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# Capturing Spatial Variability in Maize and Soybean using Stationary Sensor Nodes



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## BACKGROUND

- Irrigation in agriculture maximizes crop yield and improves food security globally
- Irrigation scheduling is strongly based on the ability to accurately estimate the appropriate amount and timing of water application
- The timing of the irrigation can best be informed through the crop canopy stress, and the amount of irrigation is informed through soil moisture depletion

## RESEARCH OBJECTIVES

- Developing upper (non-water stressed) and lower (non-transpiring) baselines for irrigated and non-irrigated maize and soybean
- Investigating the relationship between the canopy stress and the soil moisture stress

## APPROACH



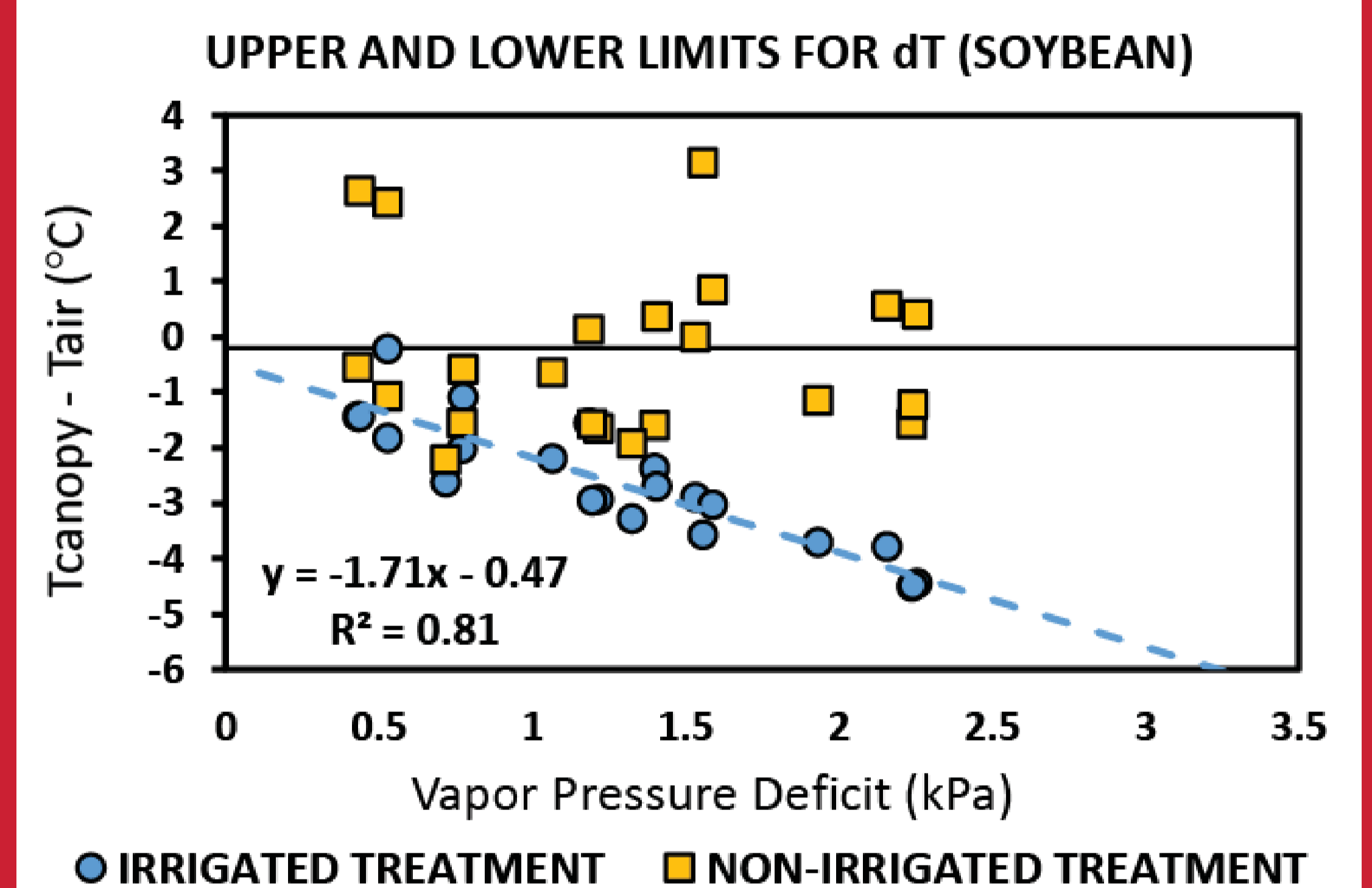
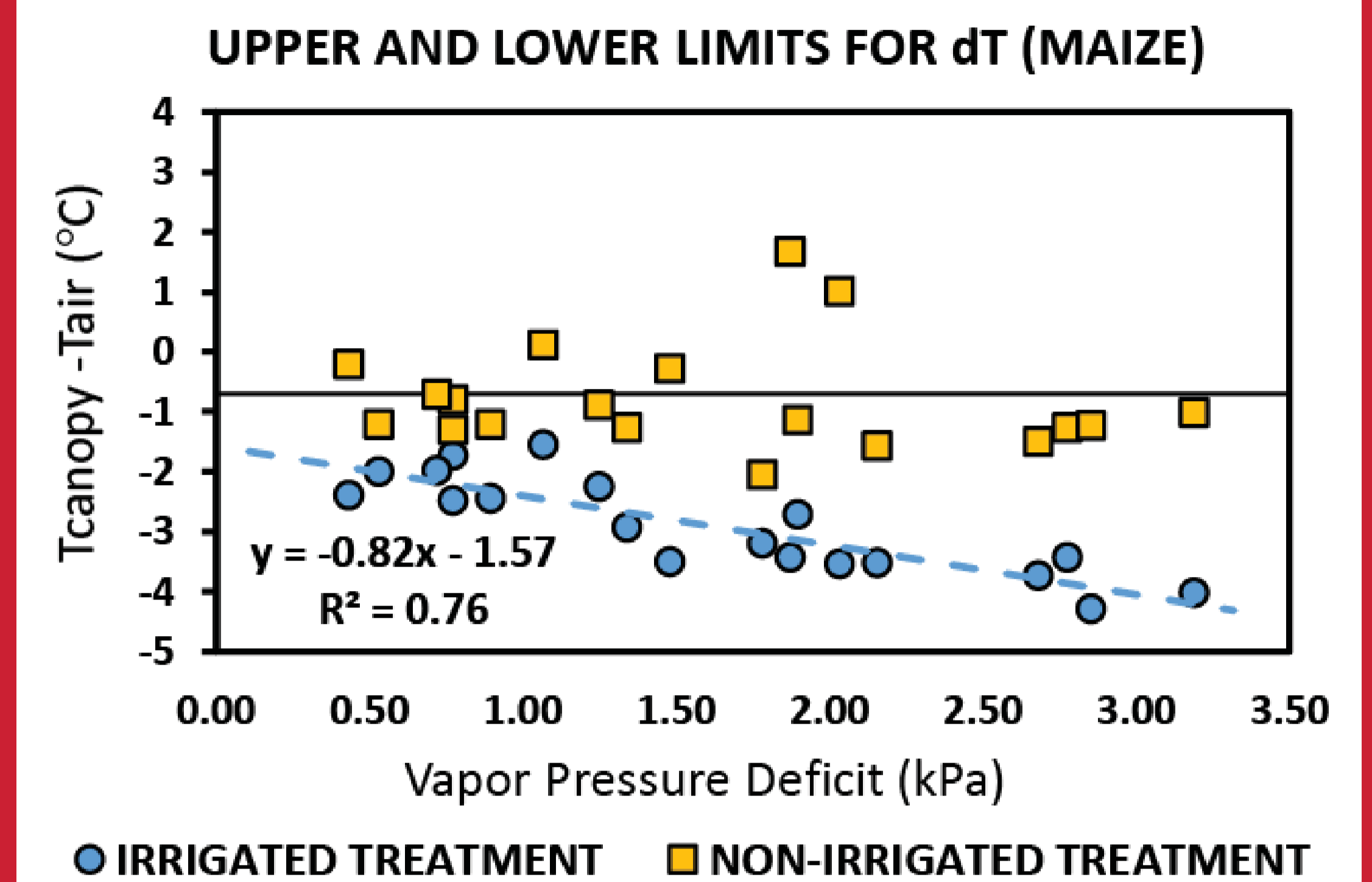
Fig. 1 (a)



Fig. 1 (b)

- Installation of GS-1 soil moisture sensors in the field during the beginning of the growing season.
- Stationary sensor node recording temperature and surface reflectance parameters over maize during full canopy cover

## RESULTS



## CONCLUSIONS

The canopy temperature stress and soil moisture depletion had **stronger** correlation for **non-irrigated** treatments in **soybean** than maize

## RECOMMENDATIONS

Relationship between crop canopy stress and soil moisture depletion is an indicator of irrigation requirement

## ACKNOWLEDGEMENTS

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