

Leandro G. Costa¹; Fábio R. Marin; Daniel S. P. Nassif; Murilo S. Vianna

PhD Student at University of São Paulo - Luiz de Queiroz College of Agriculture

legarcosta@gmail.com - Biosystems Engineering Department - Agricultural Systems Modeling Lab (ESALQ-AgSYM)

INTRODUCTION

Sugarcane (*Saccharum* spp.) is one of the most important Brazilian agricultural and energetic crops as source of food, fuel and feedstock. The physiological knowledge on water consumption can lead to increased productivity, besides providing sugarcane cultivation in areas where irrigation is essential. However, the irrigation is increasingly pressured by society as water became a limiting resource. The mechanical harvesting contributes trash maintenance and can improve the soil moisture.

GENERAL OBJECTIVES

The objective of this study therefore was to quantify the effect of 2 different types of management (maintenance or total removal of the trash) on (1) crop growth (stalk population, stalk height, canopy cover), (2) cane yield and (3) evapotranspiration (ET) of fully irrigated sugarcane.

MATERIAL AND METHODS

The study was carried out in a first ratoon crop with a Brazilian sugarcane cultivar, RB867515, full irrigated by center pivot. The experimental area was located at Piracicaba, Brazil (Lat: 22°41'S, Long: 47°38'W, Alt: 540m), the climate was classified as Cwa (Koeppen) and the soil was Hapludox (Soil Taxonomy, 2004).

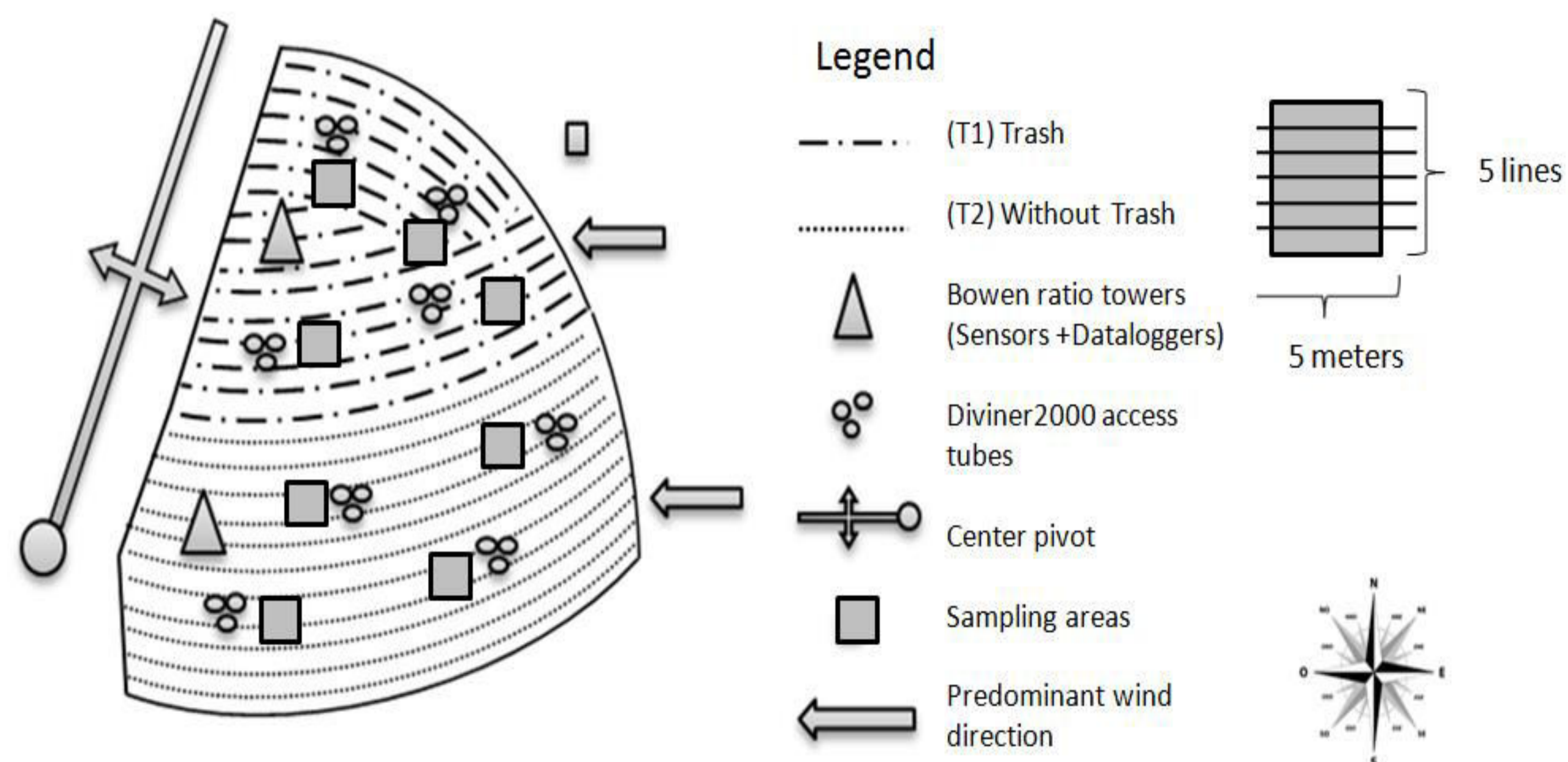


Figure 1: Layout of experimental area with BRM towers, access tubes for Diviner 2000, sampling areas position, center pivot and predominant wind direction.

The ET methods adopted for this experiment, were Energy Balance Bowen Ratio Method (BRM), Heat Balance Sap Flow and Frequency Domain Reflectometry (FDR) for soil moisture measurements.

RESULTS

The results of the biometric evaluations (Figure 2) showed differences between T1 and T2 for the LAI and consequently the productivity was also different. The results of ET, calculated by BRM, indicated that the crop responded to atmospheric demand, directly related to the reference crop ETo (Figure 3).

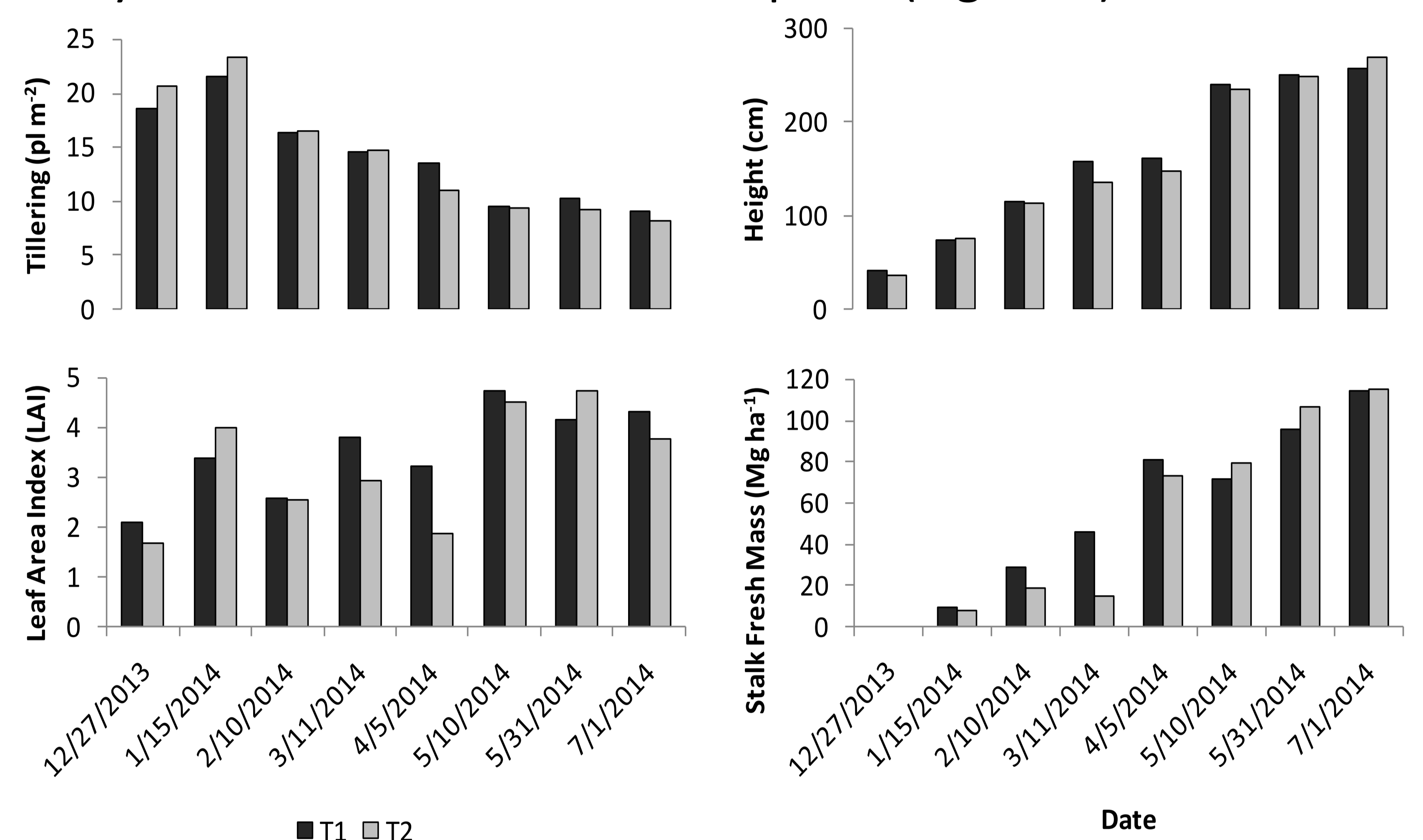


Figure 2: Results of biometrics analysis for the treatments with trash (T1) and without trash (T2).

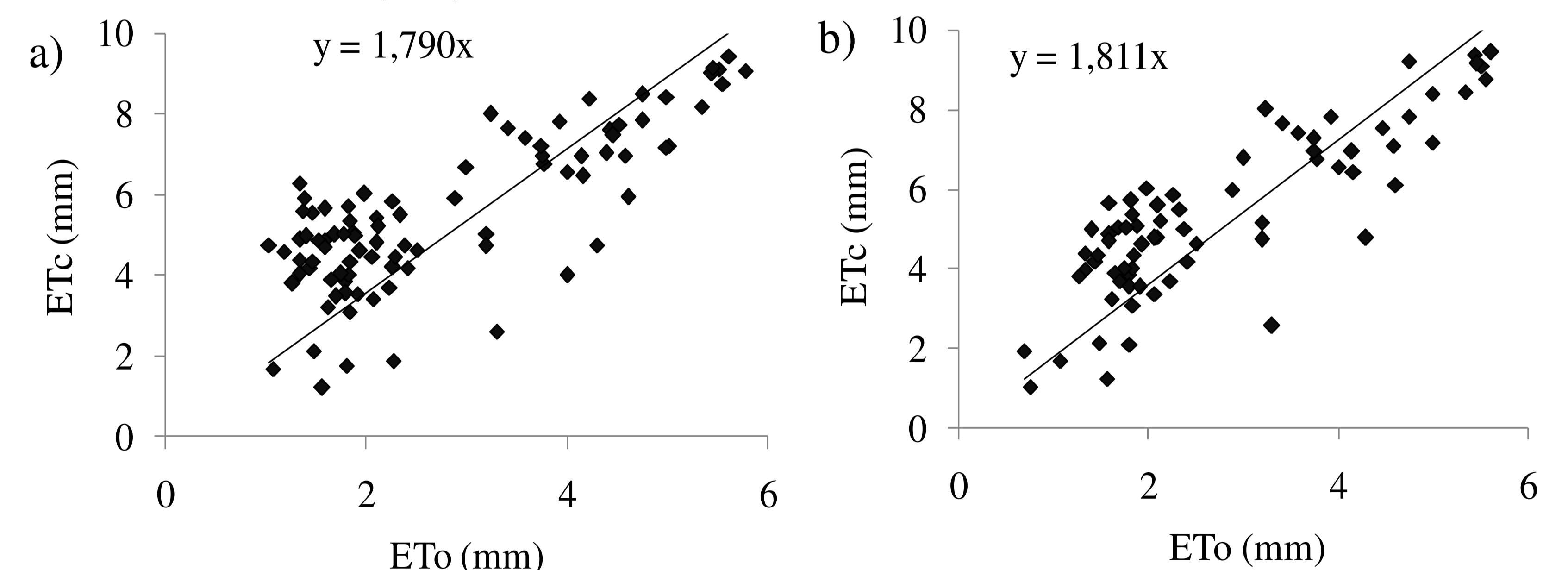


Figure 3: Relationship between ETo and ETc for the treatments a) with trash (T1) and b) without trash (T2).

CONCLUSION

The management of sugarcane trash may influence the yield, biometric parameters and crop evapotranspiration, during the initial crop phenological stages.

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