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Teff (*Eragrostis tef*) is a grass that is native to Ethiopia. In the past decade it has gained in popularity in many other countries, including the United States. This is partially due to the high forage quality hay that results from the long fine leaves in relationship to the small narrow stems (Fig. 1).



Figure 1. Teff has long leaves and very fine stems, the latter makes plants highly susceptible to lodging.

Demand for teff seed has also increased due to its need in two main markets:

- 1) Forage/hay crops
- 2) Injera, a sourdough pancake-like bread, which has increased greatly in recent popularity due to being gluten free

Acres of teff seed production in the Palo Verde Valley have increased greatly over the past 8 years to meet this market, in part due to high yields that are able to be realized. The high yields in combination with the fine stems can result in lodging of almost entire fields (Fig. 2).



Figure 2. Teff seed field with very extensive lodging.

Can an application of a plant growth regulator result in reduced lodging of a teff seed crop, and if so, at what point in the growth cycle does it need to be applied?

## METHODS and MATERIALS

Trial was conducted on both fall and spring teff seed crops, with experimentation first initiated on the fall crop.

### FALL 2021

Apogee® applied at 3.5 and 7 oz./acre (August 18)

Plant parameters means when treated:

Collared leaves = 3.36

Distance from soil line to top collar = 4.72"

Extended leaf height = 15.5"

**RESULTS:** Lodging occurred very early (prior to seed inflorescence extension). While Apogee® treatments resulted in significantly reduced lodging early in the growth cycle and prior to extension of inflorescence compared to untreated teff (Fig. 3), this did not prevent later severe lodging, indicating initial application rates were too low and/or applied too late in the growth cycle.

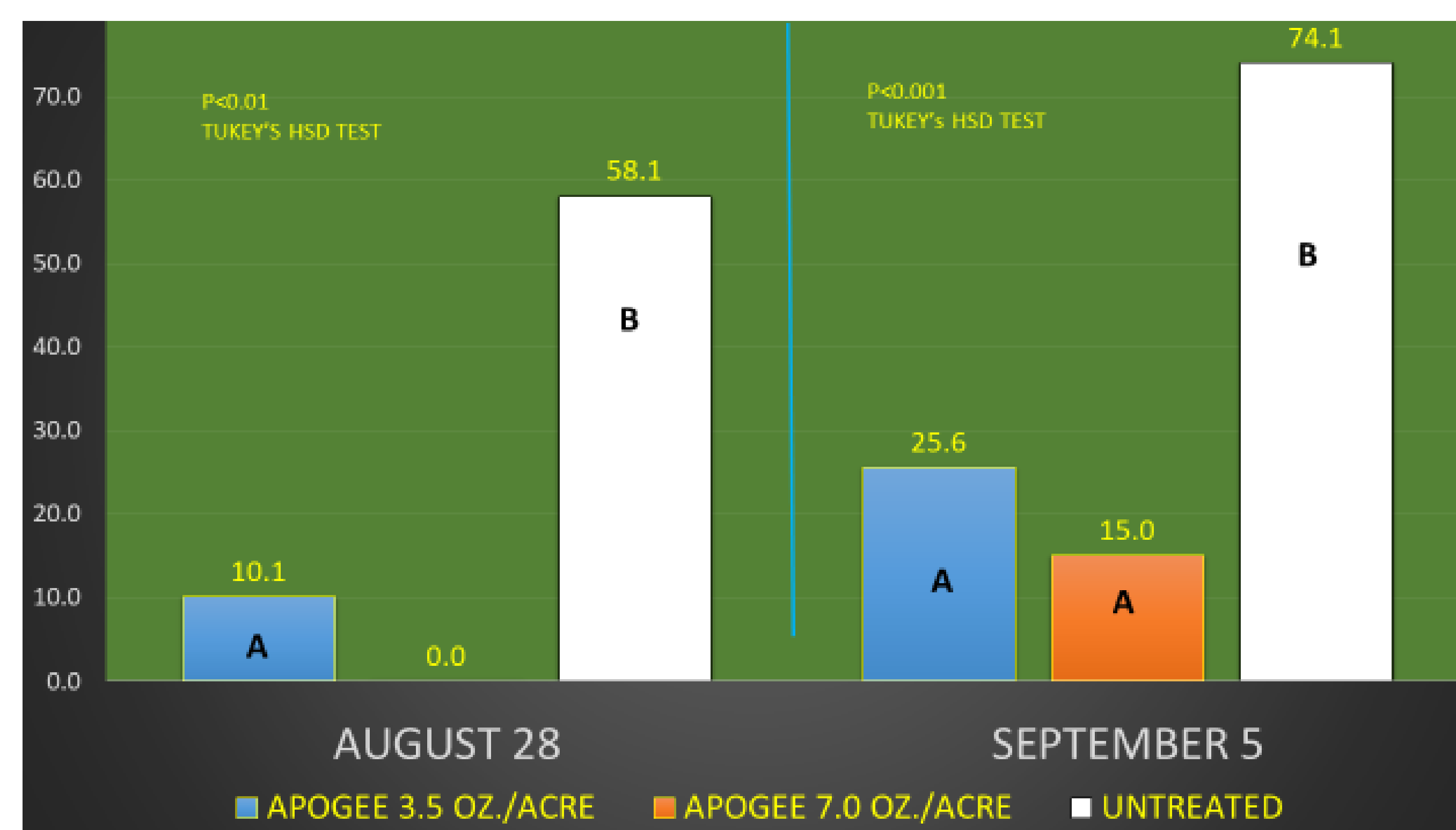


Fig. 3. Mean percent teff lodging following Apogee® application on August 18, 2020, Blythe, CA.

**SPRING 2021** (higher rates, applied earlier in development)  
Apogee® rates: 7.25 and 14.5 oz./acre. Applied on April 16 and 26<sup>th</sup>, 7.25 oz. rate applied twice

Plant parameters means when treated:

	April 16	April 26
Collared leaves	3.07	3.62
Distance to top collar	2.75"	7.1"
Extended leaf height	11.4"	20.8"

**RESULTS:** Differences in lodging were noted at harvest due to some treatments from some treatments. This was evident in a drone picture of the plot area just prior to harvest (Fig. 4) where differences were easily discernable between lodged and non-lodged teff. This was also evident at plot interfaces between highly effective treatments and adjacent lodged teff (Fig. 5).

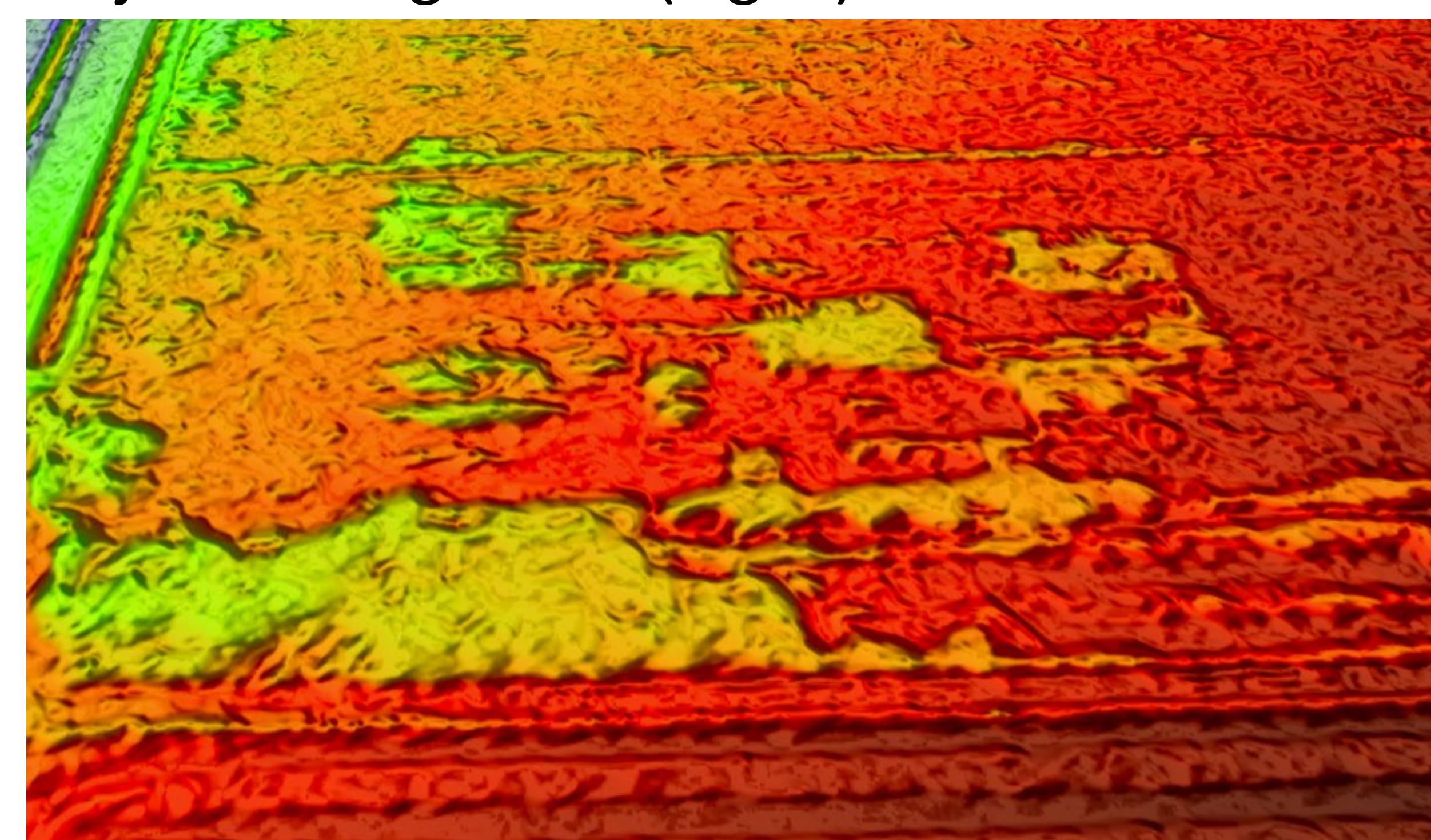


Figure 4. Upright (non-lodged) teff at harvest appears light colored in this drone image compared with lodged (reddish/orange colored) teff.



Figure 5. Lodged and non-lodged teff at harvest

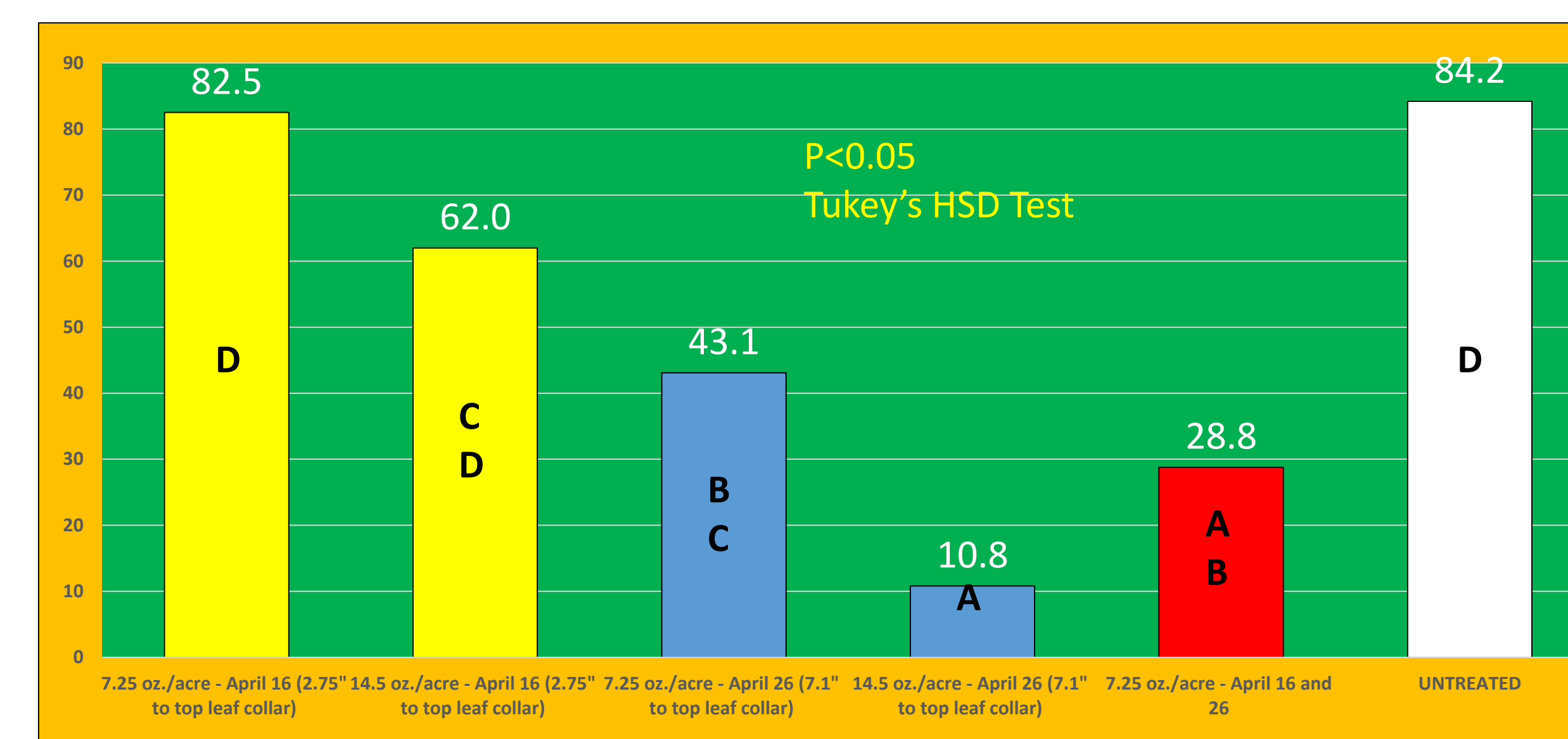


Figure 6. Mean percent teff seed stem lodging at June 15 harvest resulting from Apogee® applications early in the growing season.

## CONCLUSIONS

Two Apogee® treatments resulted in <30% lodging (2 applications of 7.25 oz./acre, 14.5 oz./acre when top collar was at 7"). Field trials of these treatments are needed for yield data.