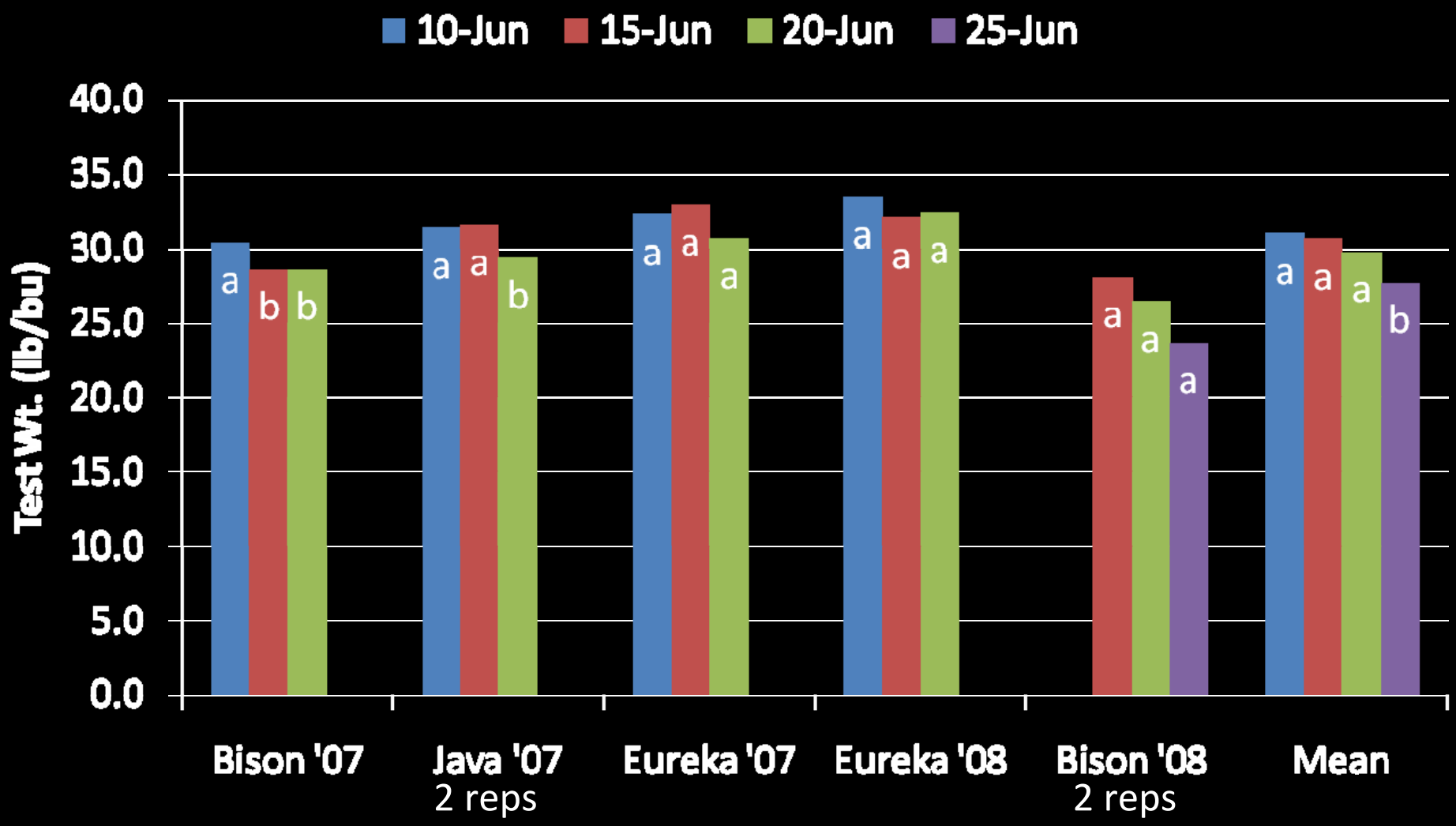
Moisture (%)—June 10 Zone



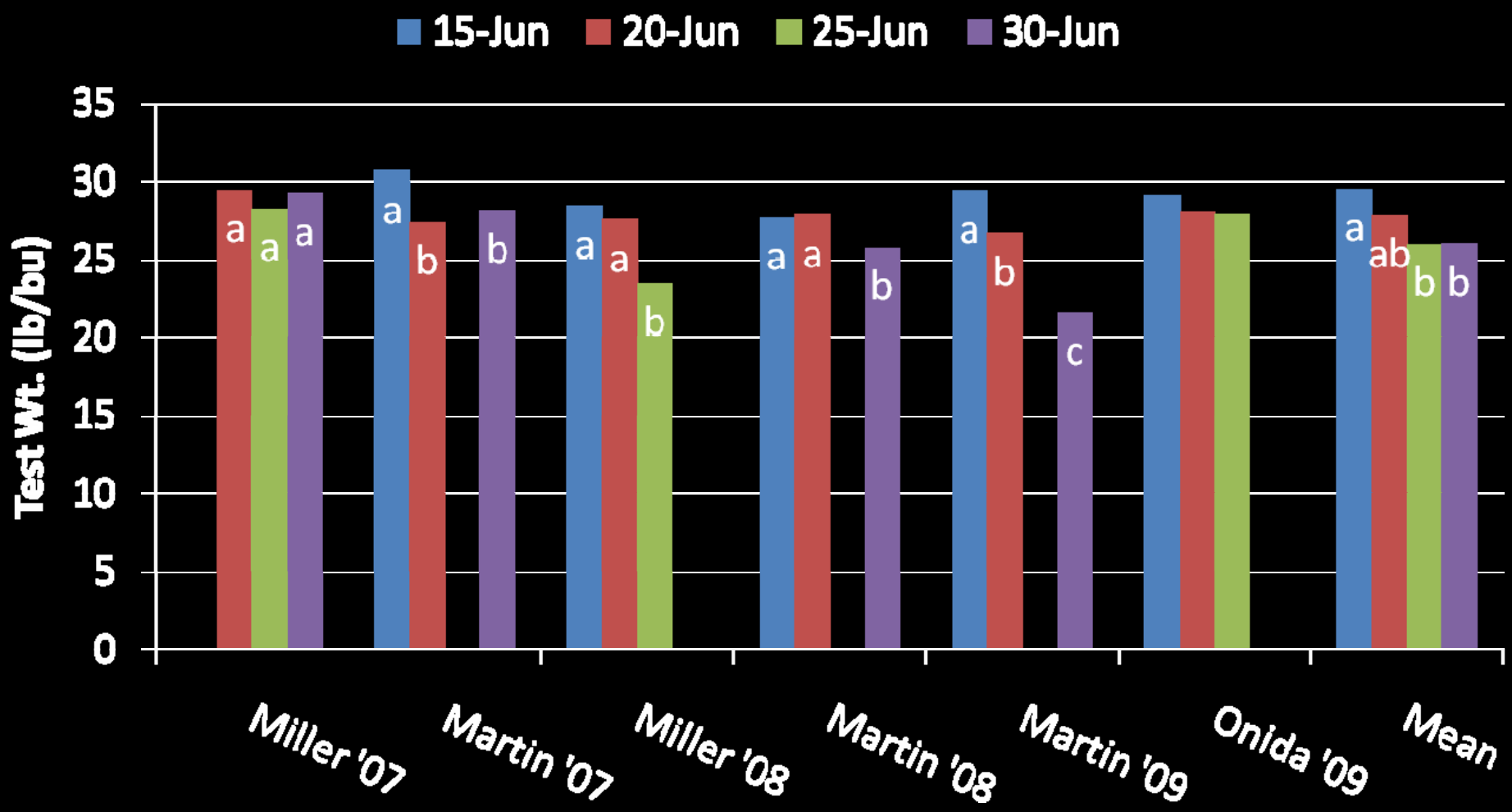
Moisture (%)—June 15 Zone



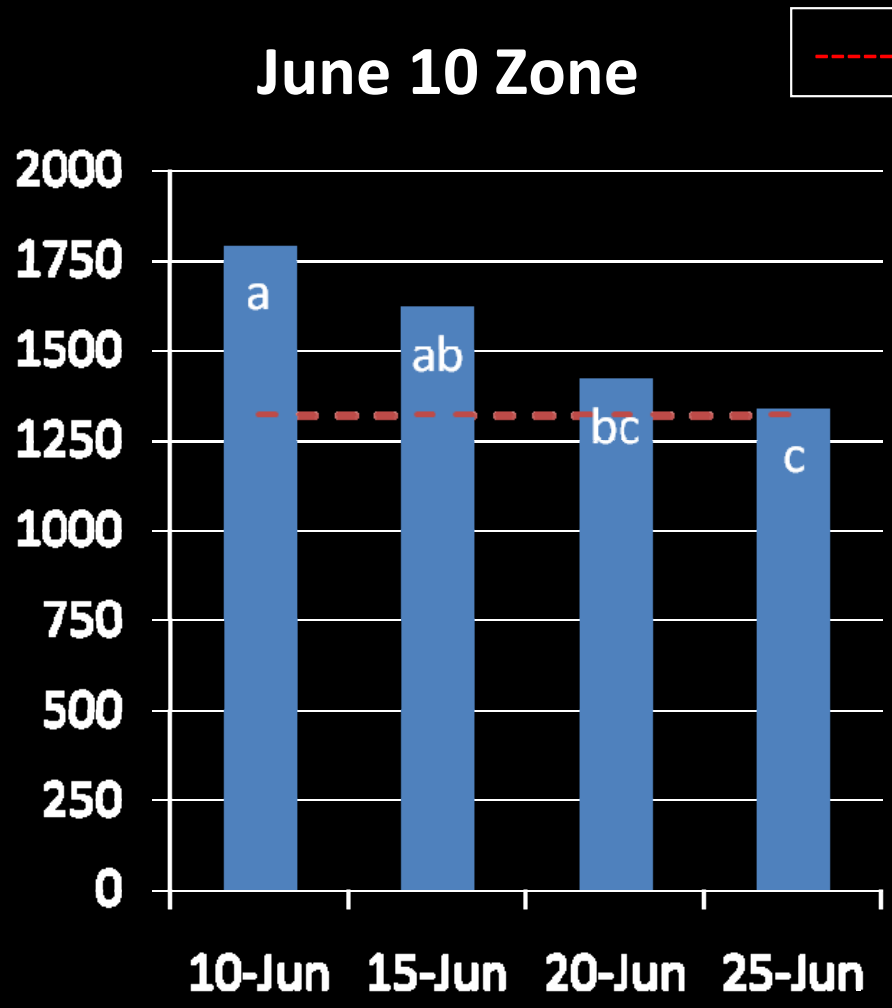
Test Wt. (lb/bu)—June 10 Zone

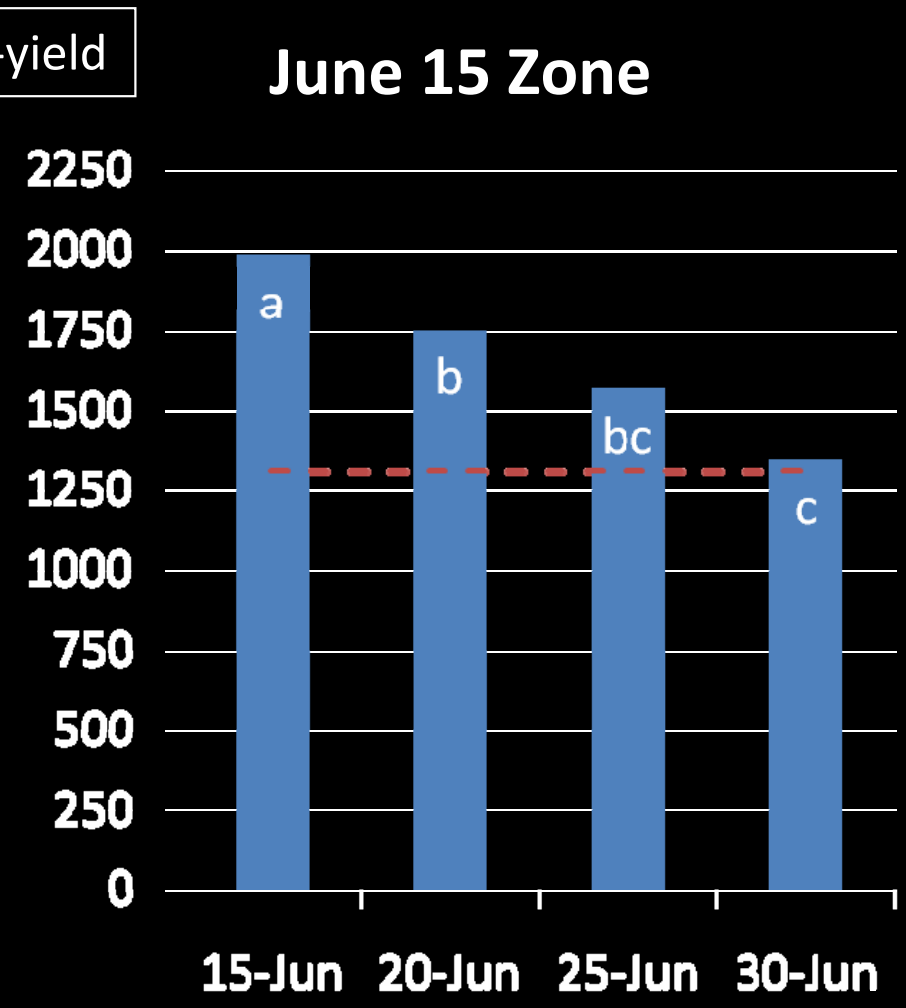


Test Wt. (lb/bu)—June 15 Zone



Yield (lbs/acre) over Environments





Summary - June 10 Zone

- Averaged over 5 environments, yield of sunflower planted on June 15th equaled that of sunflower planted on June 10th .
- Sunflower planted on June 20th averaged 371 lbs/acre lower than that planted on June 10th, but exceeded the average T-yield across locations.
- Additional yield decrease when planting delayed until June 25th. (based on 2 locations of data)
- Oil content remained stable at all four dates of planting.
- Test weight did not differ for sunflower planted on June 10th, 15th, or 20th.

Summary - June 15 Zone

- Averaged over 6 environments, sunflower planted on June 20th and 25th yielded slightly lower than sunflower planted on June 15th, but exceeded the average T-yield across locations.
- Small decrease in oil content when planting was delayed to June 20th, but no further decrease when delayed to June 25th or 30th .
- Sunflower planted on June 25 and 30 had a lower test weight than that planted on June 15th.

Conclusions

- Seed moisture tended to increase with each delay in planting in both zones. Differences were not significant at all locations.
- Some observed differences may have been due to lower plant populations/more weeds in the later-planted plots at some locations.
- Final planting dates could be moved 5-10 days later in each zone without significantly impacting crop insurance payments to growers.

Recommendations

- In South Dakota, planting dates from May 15 to June 20 will generally give the best yield and oil content.
- Soil temperature must be ~50°F for seed germination.
- Growers should adjust planting dates for the season.
- Select early-maturing hybrids for late planting or replanting.

Acknowledgements

- National Sunflower Association/South Dakota Oilseeds Council for funding this research.
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  - Duane Shea --Marlow Schaffer
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  - Todd Porch --Robert Speck
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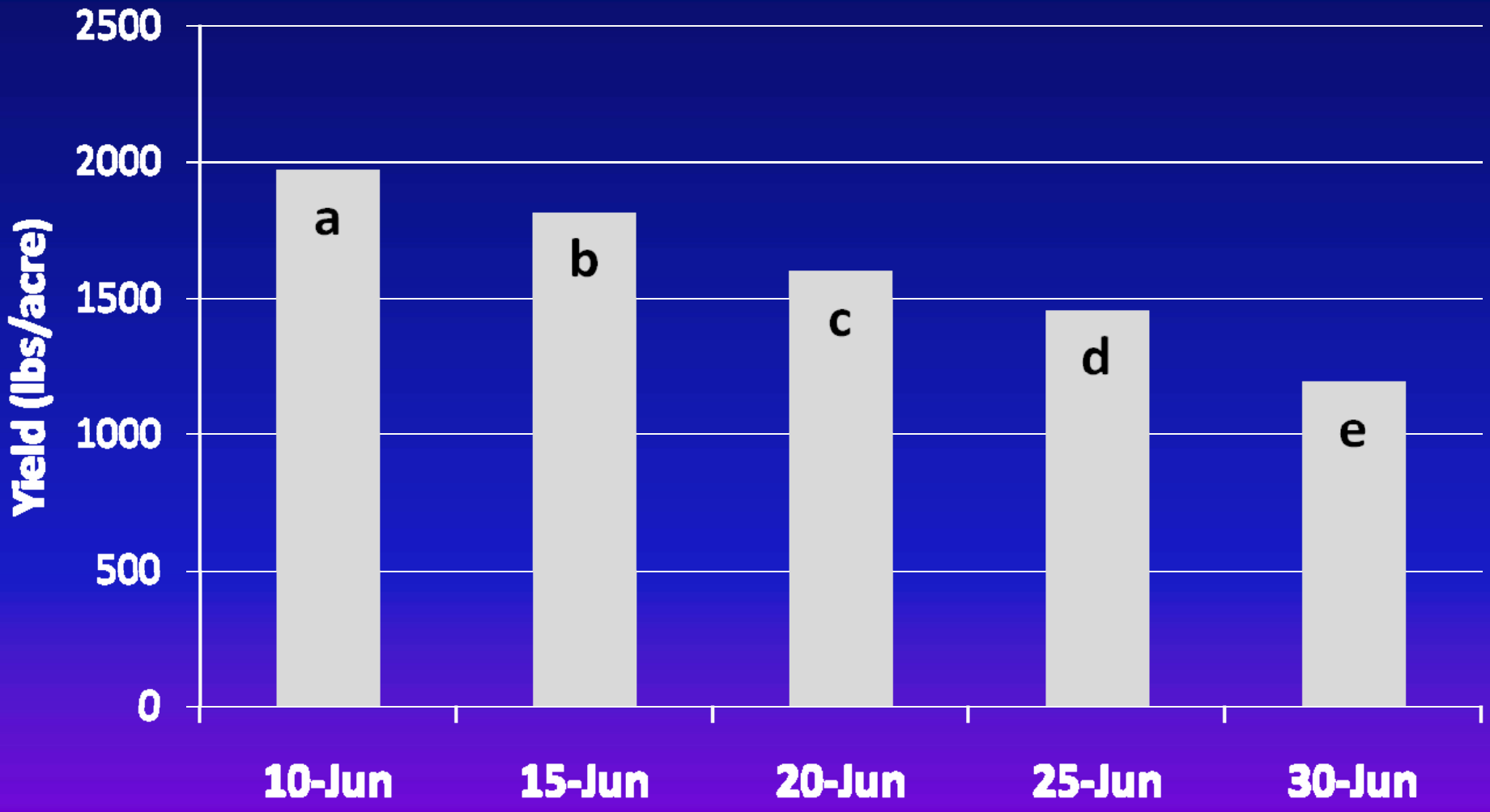
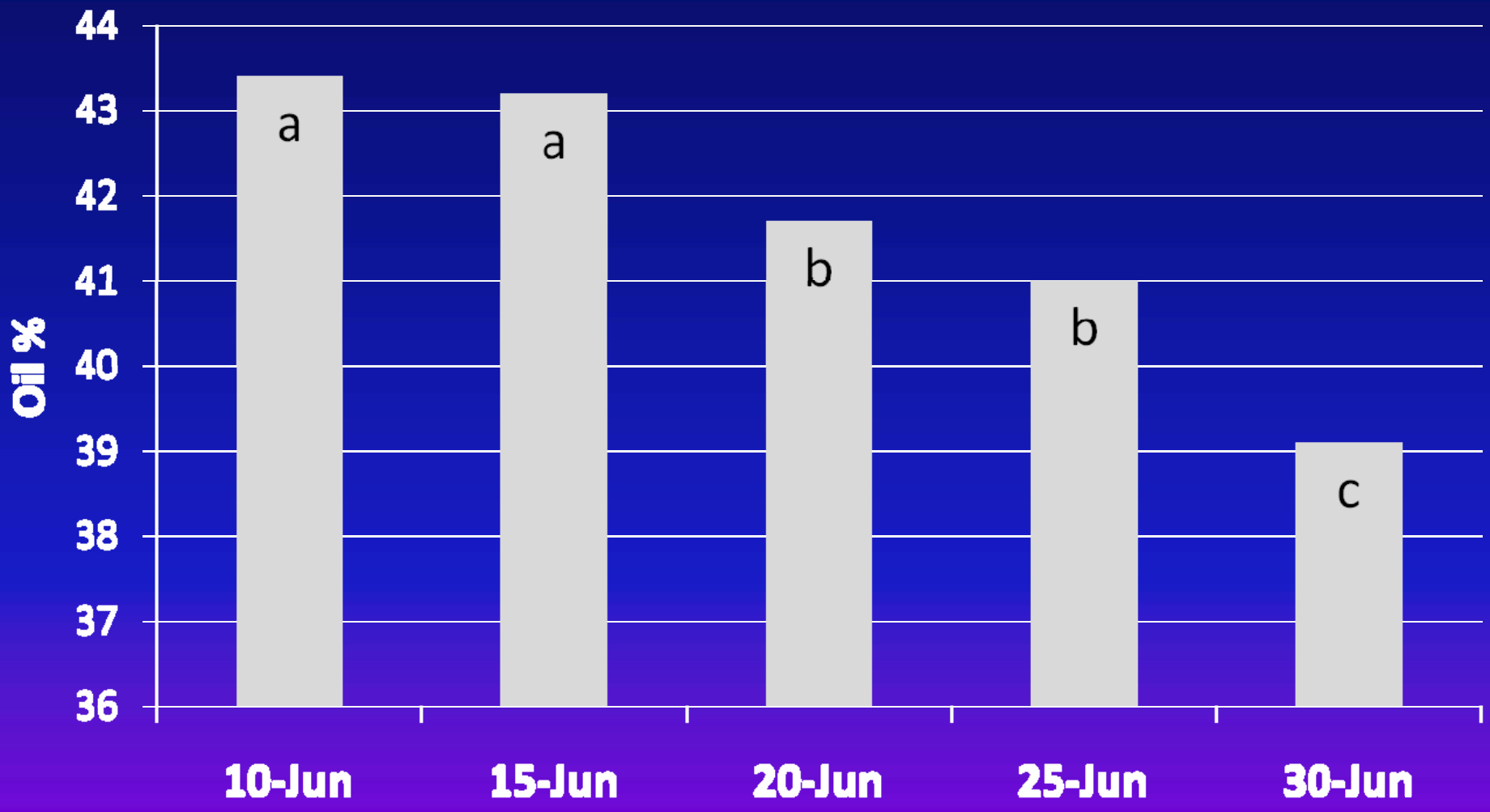
- Technical staff—Lee Gilbertson

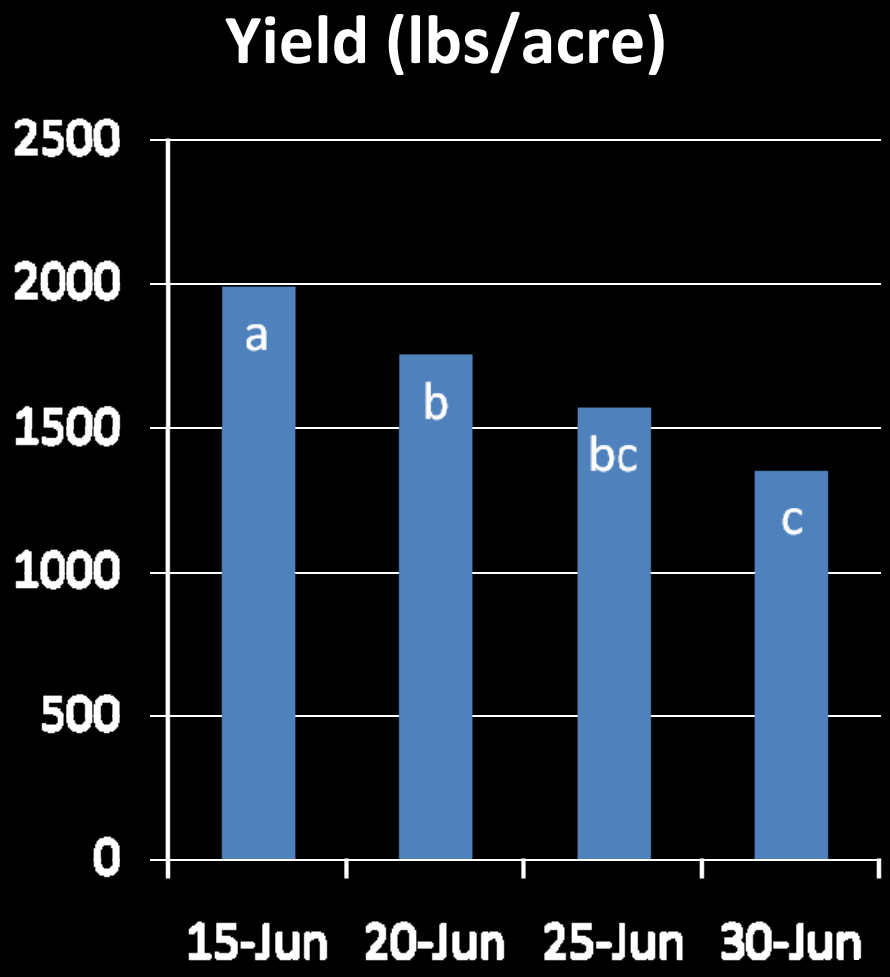
Yield (lbs/acre)--Statewide

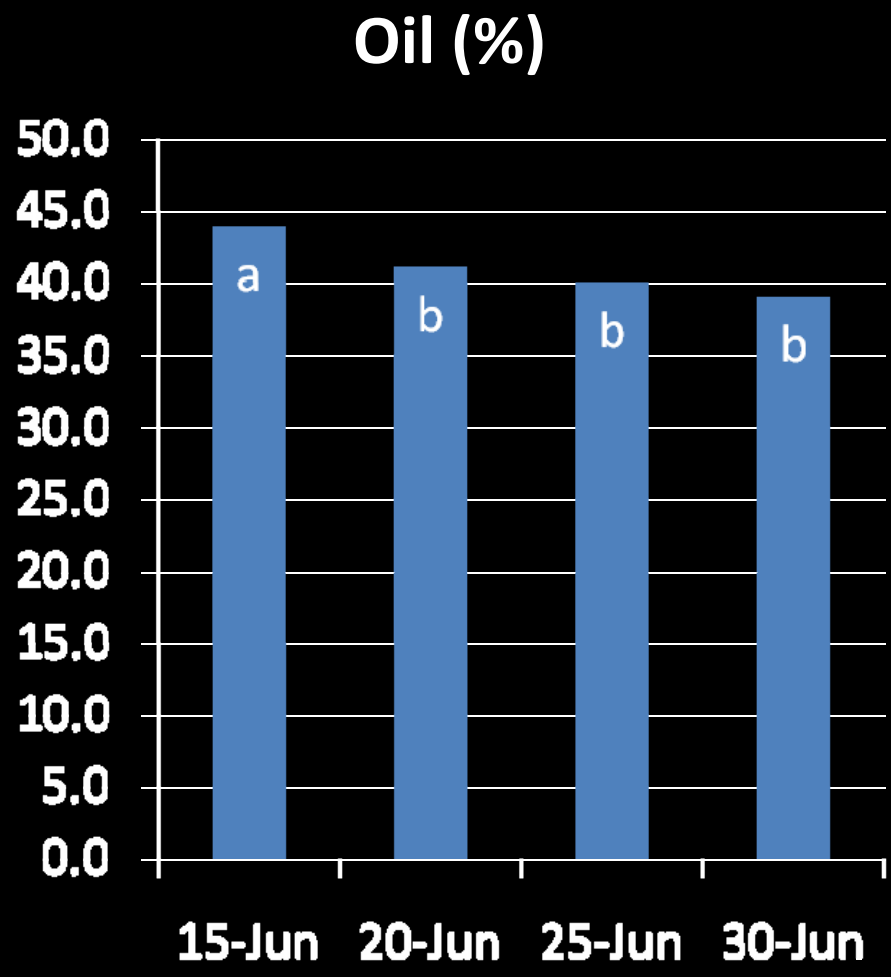


Oil %--Statewide

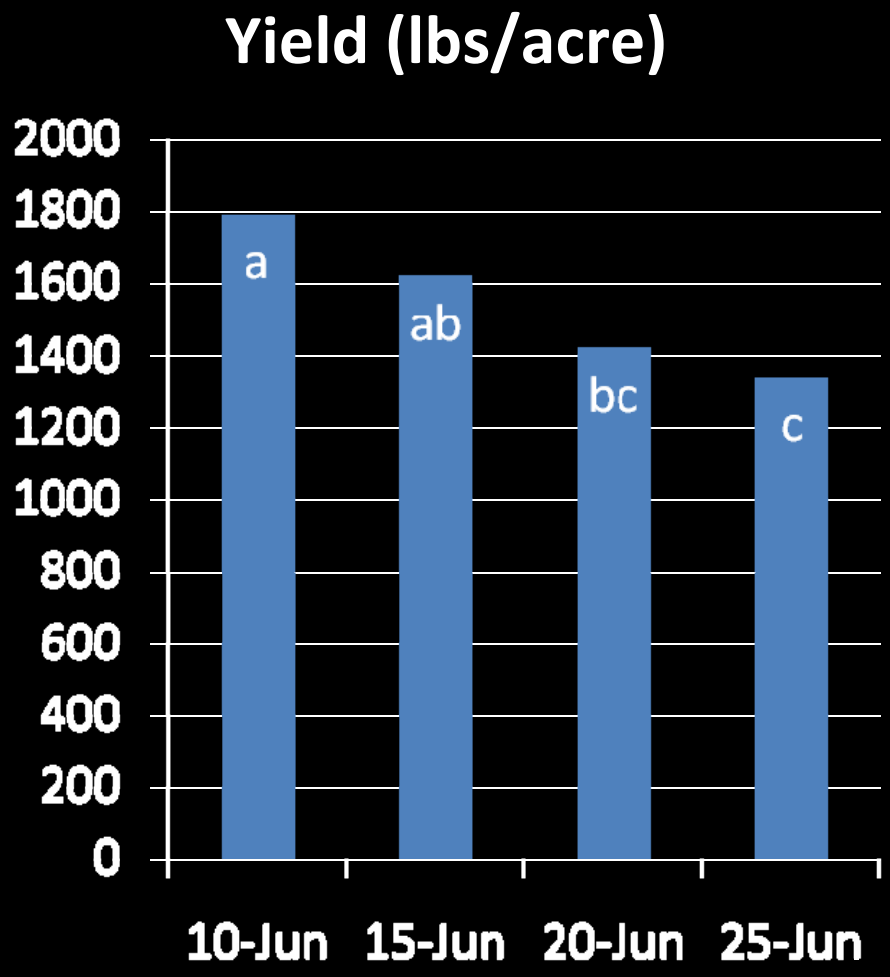


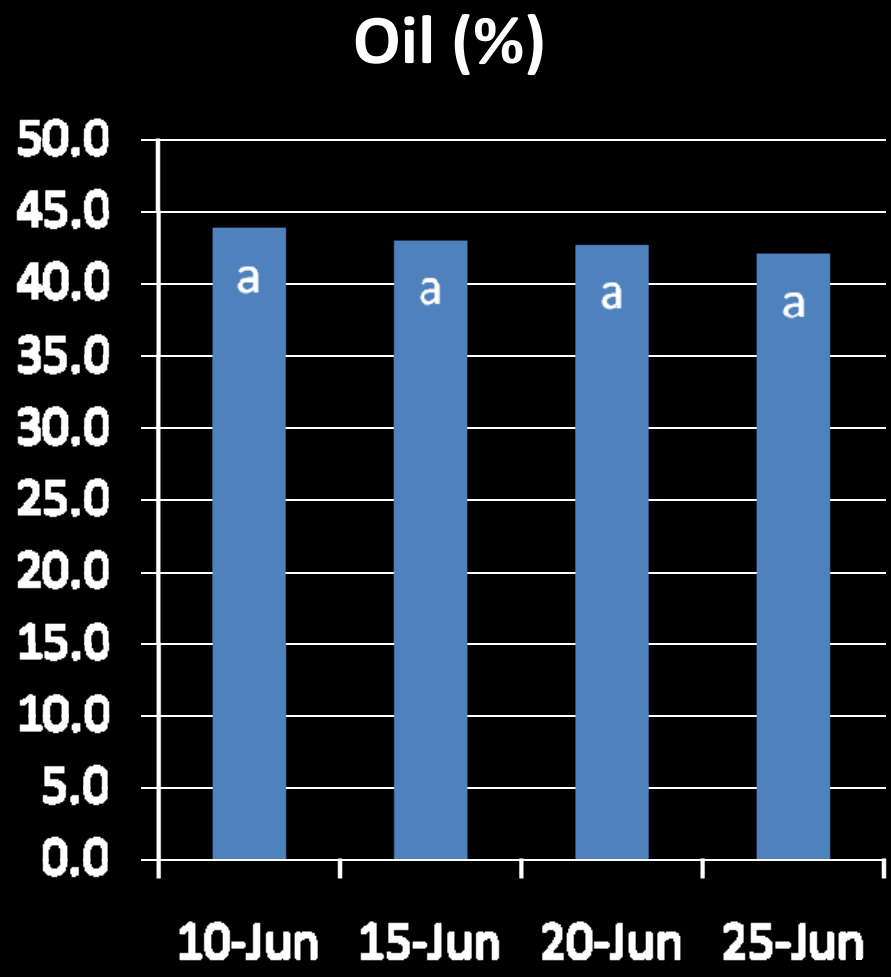
June 15 Zone – 3-yr Means



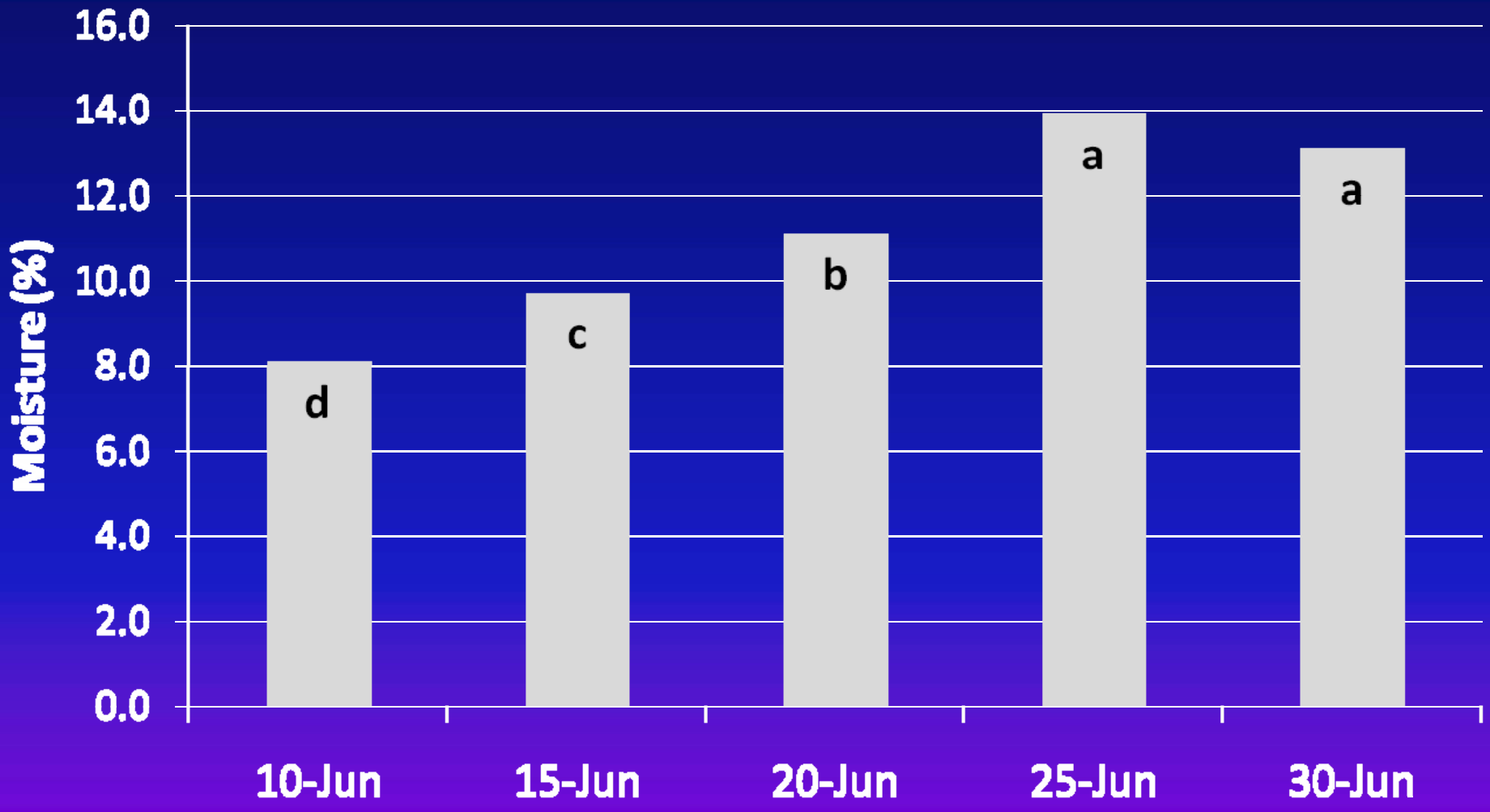


June 10 Zone – 3-yr Means





Moisture (%)--Statewide



Test Weight (lbs/bu)--Statewide