

¹Agronomy Department, University of Florida, Gainesville, FL; ²Plant breeding and Genetics, University of Lavras, Lavras, Brazil; ³Instituto de Investigaciones Agropecuarias, Chillan, Chile; ⁴Department of Horticulture, University of Florida, Gainesville, FL

Rationale

- Alfalfa (*Medicago sativa* L.) is the most important forage crop in the world due to its high yield and nutritive value. In 2016, 48.7 million tons of forage were derived from alfalfa and alfalfa/grass mixtures in the USA.
- Florida livestock production systems depend on alfalfa importation; therefore, there is a need to develop alfalfa cultivars grown under proper management practices.
- Pest and disease pressure, humidity, and warm temperatures prevailing in Florida during summer require the adoption of adapted alfalfa varieties.

Objetivo

- The objective was to study the effects of two stubble heights (5 and 10 cm) on dry matter production (DM), root/shoot development and persistence of four alfalfa cultivars.

Experiment: Yield

- Cultivars developed in Florida (“FL77” and “FL99”) and outside Florida (“Bulldog 805” and “AmeriStand 901 TS”) were evaluated for two years in a split plot design with six replicates in Central Florida at the UF/IFAS Plant Science Research and Education Unit in Citra, FL.
- Plots were harvested at alfalfa growth stage of 1/10 bloom (32-40 day intervals) for a total of 17 harvests.

Whole Plot:
Stubble
Height (5 and
10 cm)



Subplot:
Cultivars

Cultivars

FL99

FL77

AmeriStand 901 TS

Bulldog 805

Dry Matter
Harvested
Every 5
Weeks



Experiment: Root/Shoot Development

Plant stand	Shoot	Crown	Root
			
<ul style="list-style-type: none"> Two random areas from central strips (0.25 m²) Persistence Plant density 	<ul style="list-style-type: none"> Number of tillers 	<ul style="list-style-type: none"> Crown diameter (cm) 	<ul style="list-style-type: none"> Root weight (g)

Results: Yield and Persistence

- Across the experiment, average DM was 8.7 ton ha⁻¹ y⁻¹.
- Stubble height did not show significant effect on DM, but a significant cultivar effect was observed (p<0.05) (Fig. 1).
- The local cultivar FL99 yielded 11.5% more forage than the other cultivars.
- Stubble height significantly affected plant density (p<0.023), and plant density was higher for alfalfa harvested at 10 cm (Figure 2). Plant density showed a significant cultivar effect (p<0.0001), with FL99 and Bulldog805 exhibiting higher persistence (Fig 2).

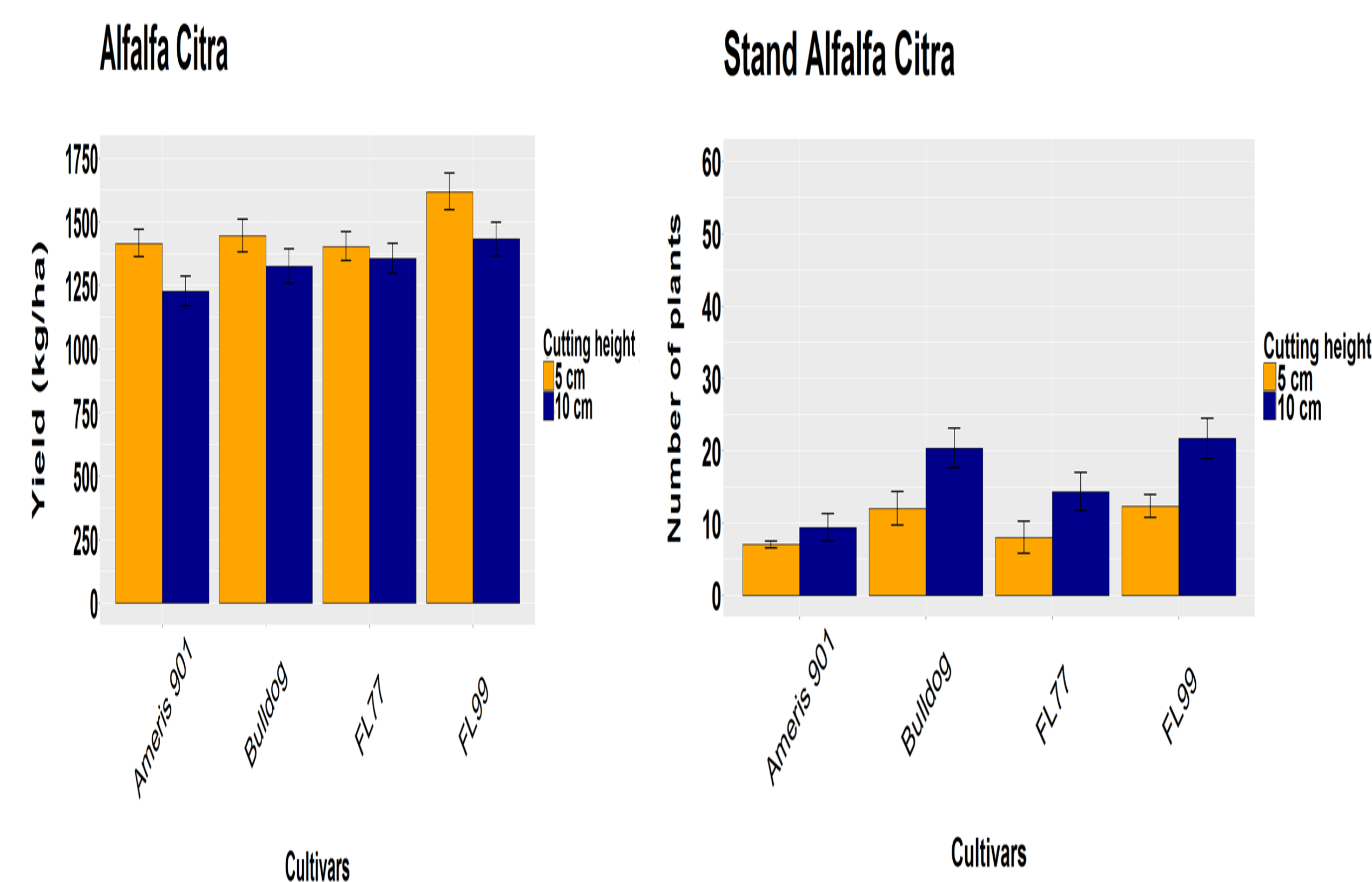


Fig.1. Effect of Stubble height and cultivars on Dry Matter Yield

Fig 2. Effect of Stubble height and cultivars on Plant density (stand)

Results: Root/Shoot Development

- The following traits were significant for cultivar: root weight (p<0.019; Fig. 3), crown diameter (p<0.001, Fig. 4), # of tillers (p<0.005, Fig. 5) and # of heads (p<0.012); Height from crown were not significant per cultivar (p>0.05).
- Interactions were not significant for the traits measured.

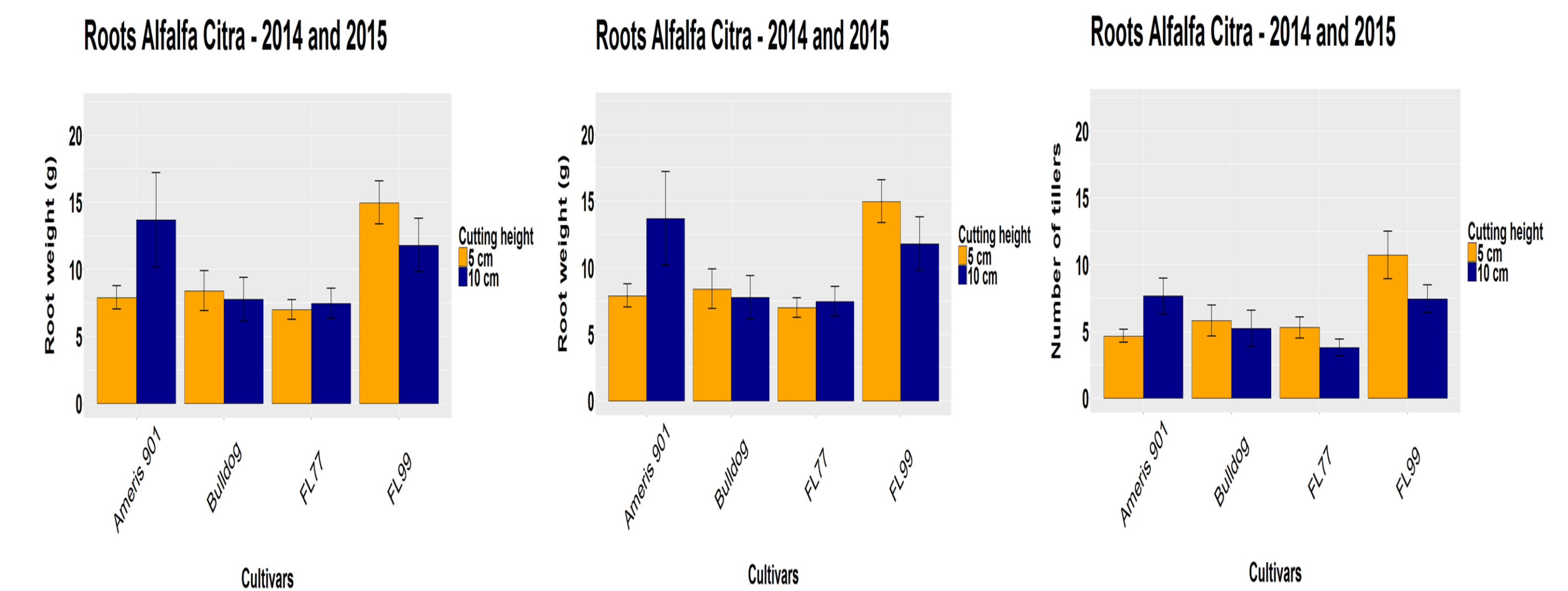


Fig 3. Root weight (g) vs cultivars for cutting height

Fig 4. Crown diameter (cm) vs cultivars for cutting height

Fig 5. Number of tillers vs cultivars for cutting height

Conclusions

- Stand persistence showed a significant cultivar effect; the cultivar FL99, followed by Bulldog 805, showed higher plant density.
- The cultivar FL99 also exhibited the highest root weight and crown diameter.
- Results suggest that plant persistence is a character to improve for Florida conditions.

Works Cited

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