

**FIELD MANAGEMENT OF REVEILLE
RUSSET AND RESPONSE OF RUSSET
POTATO TO BLENDED LIQUID
PHOSPHORUS FERTILIZERS**

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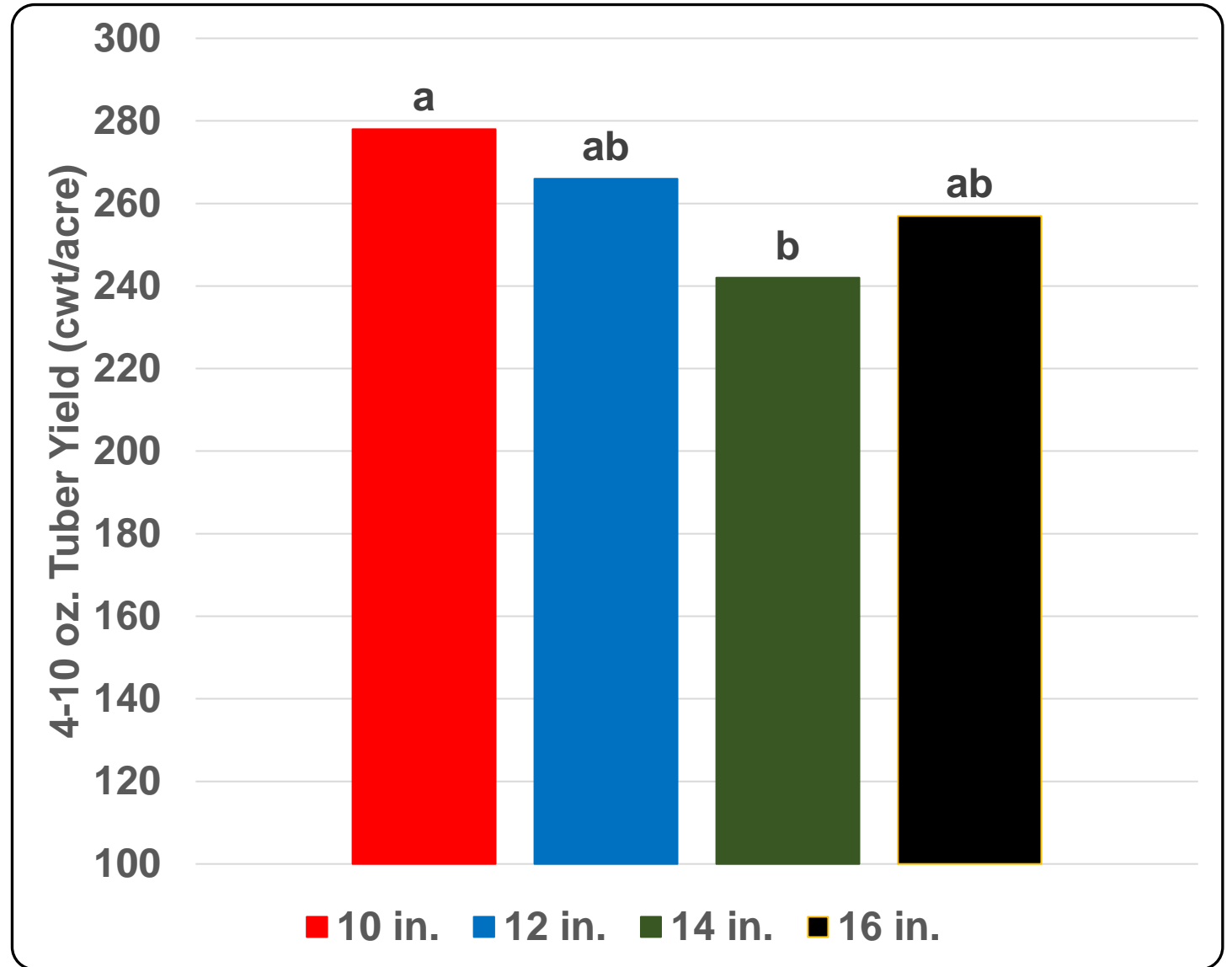
REVEILLE RUSSET



**Improving economic
yield and quality
of potatoes through
in-row seed spacing**

4-10 oz TUBER YIELD (cwt/acre)

100 count



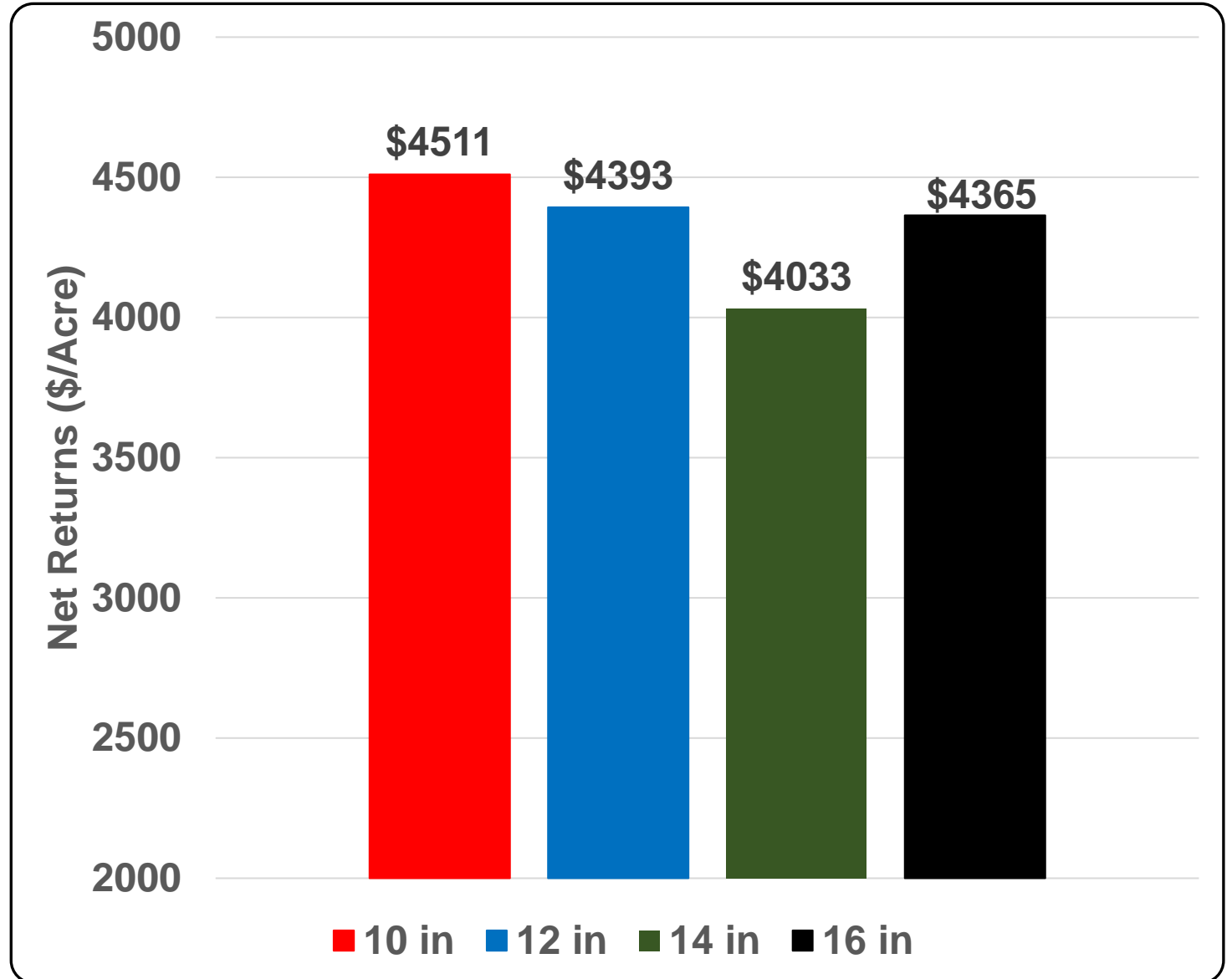
Reveille Russet

Cost-Benefit Analysis

Net Returns
(Excluding Other Costs)

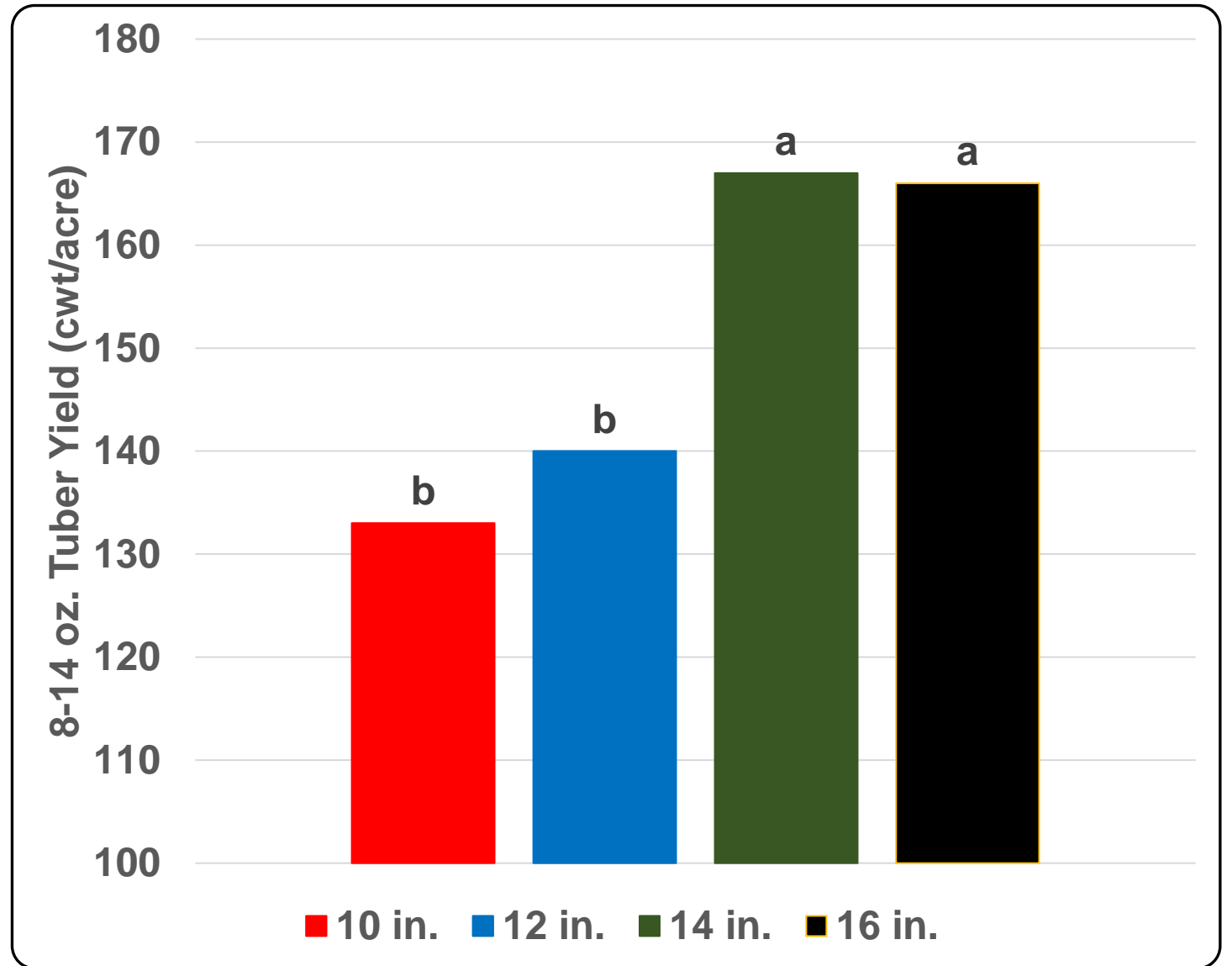
4-10 oz Tuber Yield

100 count



8-14 oz TUBER YIELD (cwt/acre)

80 count



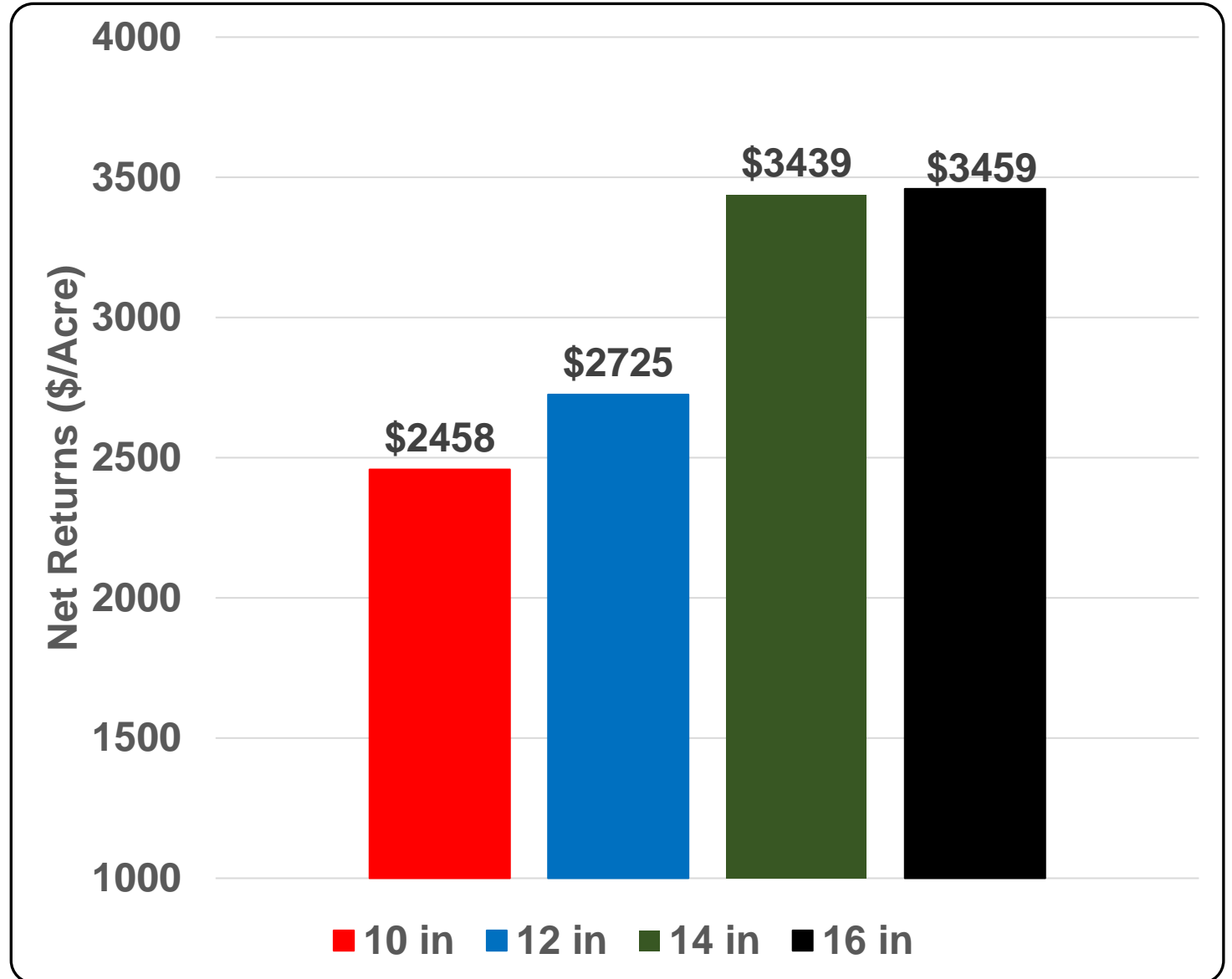
Reveille Russet

Cost-Benefit Analysis

Net Returns
(Excluding Other Costs)

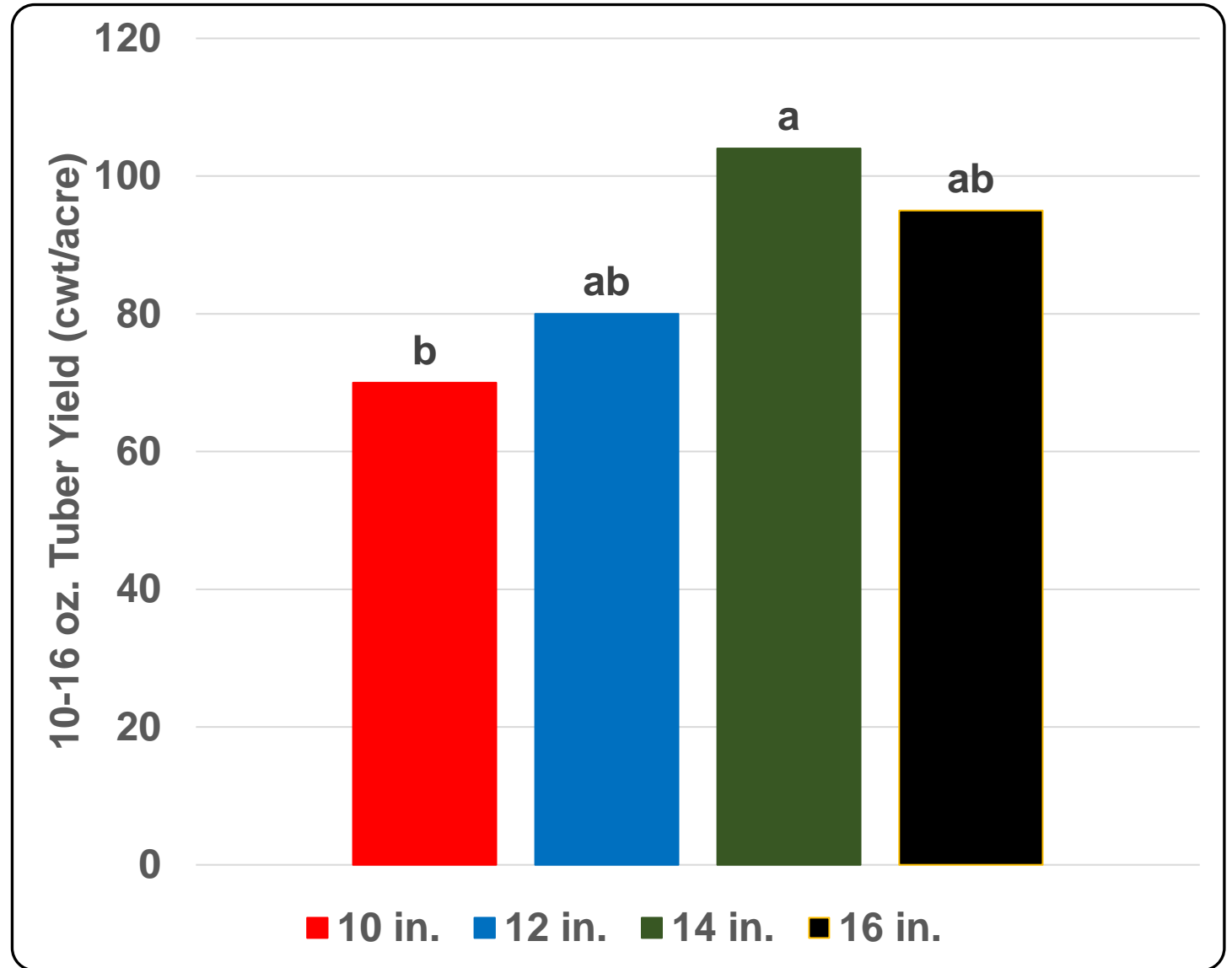
8-14 oz Tuber Yield

80 count



10-16 oz TUBER YIELD (cwt/acre)

60 count



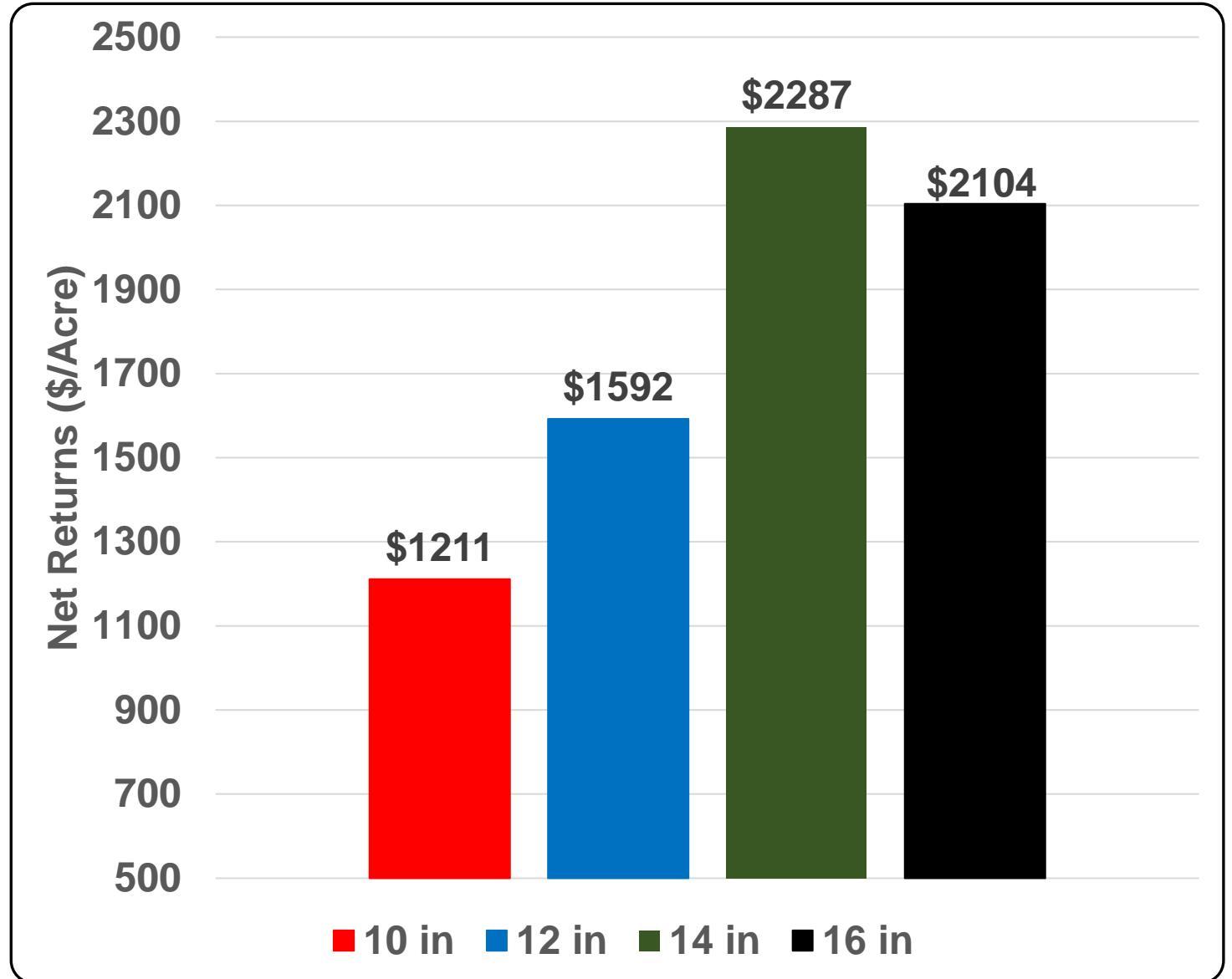
Reveille Russet

Cost-Benefit Analysis

Net Returns
(Excluding Other Costs)

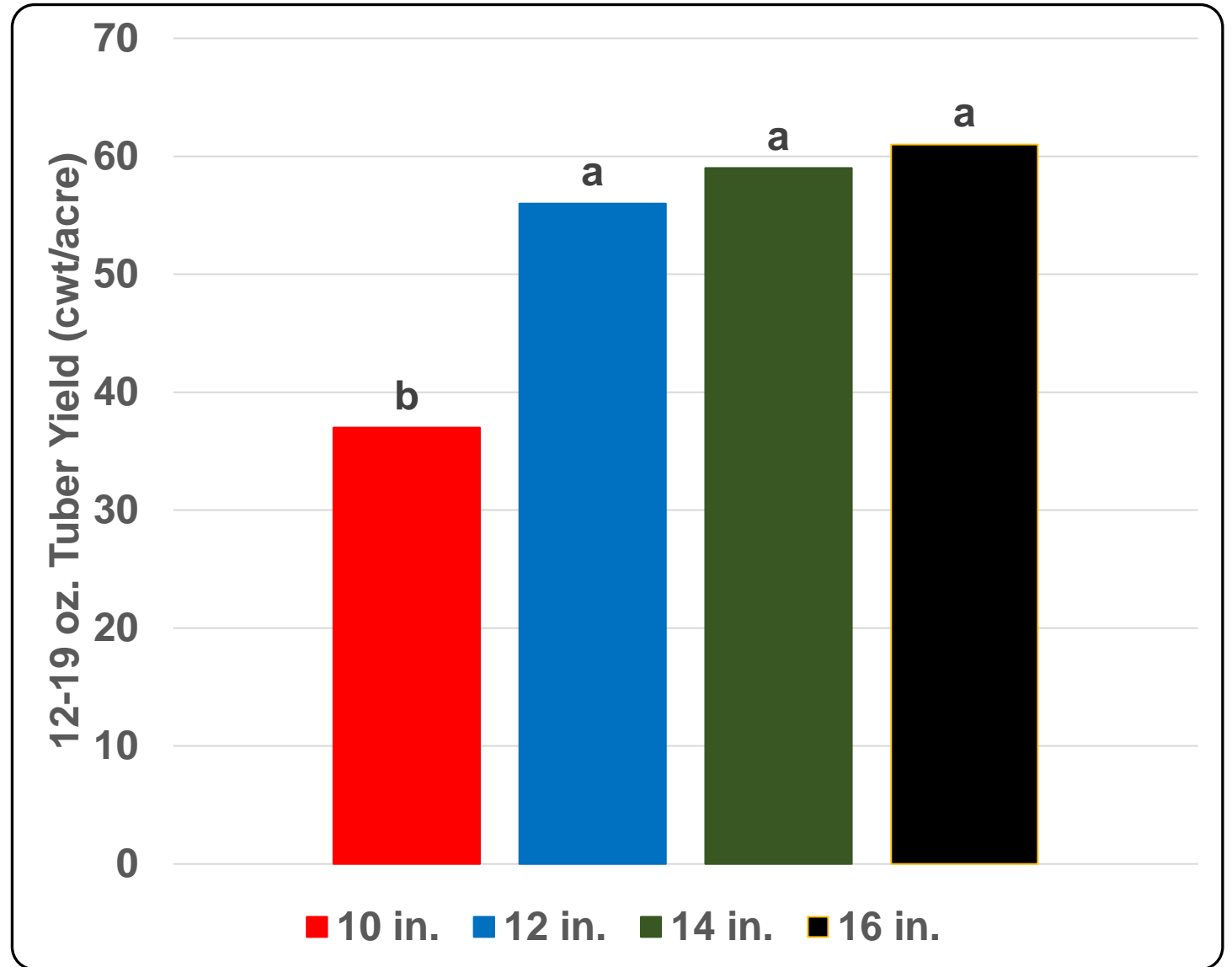
10-16 oz Tuber Yield

60 count



12-19 oz TUBER YIELD (cwt/acre)

50 count



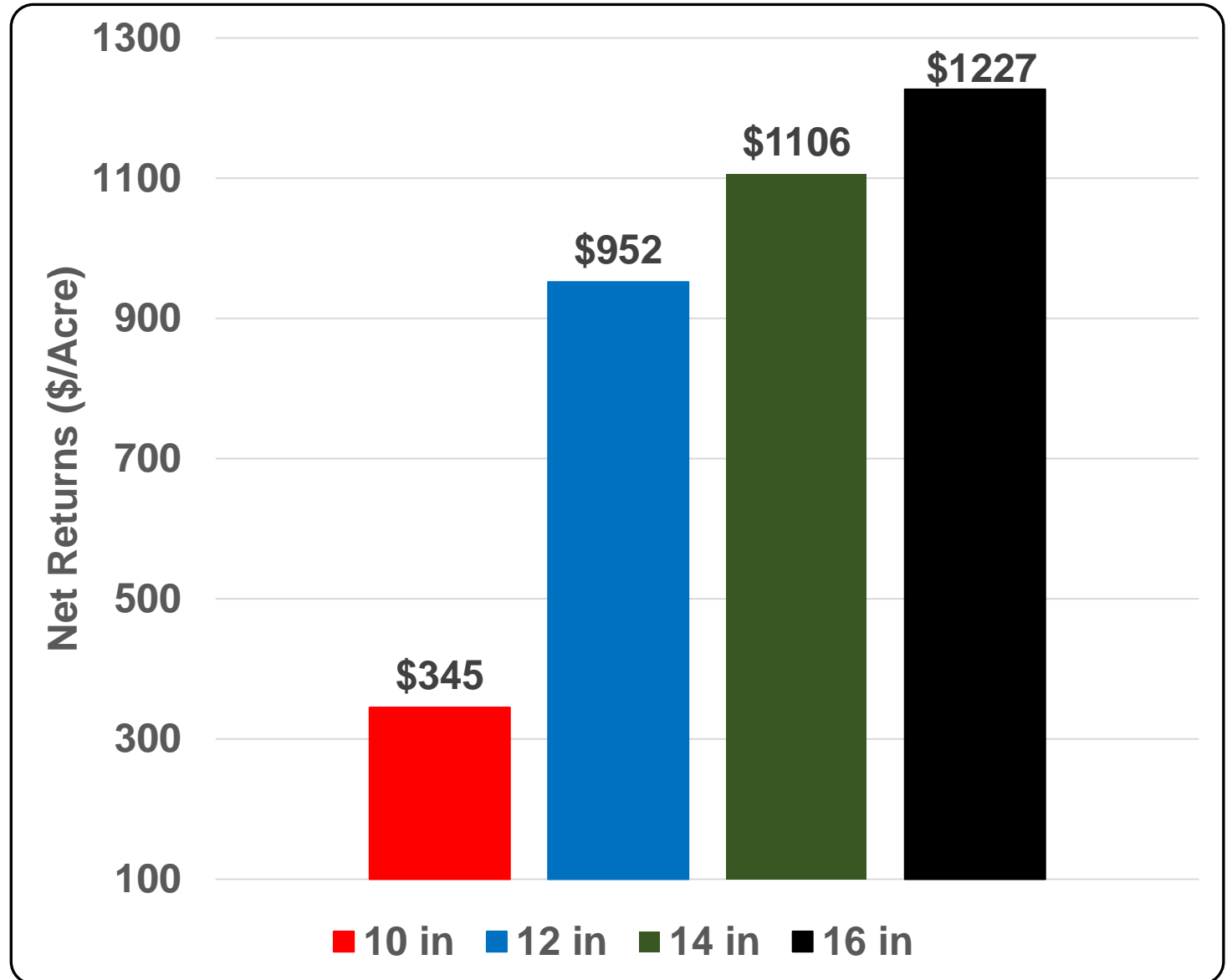
Reveille Russet

Cost-Benefit Analysis

Net Returns
(Excluding Other Costs)

12-19 oz Tuber Yield

50 count

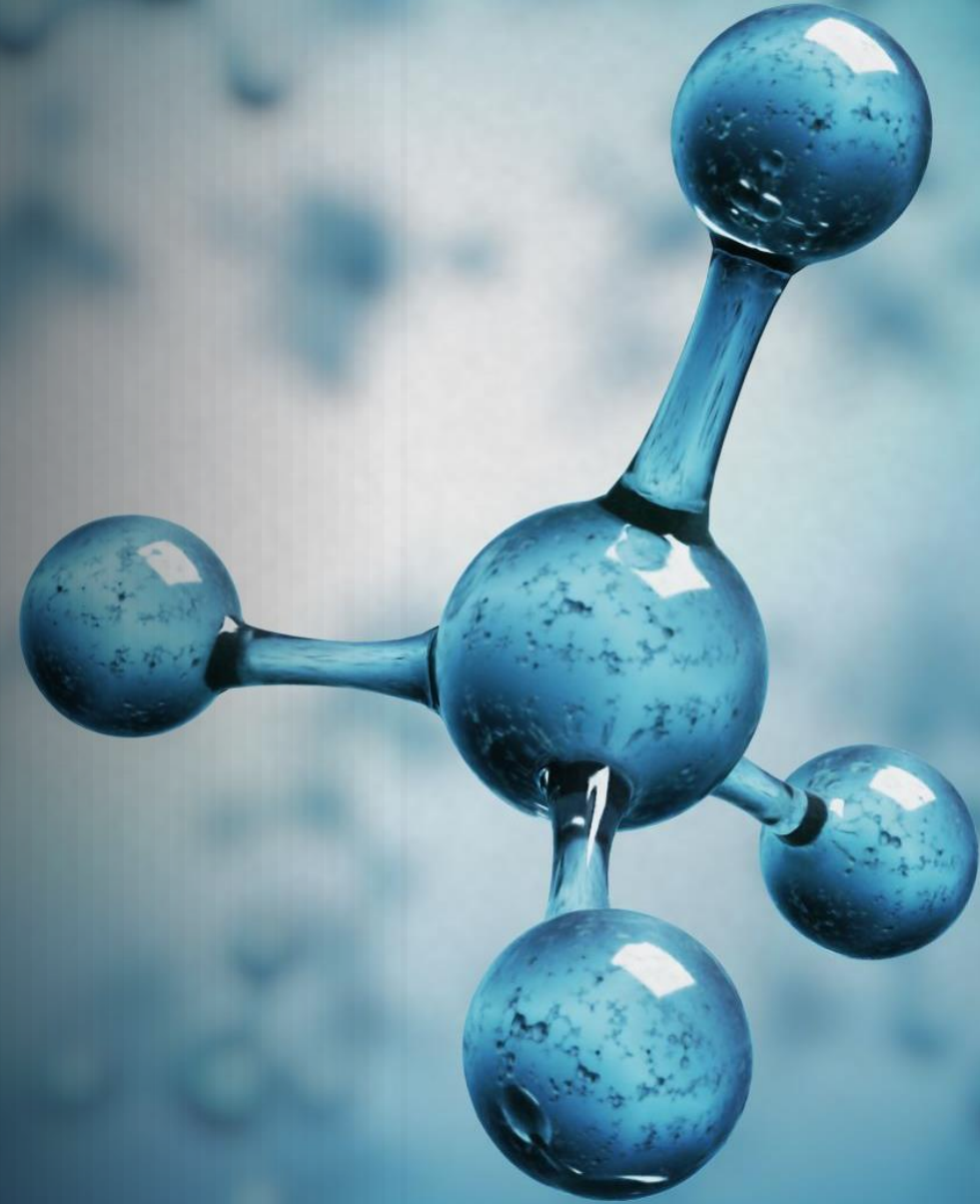


SUMMARY

Plant Reveille Russet at in-row spacing of 14-16 inches, and 34 inches between rows to achieve maximum yield and maximum net returns.

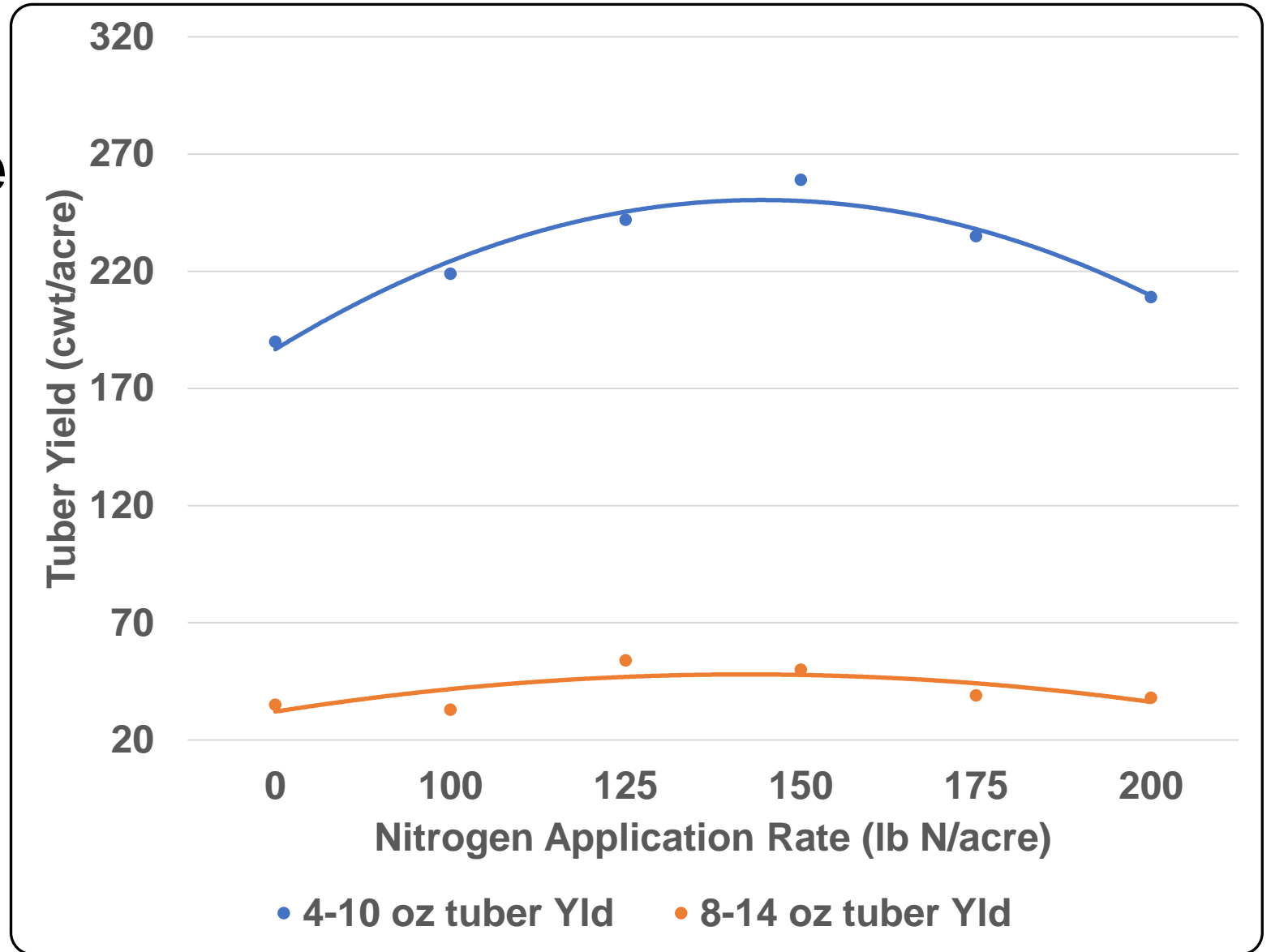


NITROGEN FERTILIZATION



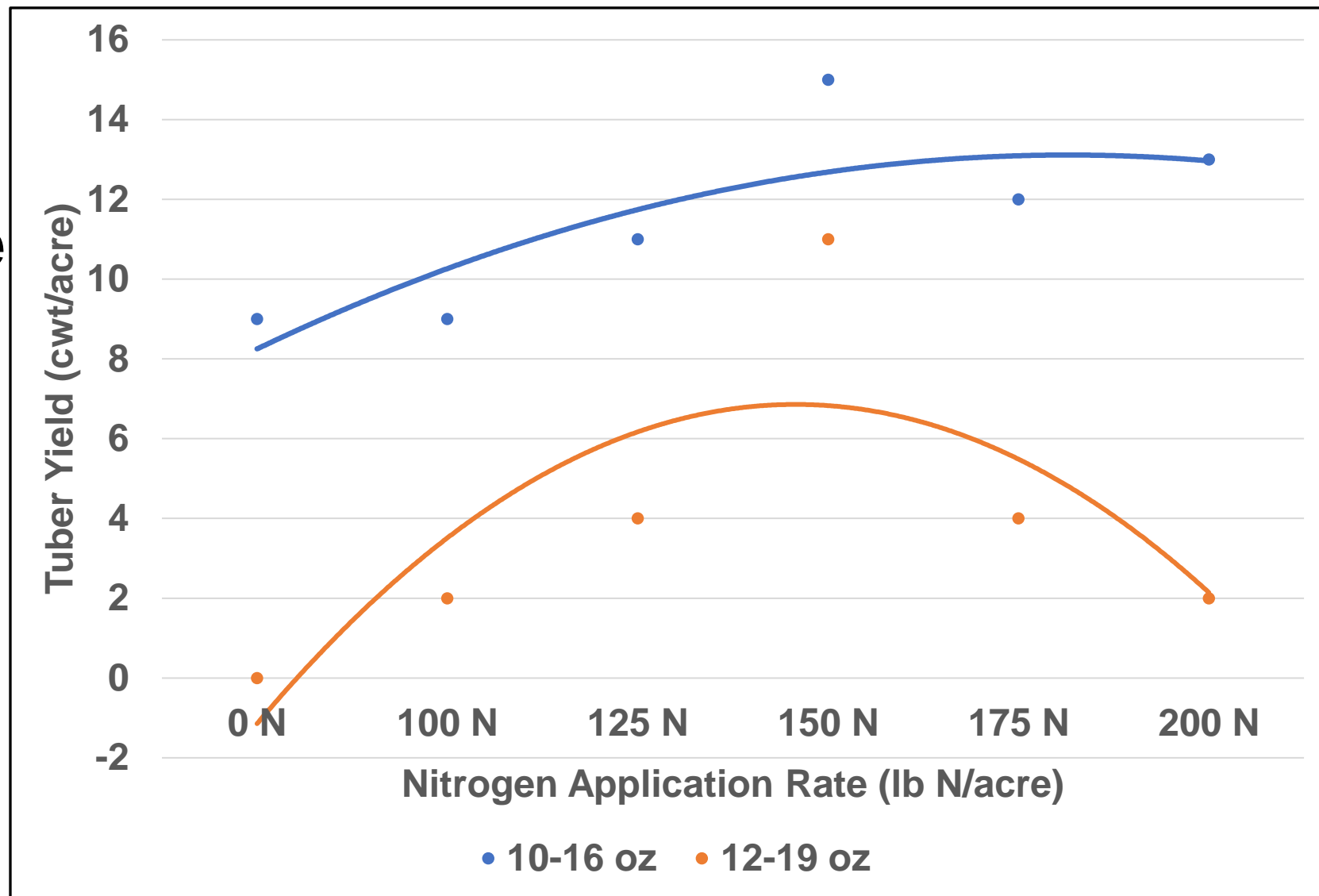
Response of Reveille Russet to Nitrogen Application Rate

Residual N = 30 lb N/A



Response of Reveille Russet to Nitrogen Application Rate

Residual N = 30 N/acre



Reveille Russet

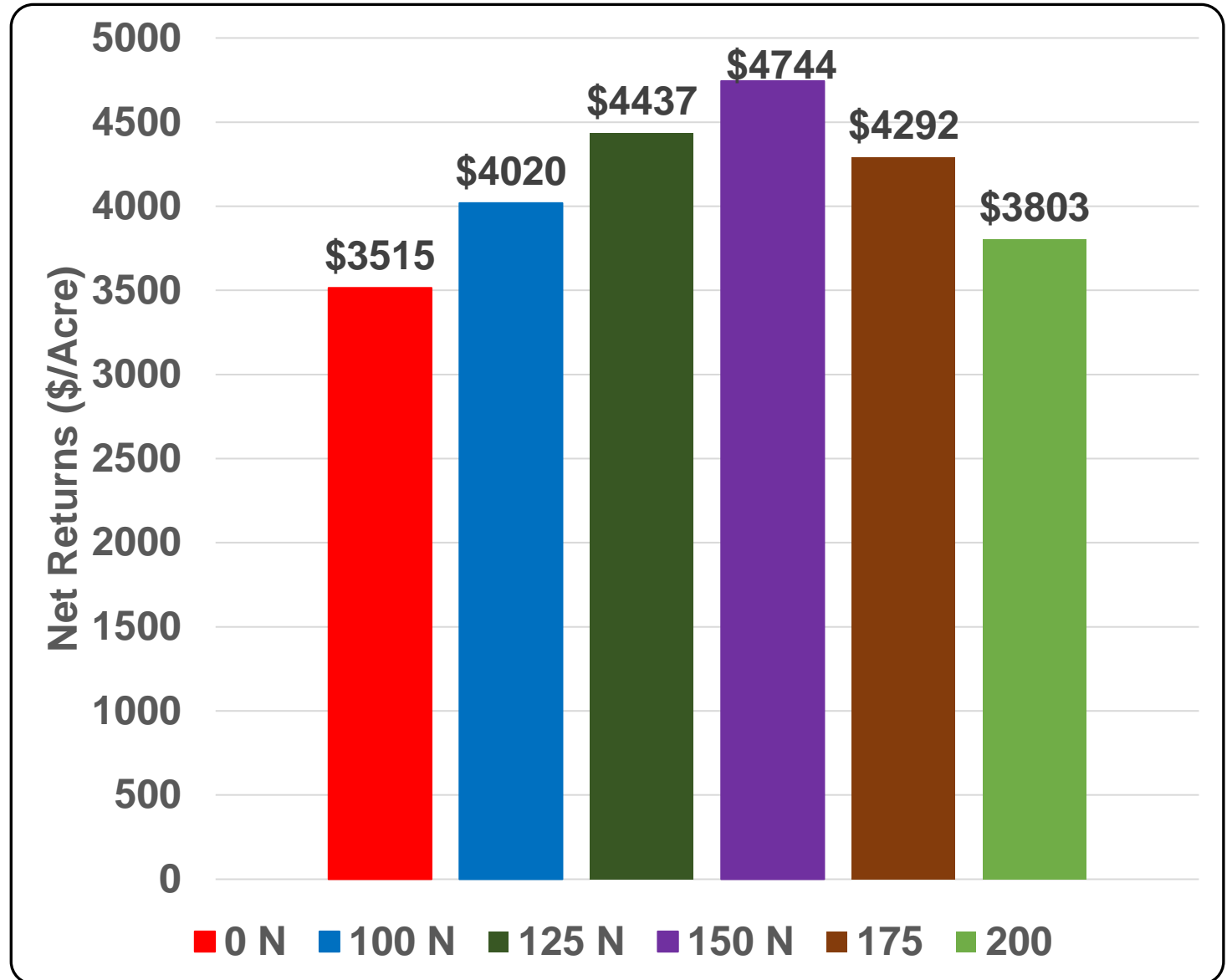
Cost-Benefit Analysis

Net Returns

(Excluding Other Costs)

4-10 oz Tuber Yield
(100 Count)

Residual N = 30 lb N/A



Reveille Russet

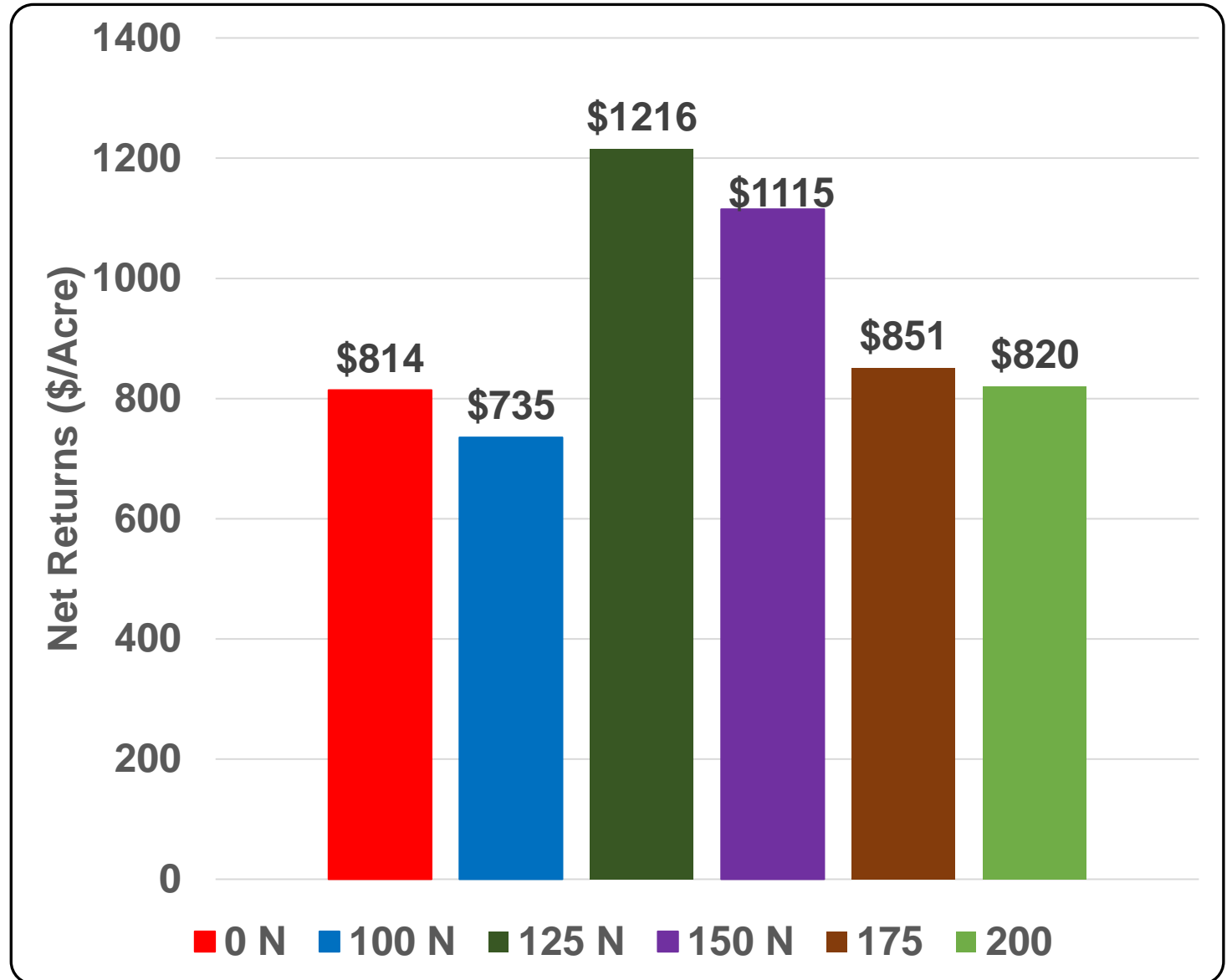
Cost-Benefit Analysis

Net Returns

(Excluding Other Costs)

8-14 oz Tuber Yield
(80 Count)

Residual N = 30 lb N/A



Reveille Russet

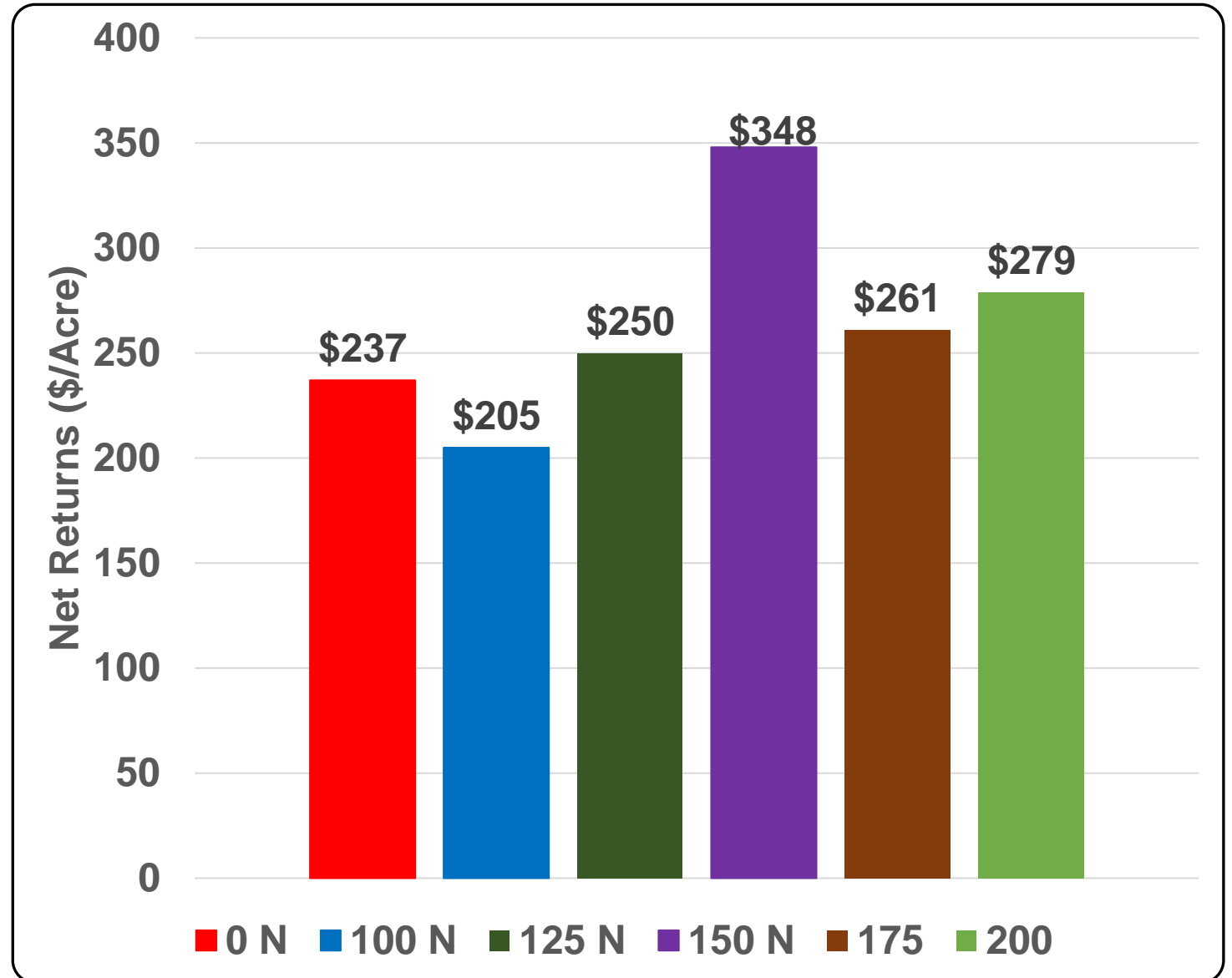
Cost-Benefit Analysis

Net Returns

(Excluding Other Costs)

10-16 oz Tuber Yield
(60 Count)

Residual N = 30 lb N/A



Reveille Russet

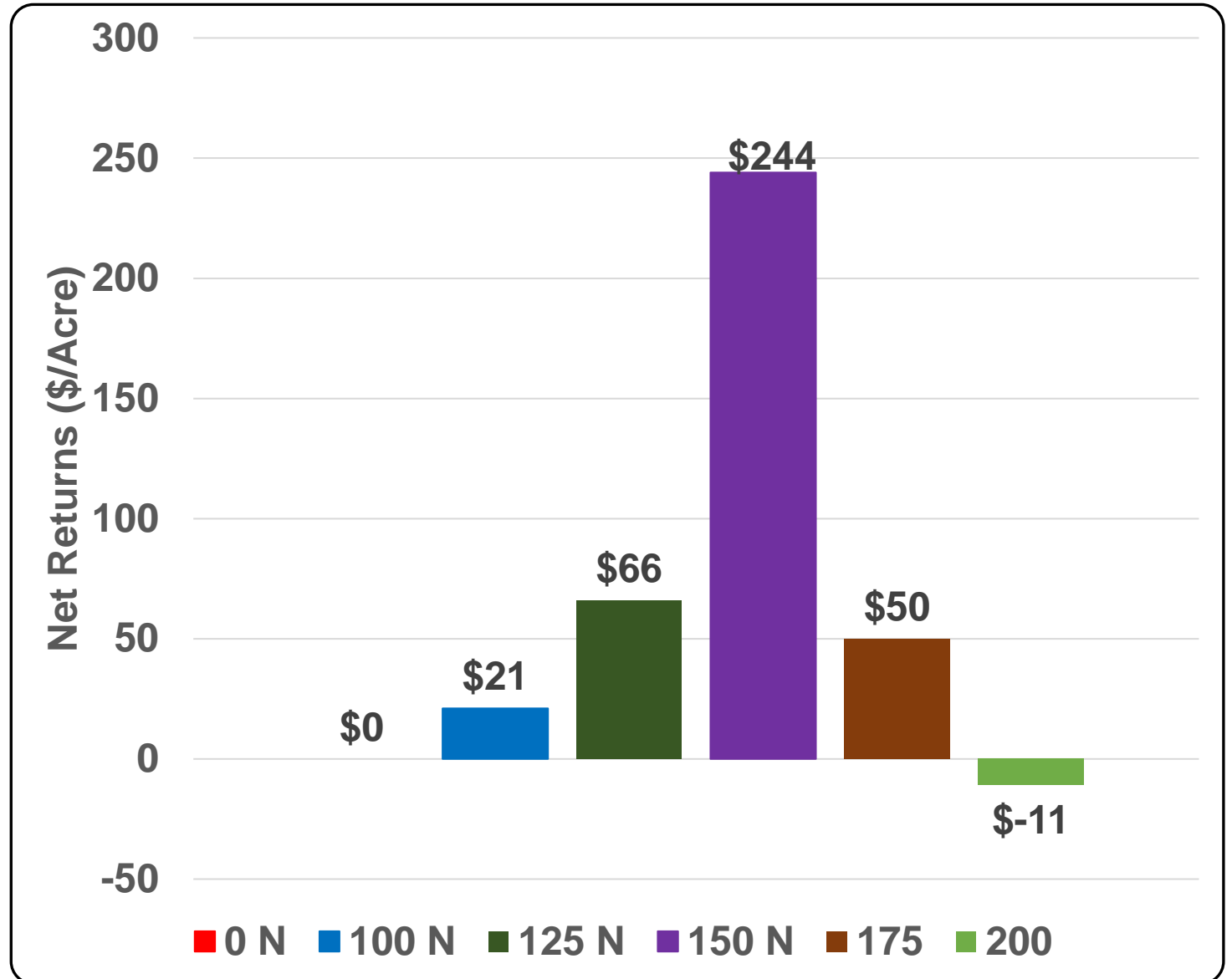
Cost-Benefit Analysis

Net Returns

(Excluding Other Costs)

**12-19 oz Tuber Yield
(50 Count)**

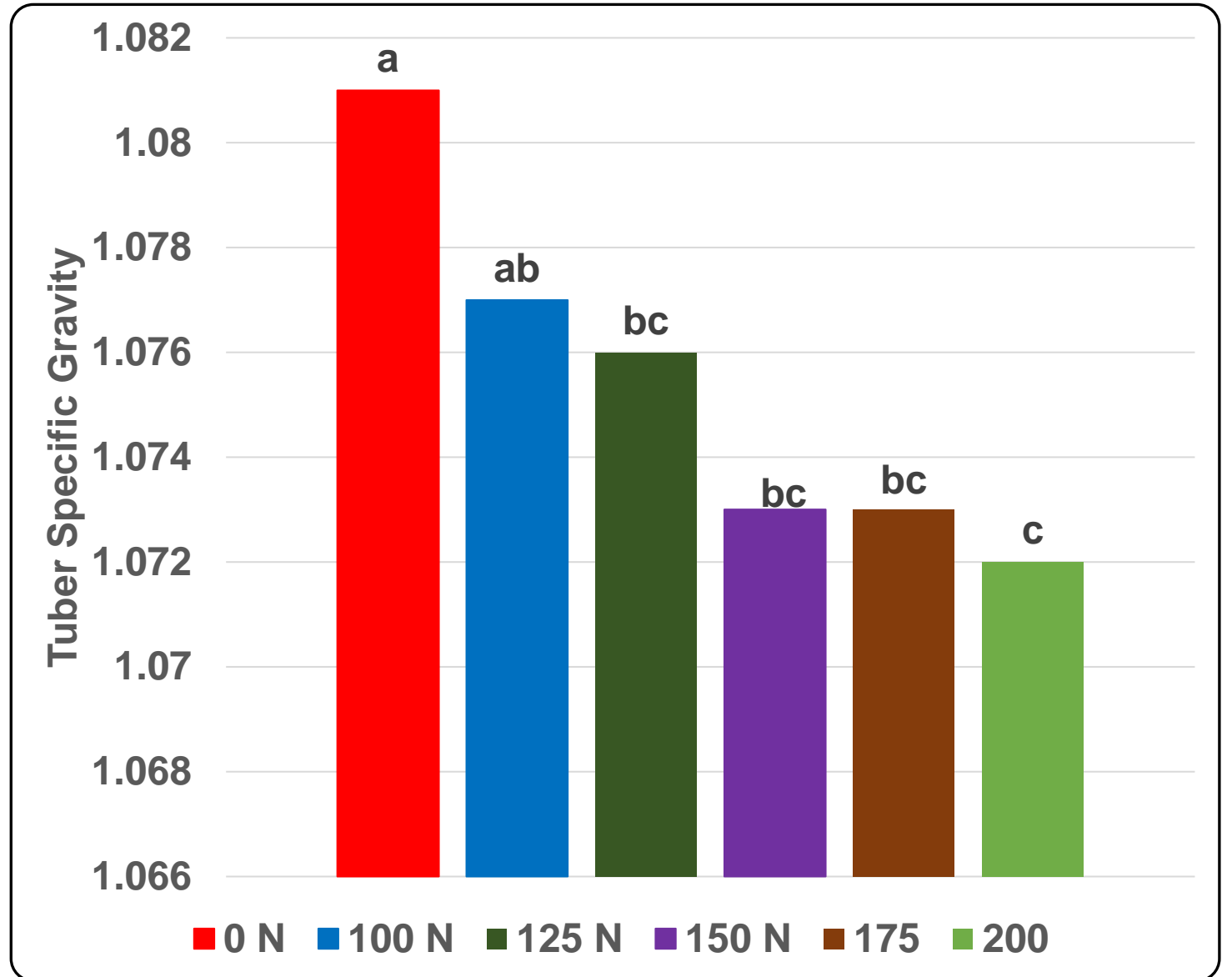
Residual N = 30 lb N/A



TUBER SPECIFIC GRAVITY




Effect of N Application Rate on Tuber Specific Gravity



Nitrogen Application Timing





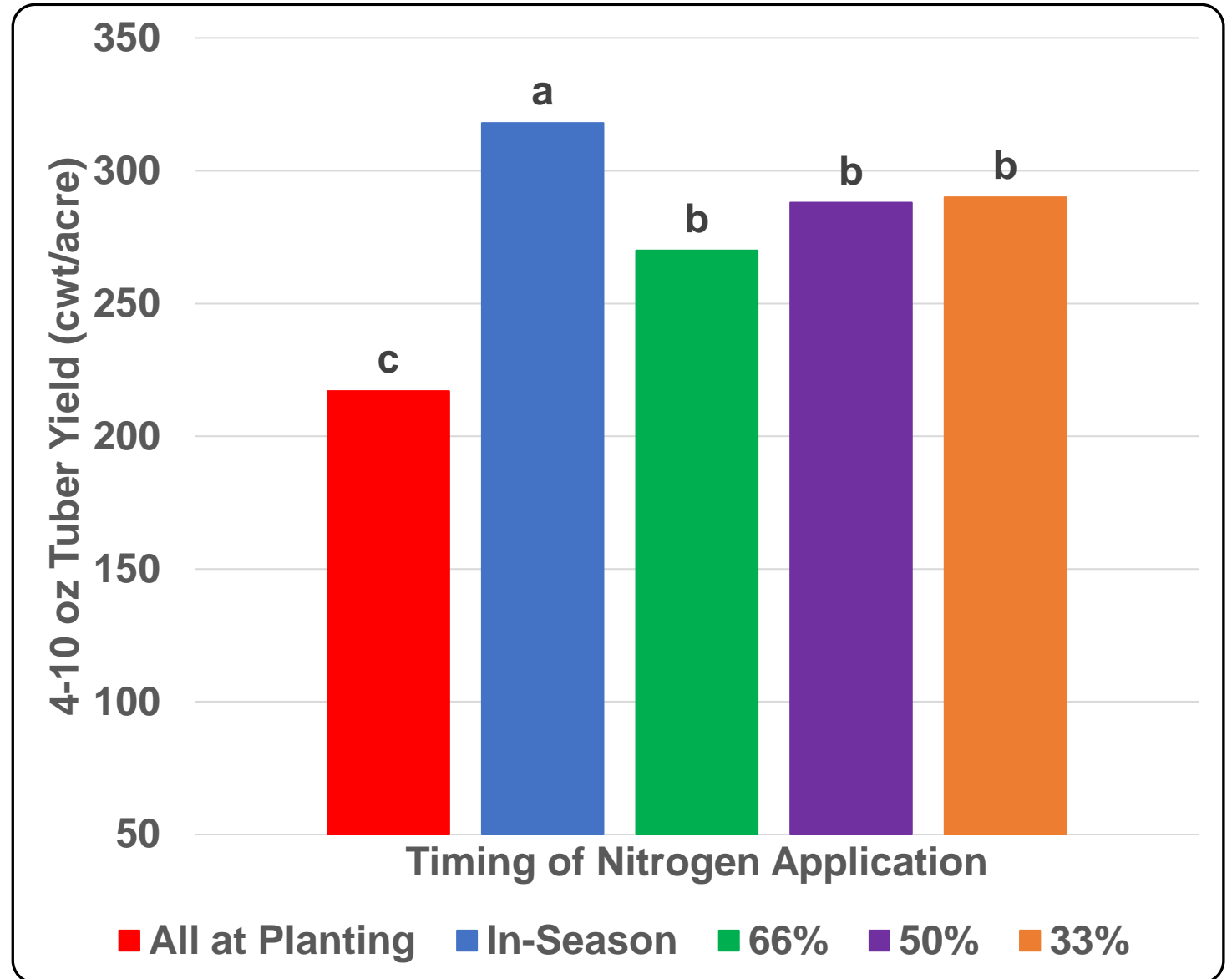
N application timing aims
at synchronizing N supply
and crop N demand

Reveille Russet

Effect of Nitrogen Application Timing on Tuber Yield of Reveille Russet

4-10 oz Tuber Yield (cwt/acre)
(100 Count)

Residual N = 35 lb N/A

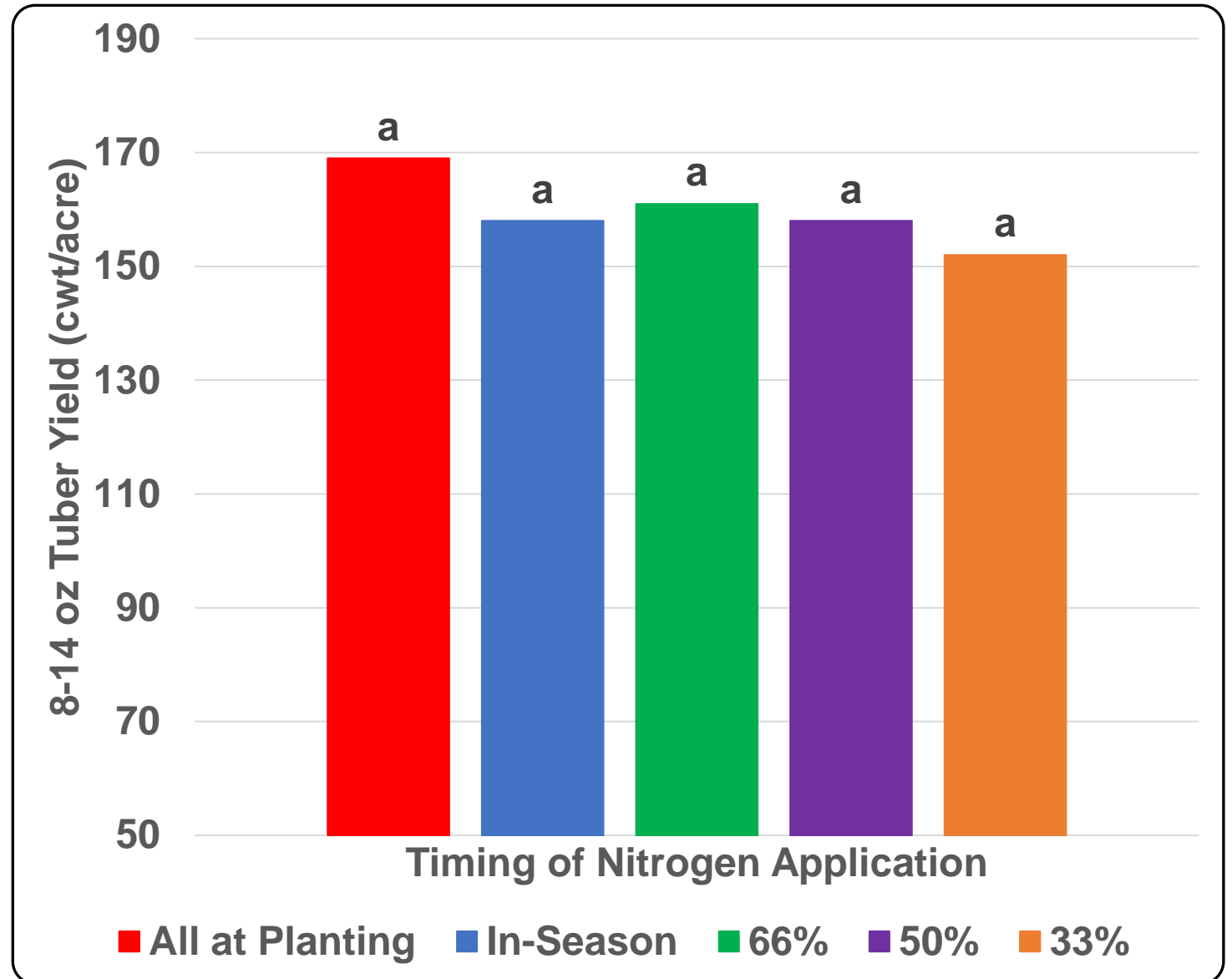


Reveille Russet

Effect of Nitrogen Application Timing on Tuber Yield of Reveille Russet

8-14 oz Tuber Yield (cwt/acre)
(80 Count)

Residual N = 35 lb N/A

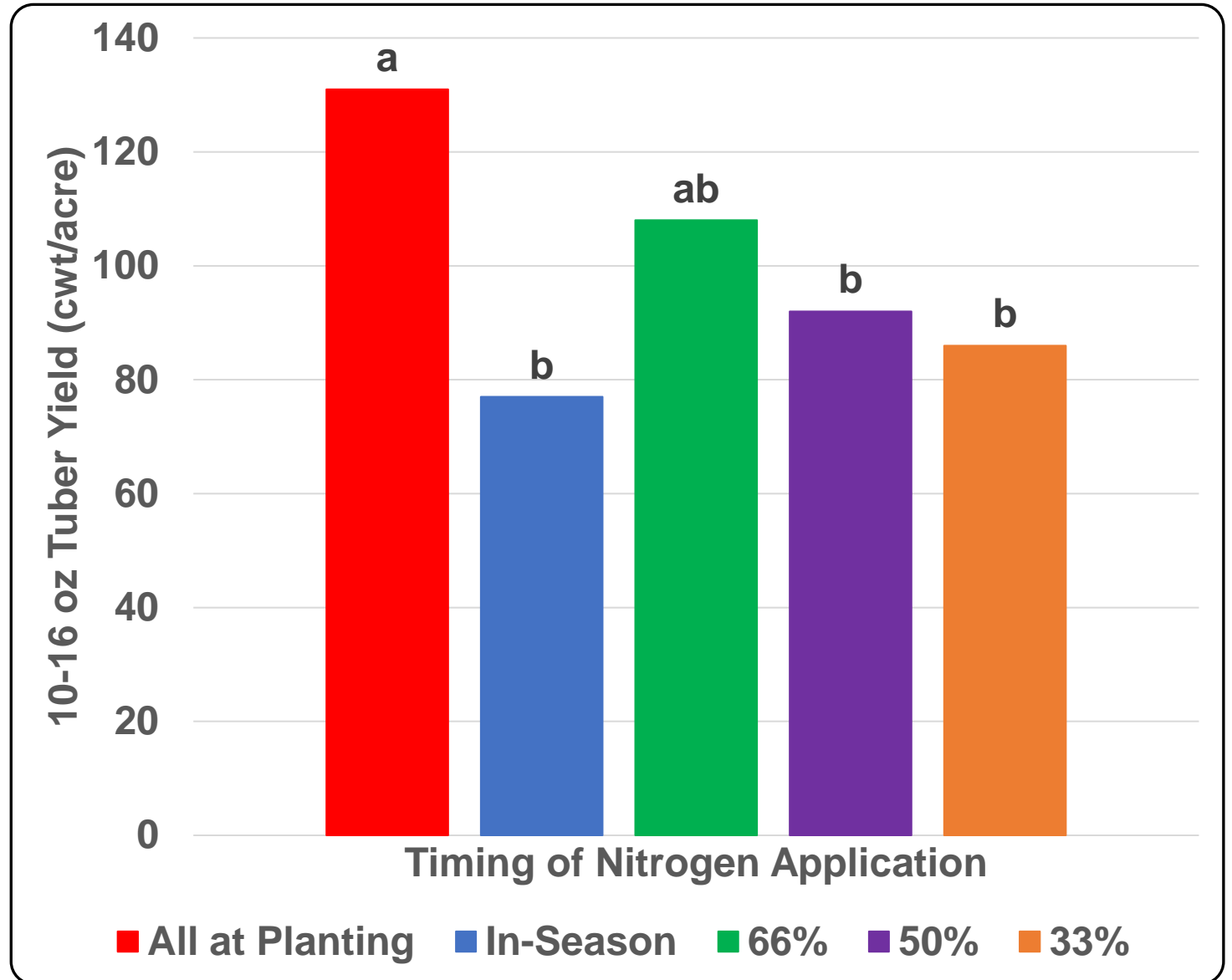


Reveille Russet

Effect of Nitrogen Application Timing on Tuber Yield of Reveille Russet

10-16 oz Tuber Yield (cwt/acre)
(60 Count)

Residual N = 35 lb N/A

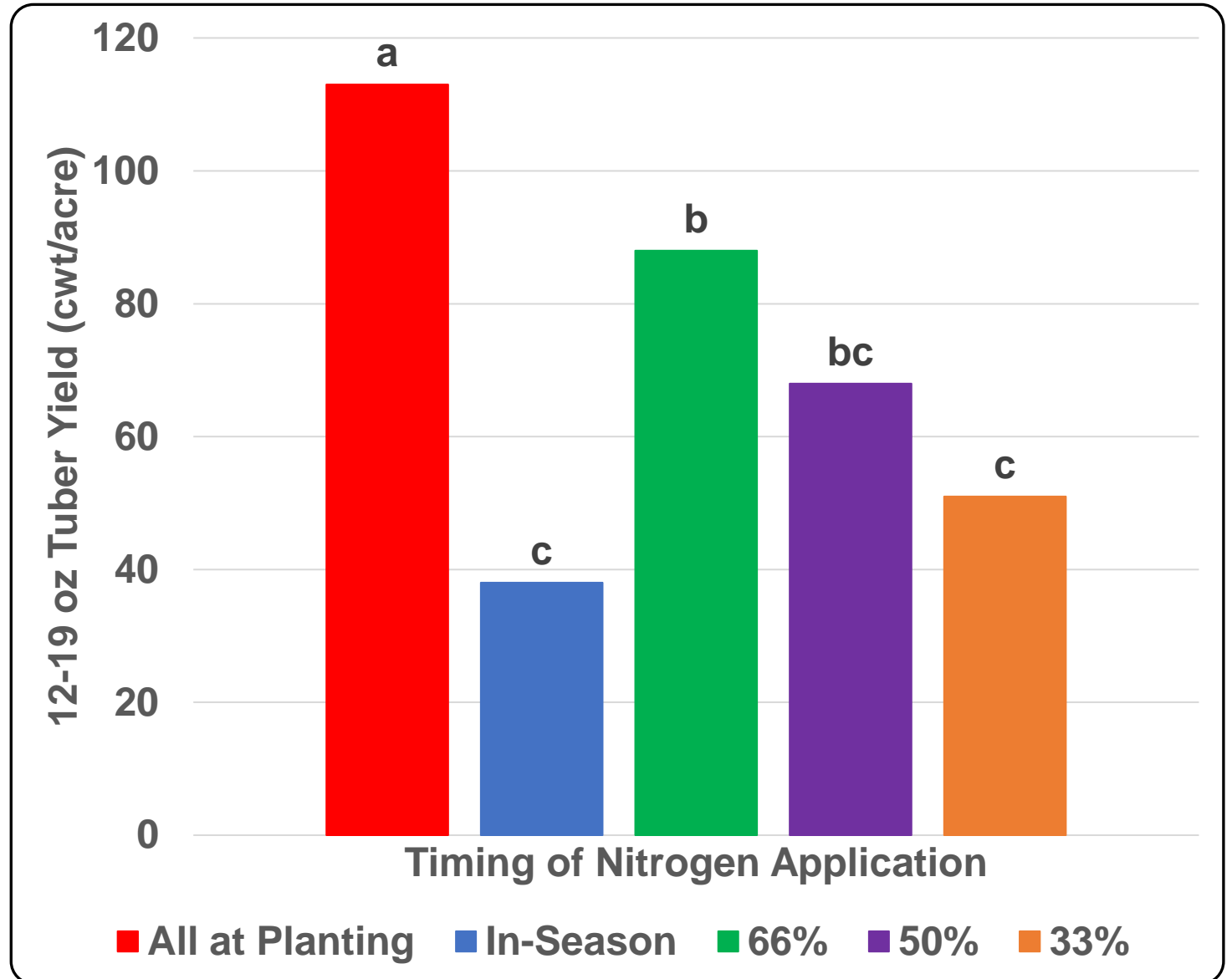


Reveille Russet

Effect of Nitrogen Application Timing on Tuber Yield of Reveille Russet

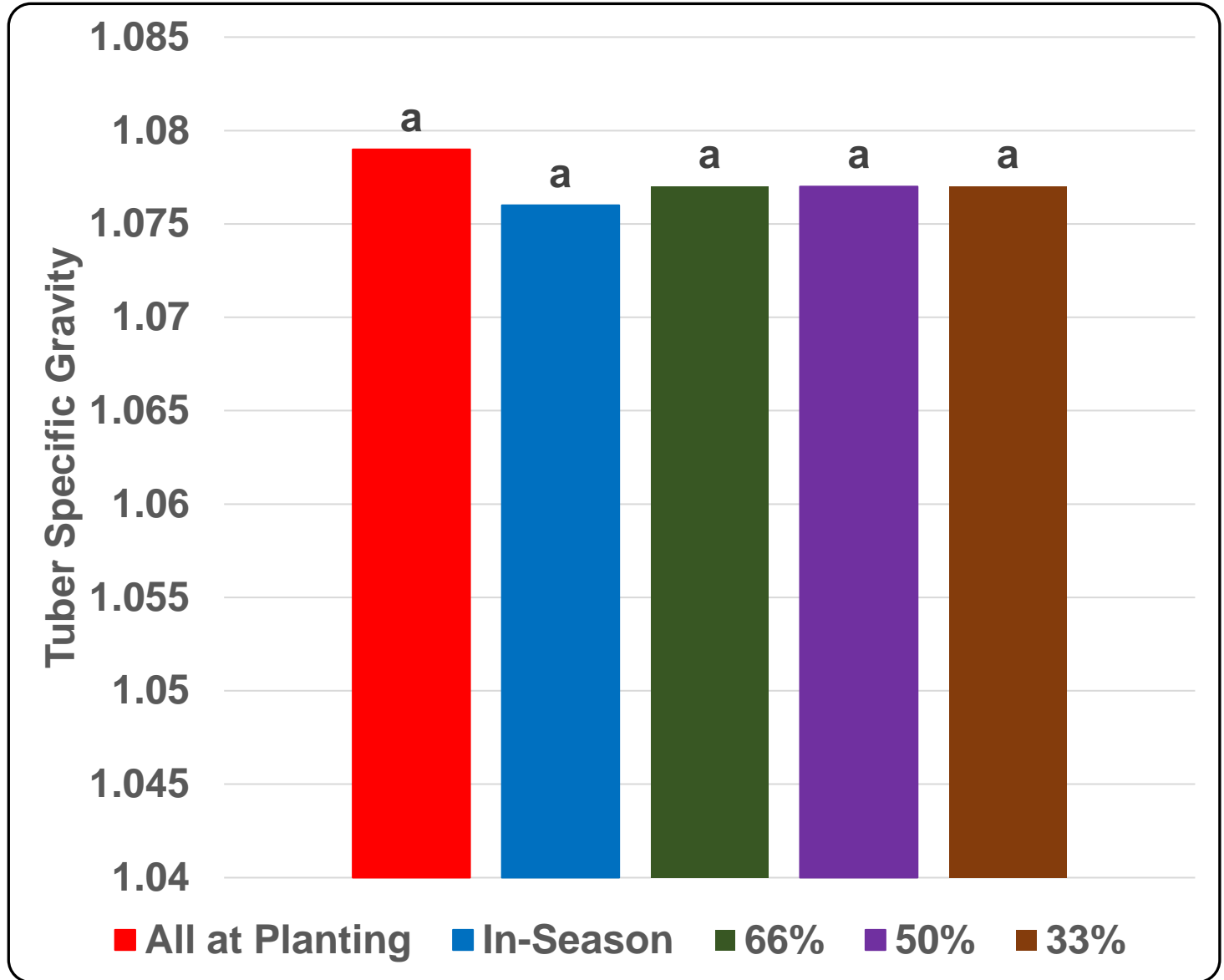
12-19 oz Tuber Yield (cwt/acre)
(50 Count)

Residual N = 35 lb N/A



Reveille Russet

**Effect of N
Application
Timing on Tuber
Specific Gravity**



SUMMARY

- ✓ **Total required N for Reveille Russet = 180-200 lb N/acre (Residual N + Applied N)**
- ✓ **Sixty six percent of applied N should be put down pre-plant or at planting, and the remaining applied N should be split applied after tuber formation.**
- ✓ **Complete N fertilization by end of July or earlier in the San Luis Valley**

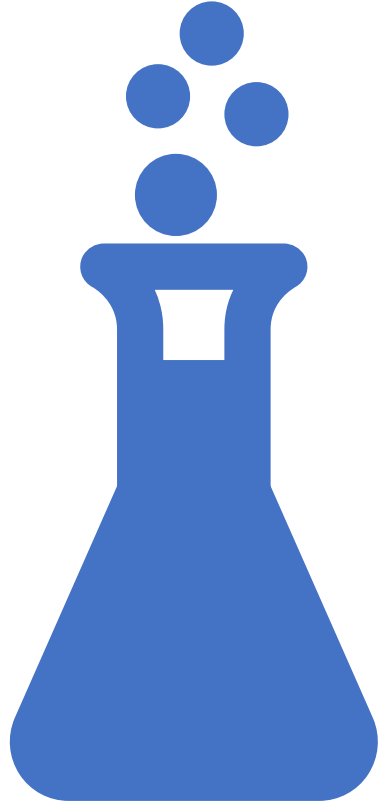
RESPONSE OF RUSSET POTATO TO BLENDED LIQUID PHOSPHORUS FERTILIZERS

WHY THE STUDY

- Different liquid P fertilizers currently on the market
 - Some are mostly orthophosphates
 - Others are mostly polyphosphates
 - Some are 50/50 ortho/poly combination
- ✓ Cost of these fertilizers are relatively high compared to the commonly used 10-34-0

WHY THE STUDY (continued)

- ▶ Some growers therefore blend 10-34-0 with these liquid P fertilizers in their operations
- ▶ Information on the use efficiency of these blends is not well documented



LIQUID PHOSPHORUS FERTILIZERS EVALUATED IN THIS STUDY

- 8-21-5 (90% orthophosphate)-\$5.25/gal**
- 3-18-18 (100% orthophosphate)- \$8.50/gal**
- 9-24-3 (50/50%) ortho/poly)- \$7.38/gal**
- 8-22-2 (90% polyphosphate)- \$8.21/gal**
- 10-34-0 (30% ortho + 70% poly) - \$4.79/gal**



TREATMENTS

1. 8-21-5/10-34-0 (15/85 units/A) – T1
2. 8-21-5/10-34-0 (15/68 units/A) – T2
3. 3-18-18/10-34-0 (15/85 units/A) – T3
4. 3-18-18/10-34-0 (15/68 units/A) – T4
5. 9-24-3/10-34-0 (15/85 units/A) – T5
6. 9-24-3/10-34-0 (15/68 units/A) – T 6
7. 8-22-2/10-34-0 (15/85 units/A) – T7
8. 8-22-2/10-34-0 (15/68 units/A) – T8
9. 10-34-0 (100 units/A) – T9 (control)

EXPERIMENTAL DESIGN

● **RCBD**

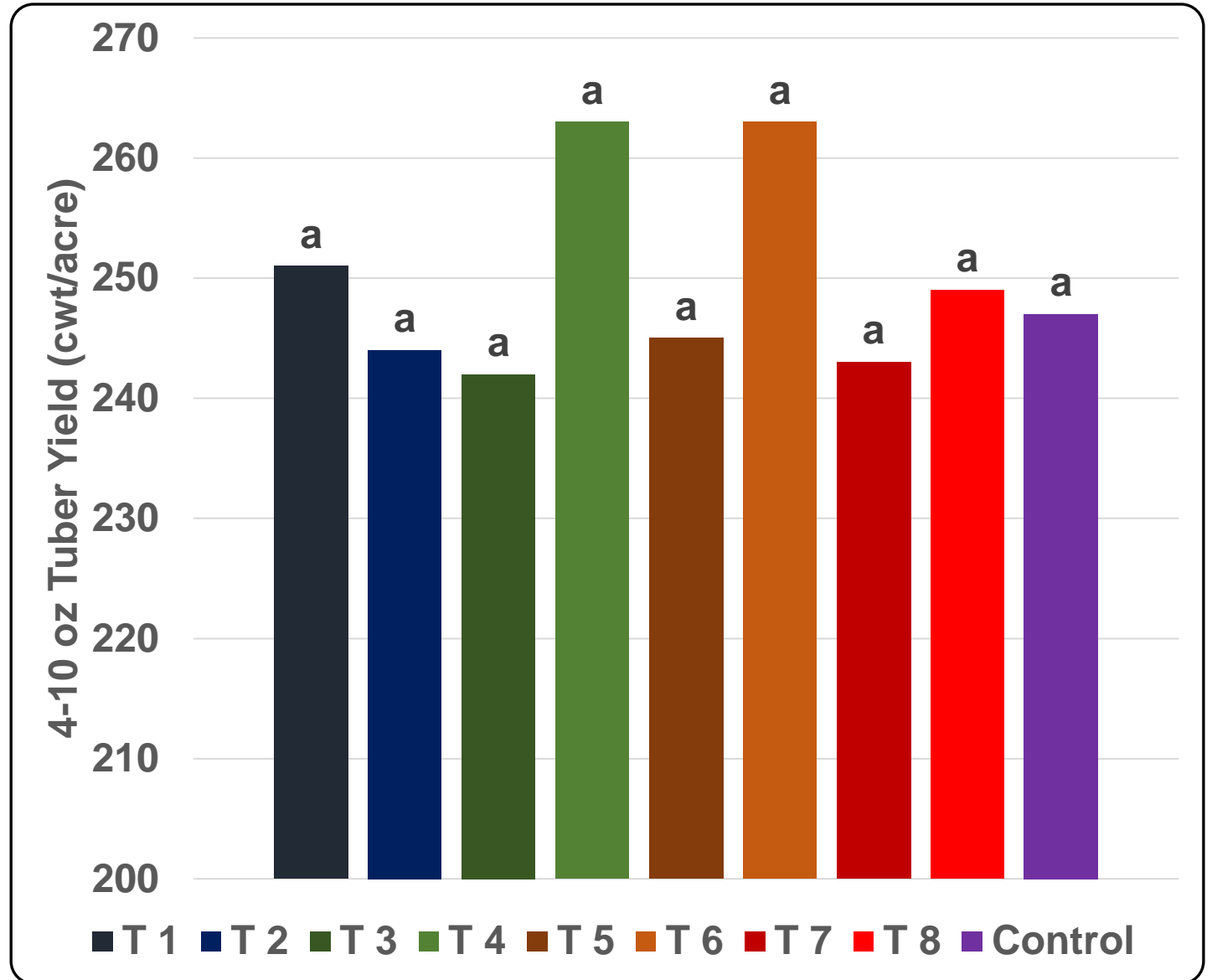
● **Replication : 4**

RESULTS AND DISCUSSION



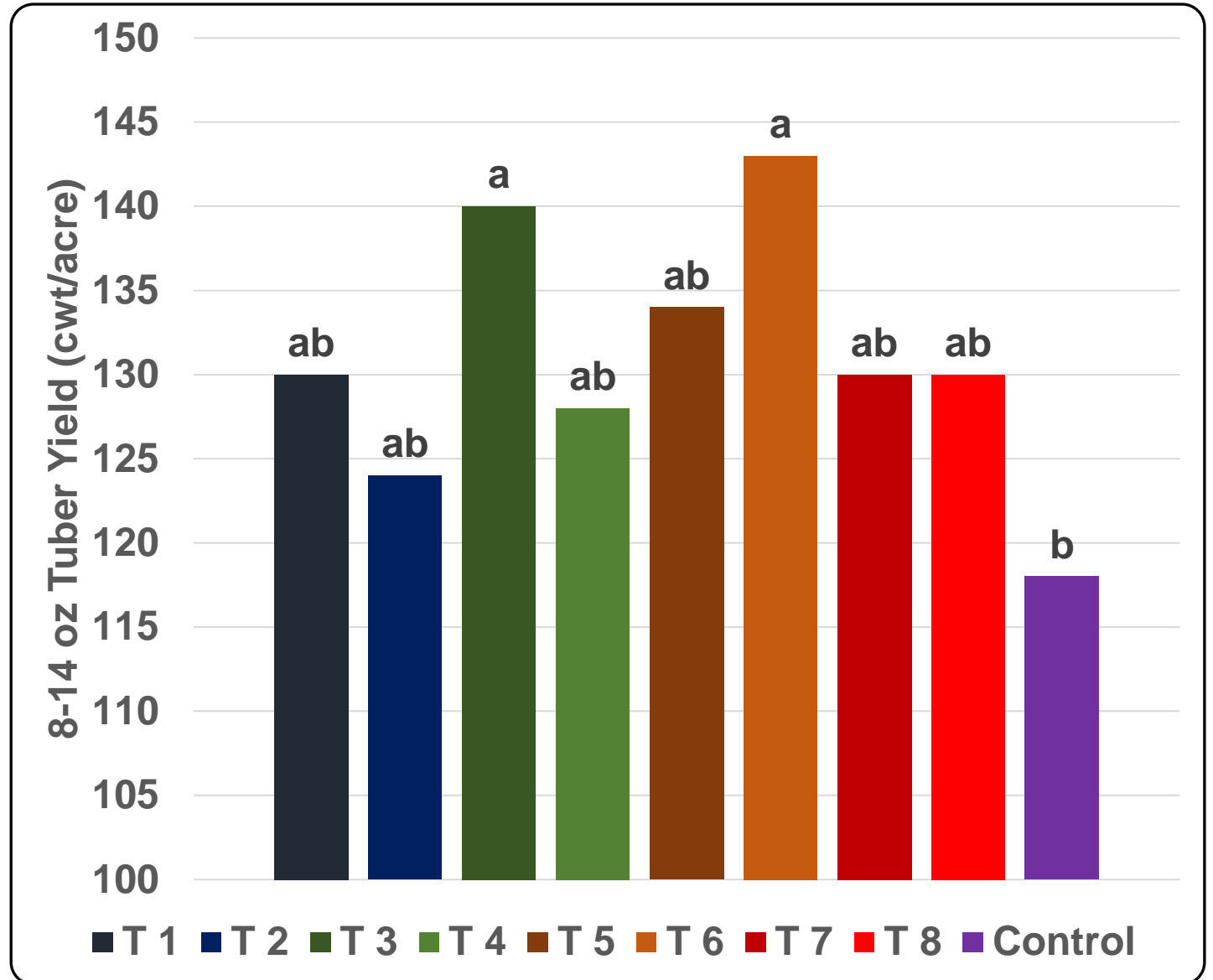
4-10 oz Tuber Yield (cwt/A)

100 count



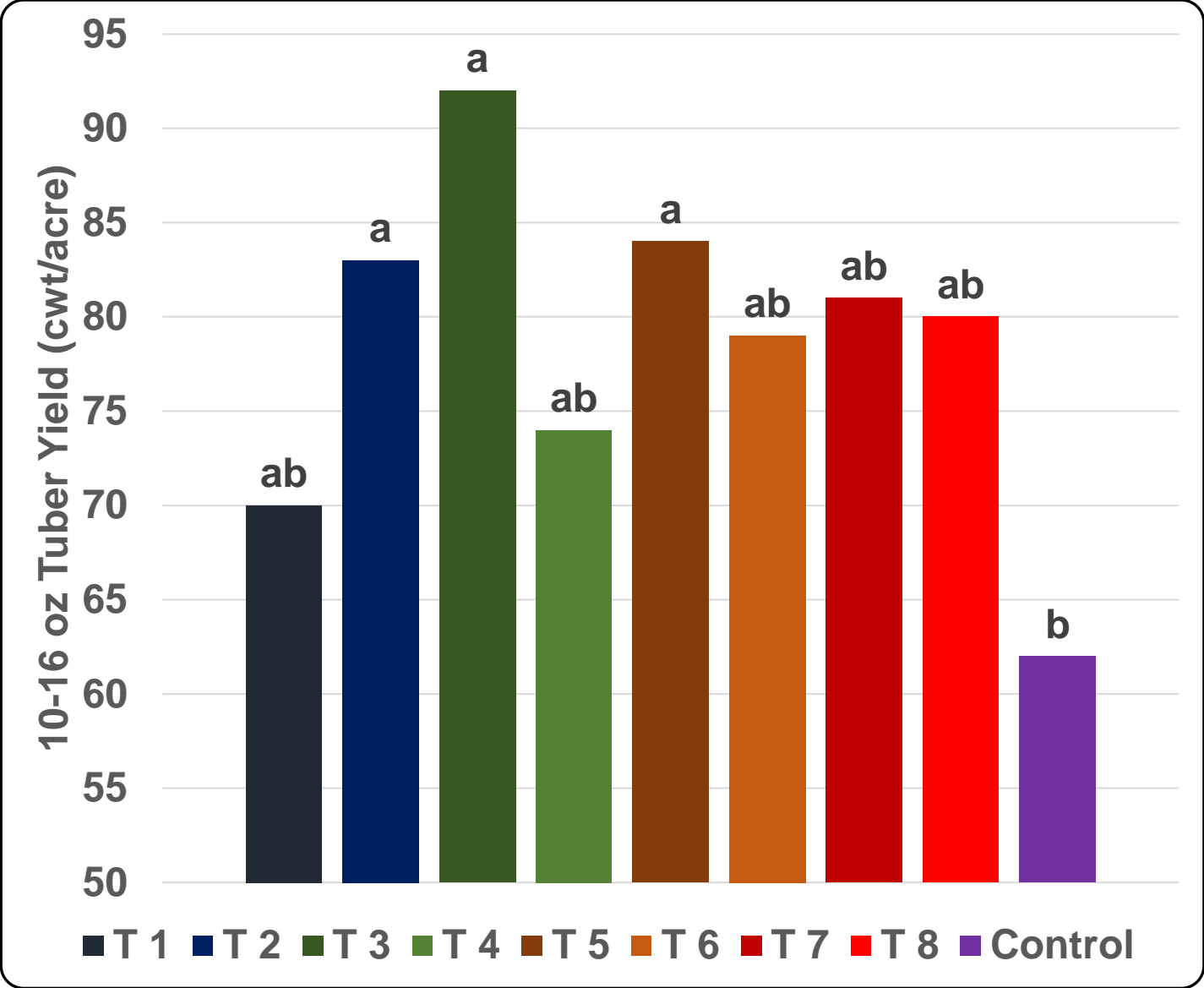
8-14 oz Tuber Yield (cwt/A)

80 count



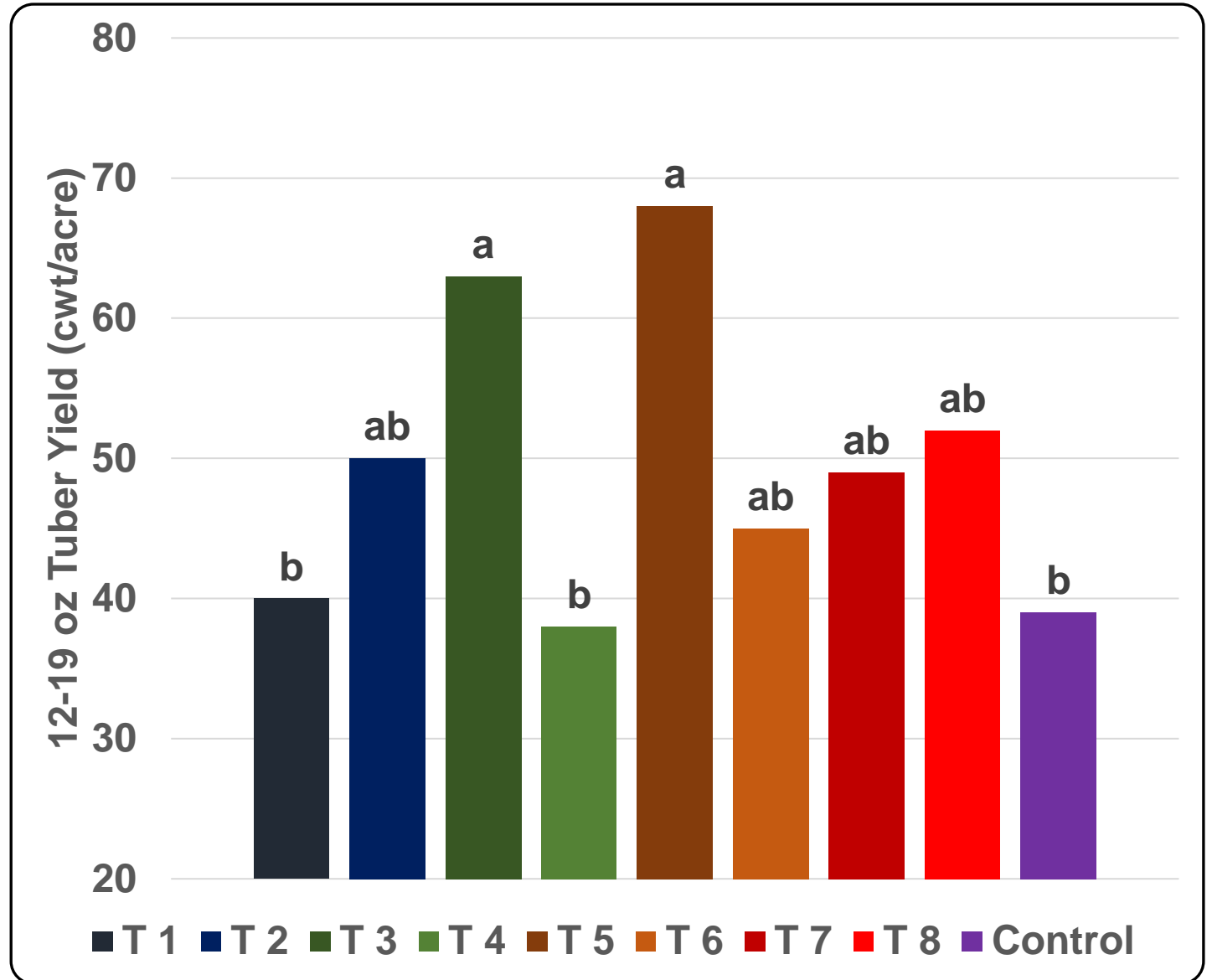
10-16 oz Tuber Yield (cwt/A)

60 count



12-19 oz Tuber Yield (cwt/A)

50 count





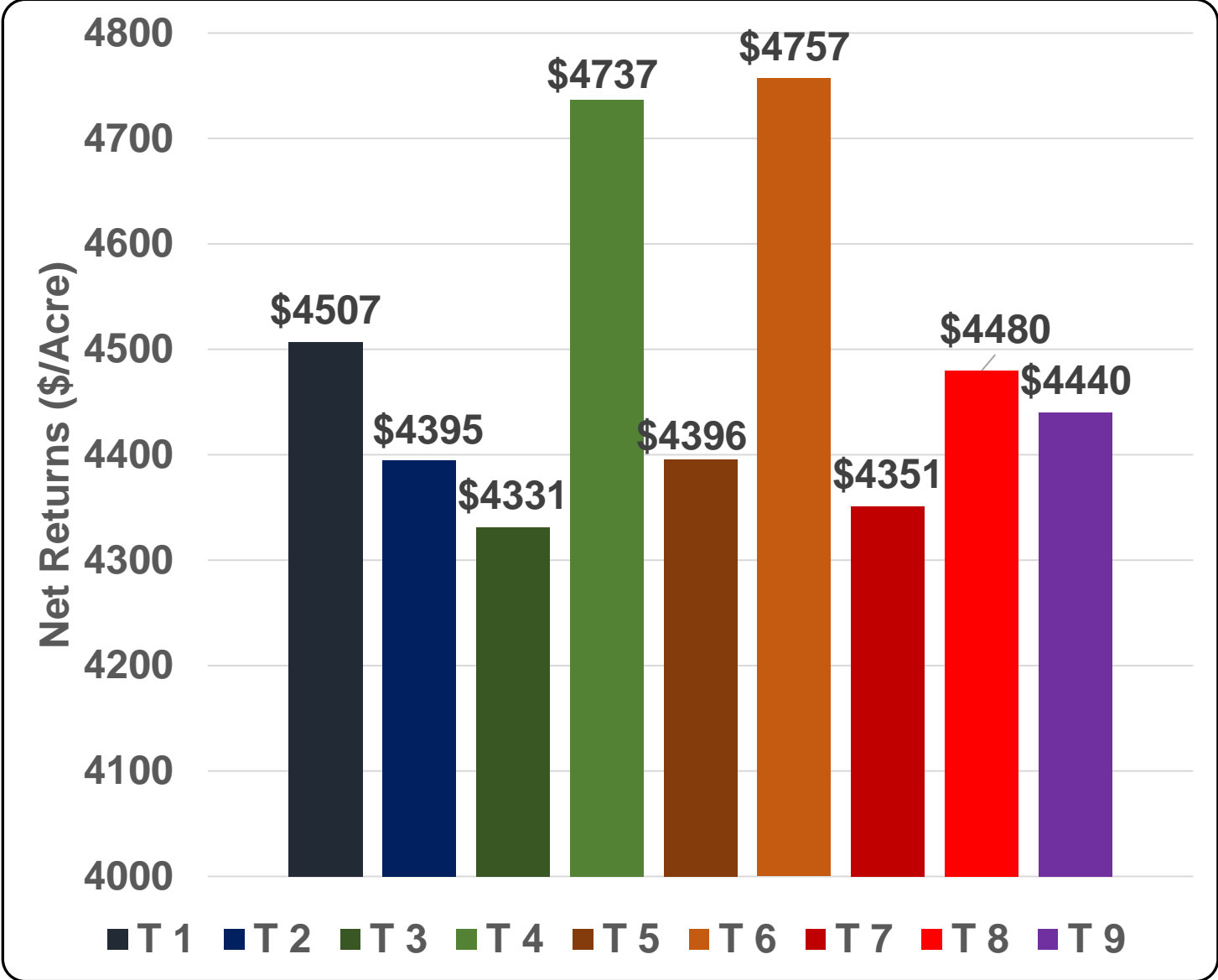
COST-BENEFIT ANALYSIS

feb	125,058	154,568	95,054	121,000
mar	125,487	56,845	97,511	125,000
apr	124,000	110,000	99,011	154,000
may	1450	150,000	99,216	95,000
jun		35,000	101,090	154,200
jul			101,684	110,000
aug			101,962	89,000
sep				50,000
oct				10,700
nov				
dec				

Cost-Benefit Analysis

Net Returns – (Excluding Other Costs)

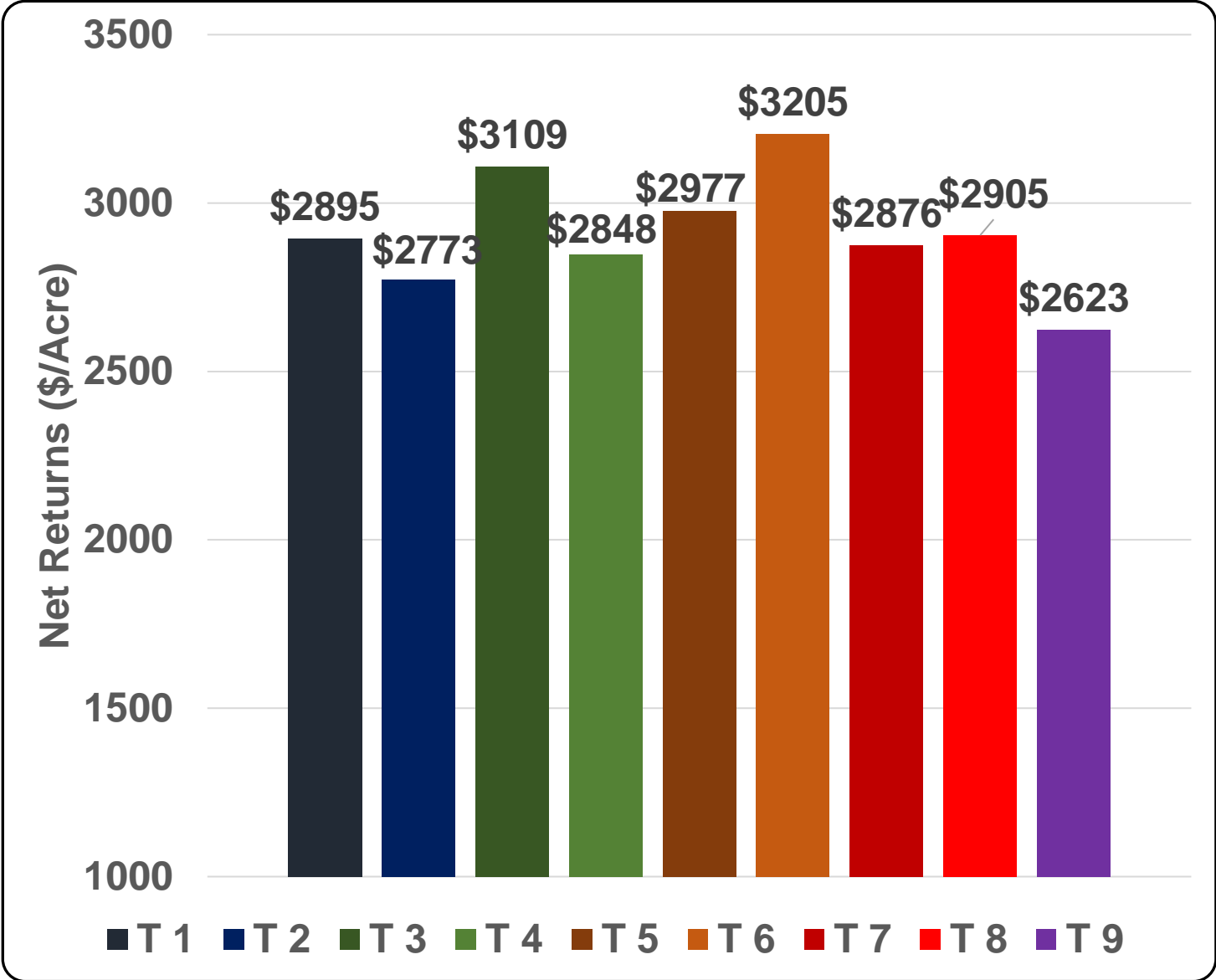
4-10 oz Tuber Yield
(100 COUNT)



Cost-Benefit Analysis

Net Returns – (Excluding Other Costs)

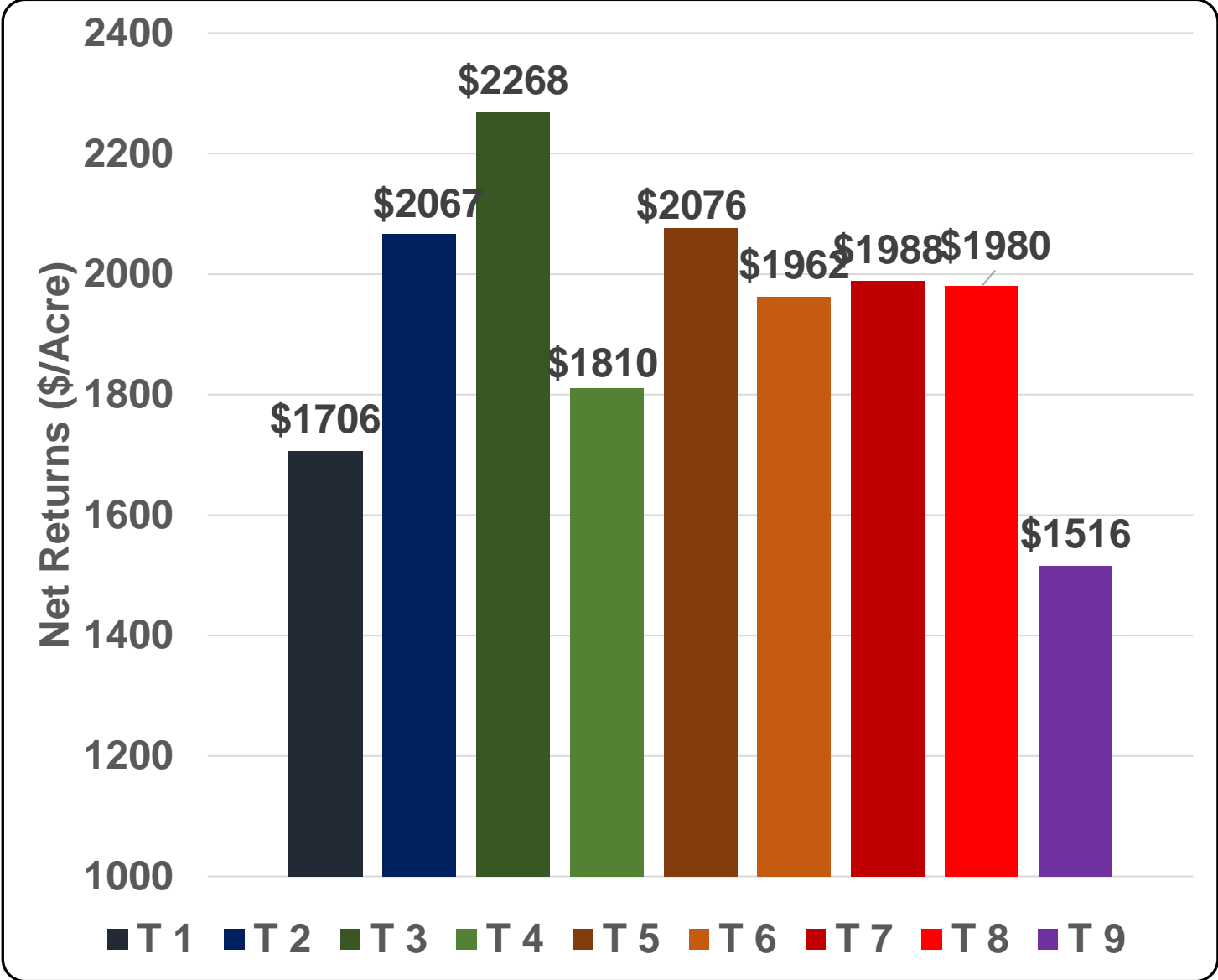
8-14 oz Tuber Yield
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Cost-Benefit Analysis

Net Returns – (Excluding Other Costs)

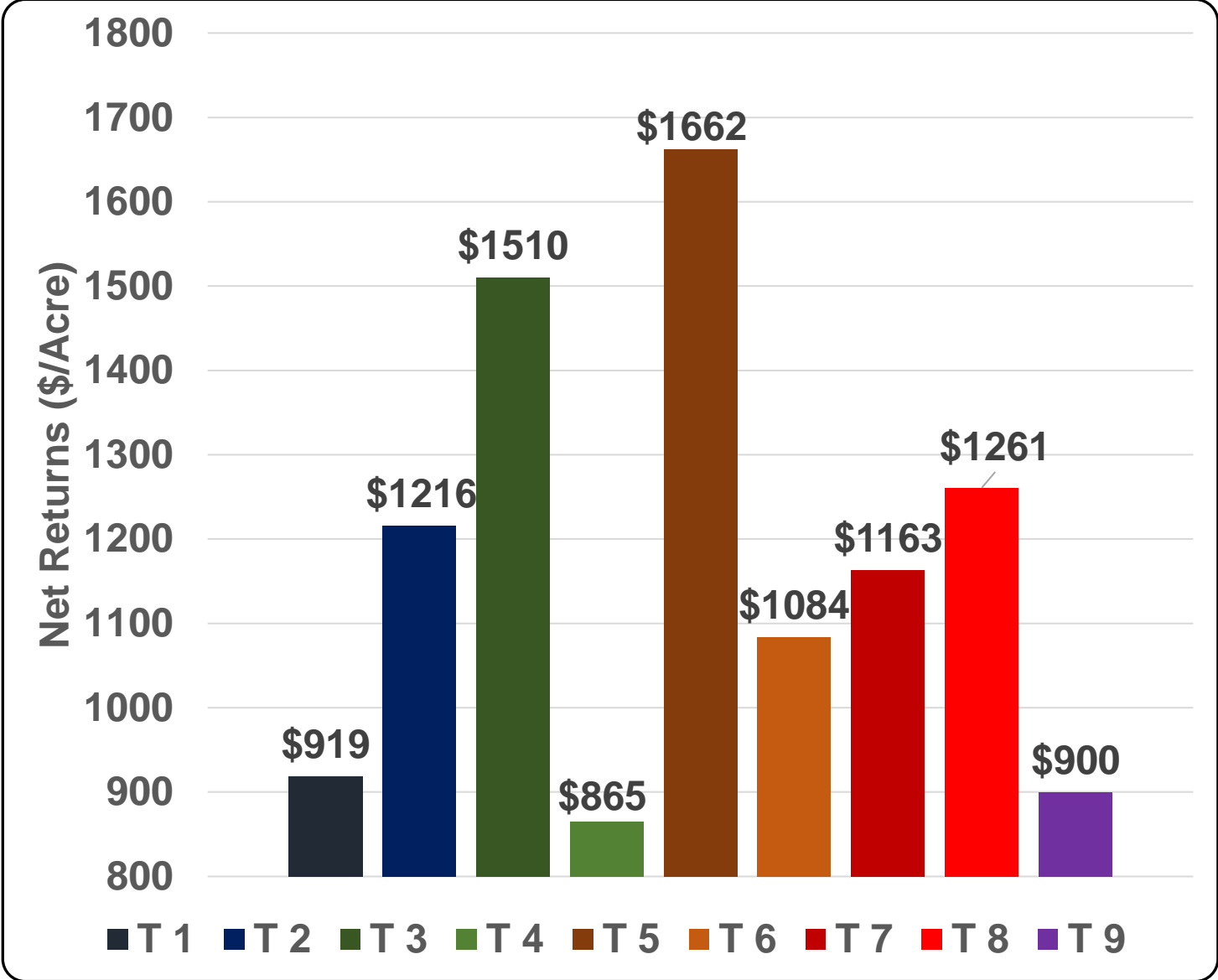
**10-16 oz Tuber Yield
(60 COUNT)**



Cost-Benefit Analysis

Net Returns – (Excluding Other Costs)

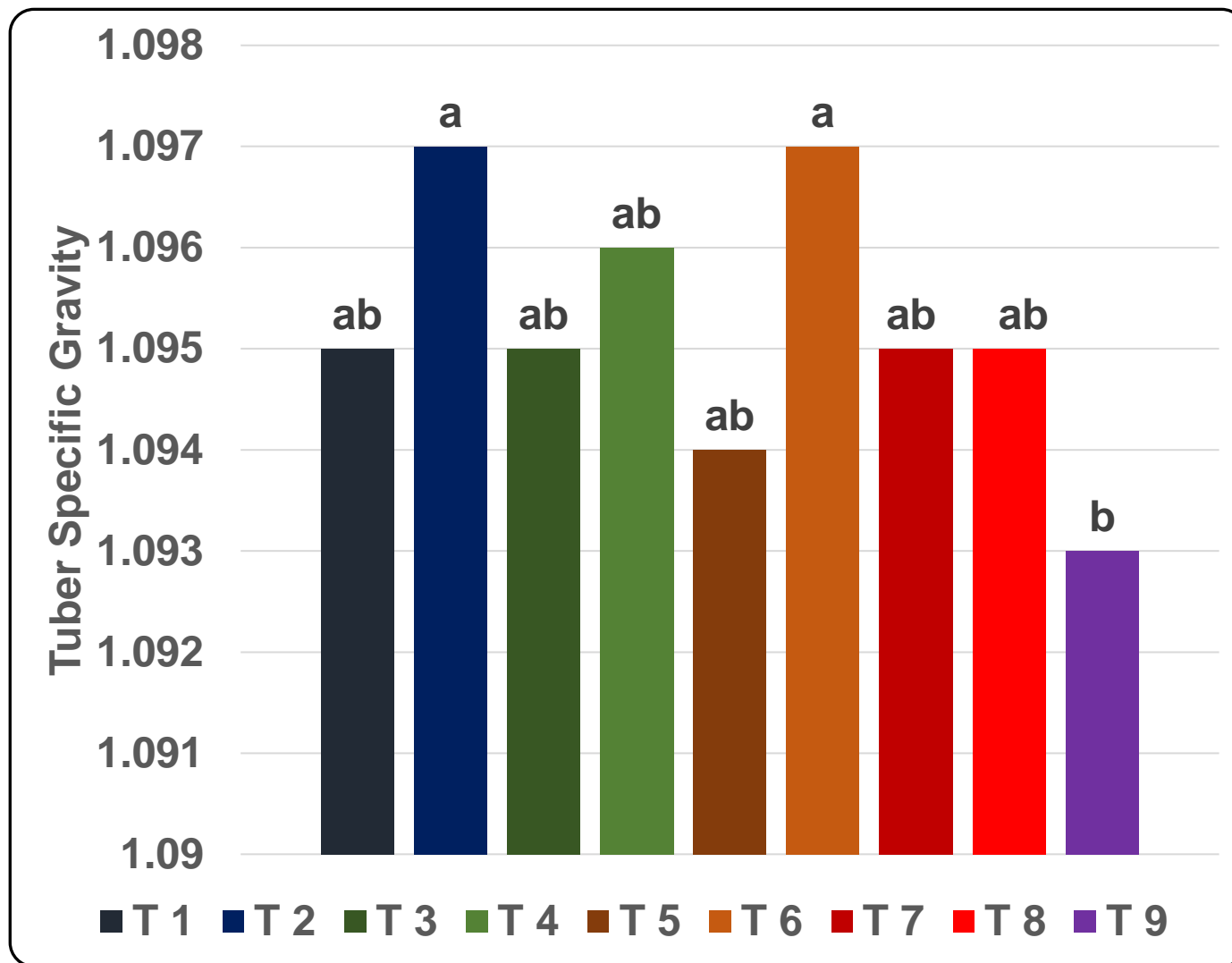
**12-19 oz Tuber Yield
(50 COUNT)**



TUBER SPECIFIC GRAVITY



EFFECT OF BLENDED LIQUID PHOSPHORUS FERTILIZERS ON TUBER SPECIFIC GRAVITY OF CANELA RUSSET



SUMMARY

Blending 10-34-0 with other liquid P fertilizers:

- ✓ **Improves tuber yield and quality**
- ✓ **Generates higher economic returns compared to using 10-34-0 alone as source of P fertilizer**

TAKE HOME MESSAGE

- **The benefits of blending 10-34-0 with other liquid P fertilizers can vary depending on the liquid fertilizer used.**
- **Growers should therefore decide on which blends fit best in their operation.**



THANK YOU