

## INTRODUCTION

In this study, we are evaluating the water use efficiency of black polypropylene fabric mulch used as a ground cover in beds for citrus production.

Currently, growers in southeast Florida use this groundcover to control the pest, *Diaprepes abbreviatus* or Citrus root weevil. There is however limited research on the effects of using this groundcover for water management in citrus.

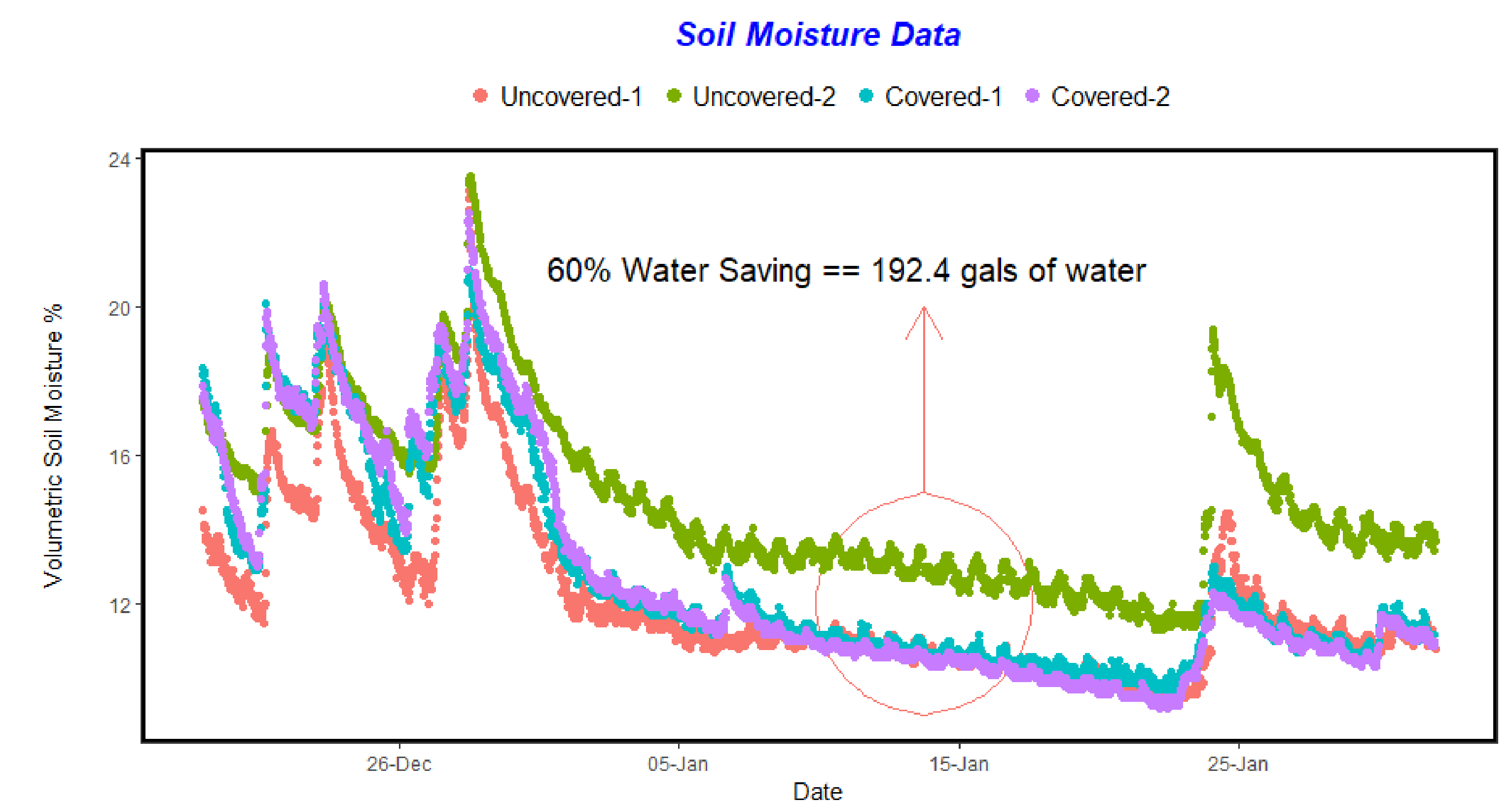
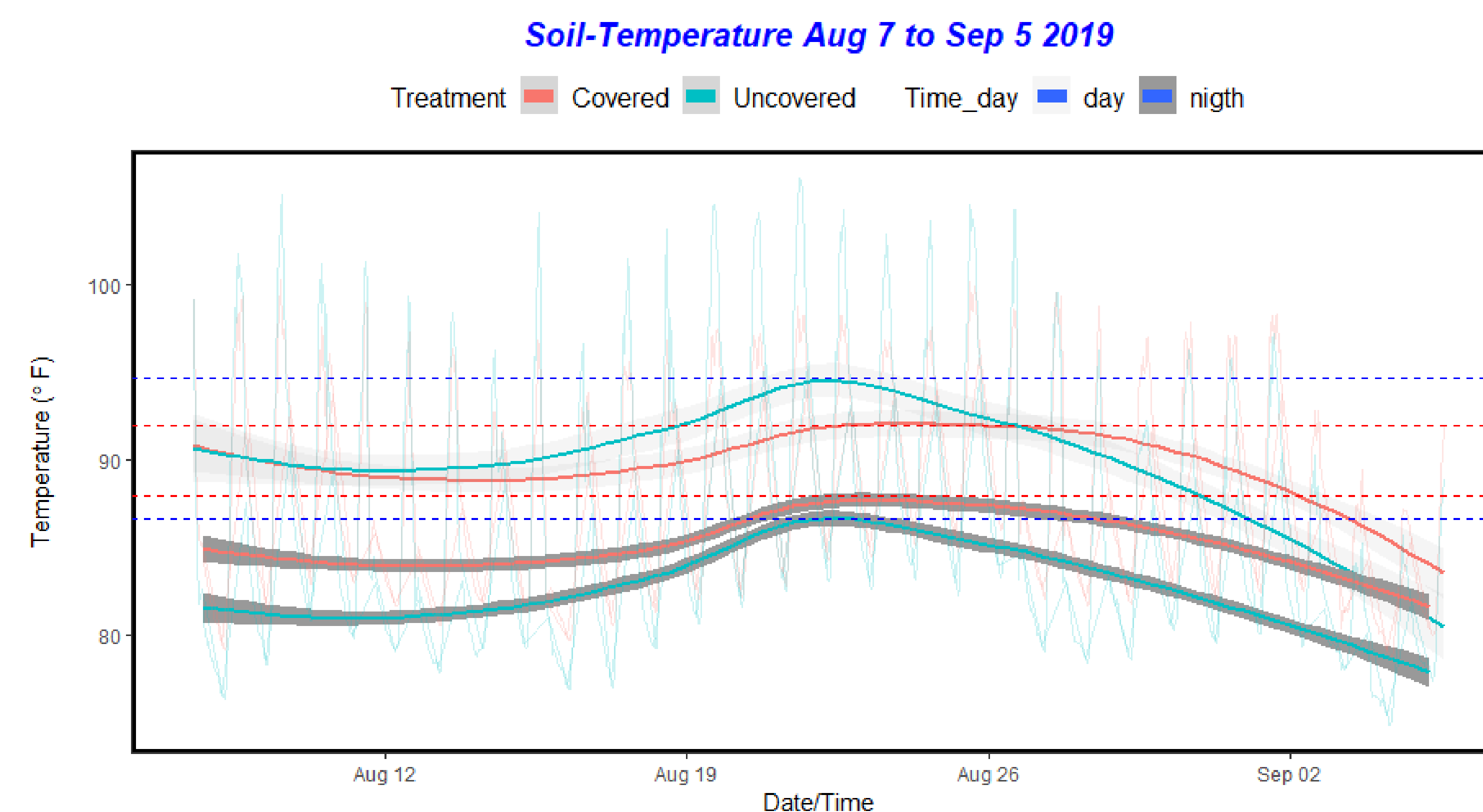
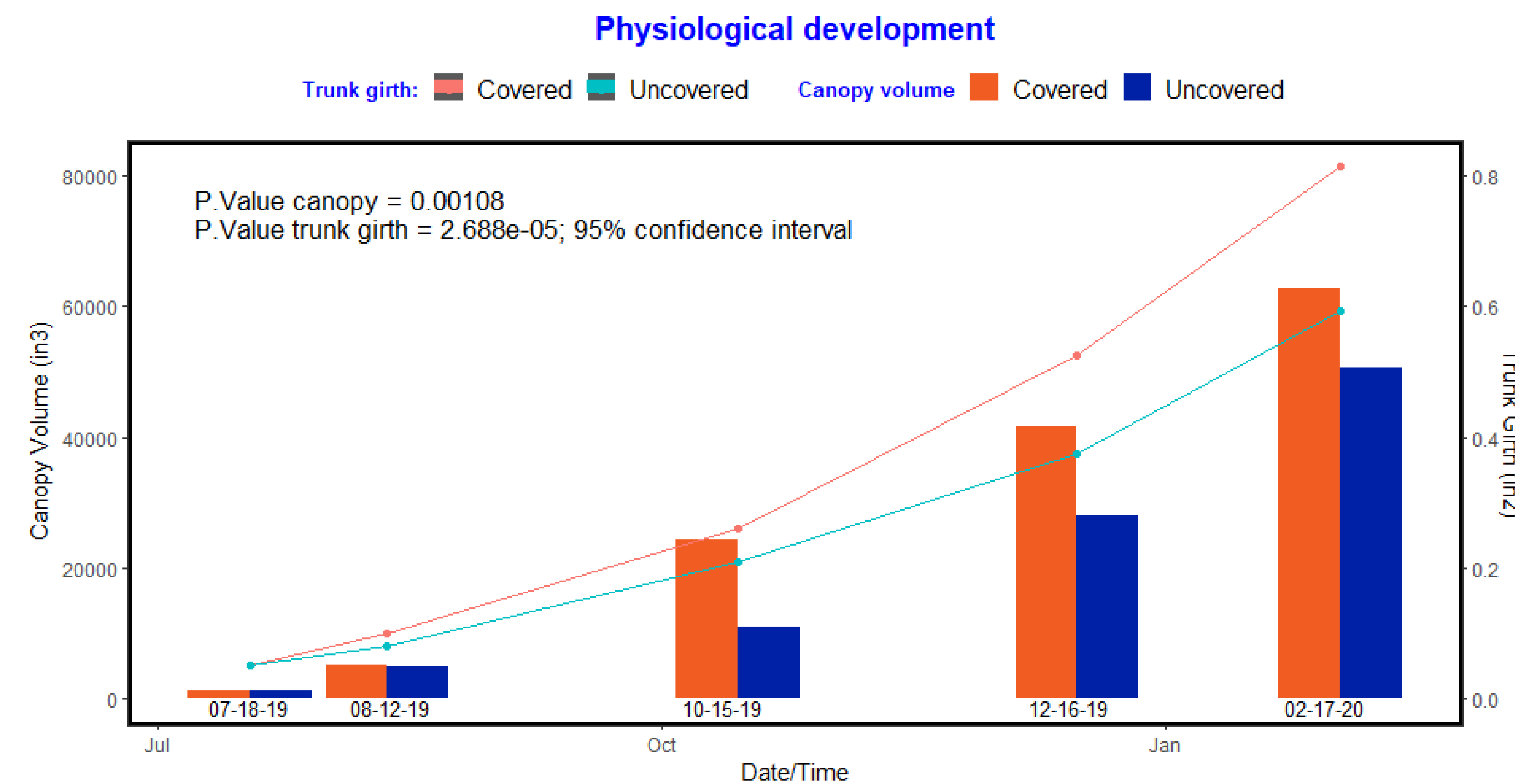
The objectives of this study are:

- Evaluate the water saving potential of the ground covered vs uncovered (conventional) beds used in the production of lemon trees in Fort Pierce, Florida.
- Assess the effects the groundcover has on soil temperature and soil water-holding capacity.
- Determine the effects the ground covered beds have on the physiological development of lemon trees.

## METHODS-EXPERIMENTAL DESIGN

- Complete Randomized Design
- Location: Fort Pierce, Florida
- Treatments: covered and uncovered
- Replications: 5
- Crop: lemon
- Soil Moisture Sensor data collected in real time
- Temperature data collected hourly
- Canopy volume and trunk girth measurements every 2 months

## GRAPHICAL RESULTS



## DISCUSSION

Using black polypropylene fabric mulch groundcover:

- The grower saves 60 percent of irrigation water
- Measurements of canopy volume and trunk girth are significantly higher as compared uncovered (conventional) beds ( $p < 0.05$ )
- Results in lower temperatures in the soil surface during the day and higher temperatures during the night which influence the vertical movement of water and nutrients which coincides with the findings of Pramanik et al., (2015)
- Act as a physical barrier to reduce water losses due to high temperatures and air currents in contact with the soil

## FUTURE WORK

- Assess the effect of ground covered beds in root system development
- Study how ground covered beds influence the air temperature
- Determine how ground covered beds influence nutrient efficiency
- Evaluate the effect ground covered beds have in water runoff

## REFERENCES

- [1] Bhaduri Bhattacharyya Pramanik, Bandyopadhyay and Aggarwal. Effect of mulch on soil thermal regimes. *International Journal of Agriculture, Environment and Biotechnology*, 2015.



This study is currently developed in a commercial field thanks to the support of our citrus growers

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