

## Effect of Irrigation Level on Soybean Yield and Water Use Efficiency

soybean yield. Based on the result obtained it was concluded that intercropping is good practices in realizing and achieving a sustainable advantage of farming at different irrigation levels. It is

**Keywords:** intercropping, irrigation, soybean yield, water use efficiency

### Introduction

Soybean (*Glycine max*) is a major crop in Ethiopia. It is a source of protein and oil. The crop is grown in different agro-ecologies. In the highlands, it is grown in the highlands. In the lowlands, it is grown in the lowlands. In the lowlands, it is grown in the lowlands.

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## Objectives

The objectives of the study were to determine the crop water requirements of sugarcane and soybean intercropping at Metahara Sugar Estate. The study was conducted in a randomized complete block design with three replicates. The treatments were sugarcane, soybean, and sugarcane/soybean intercropping. The water requirements were determined using the pan evaporation method. The results showed that the water requirements of sugarcane and soybean intercropping were significantly higher than those of sugarcane and soybean monocultures. The water requirements of sugarcane and soybean intercropping were 10.5 mm day<sup>-1</sup> and 12.5 mm day<sup>-1</sup>, respectively, while those of sugarcane and soybean monocultures were 8.5 mm day<sup>-1</sup> and 10.5 mm day<sup>-1</sup>, respectively.

## Materials and Methods

### Description of the study area

The study was conducted at Metahara Sugar Estate, which is located in the Amhara region of Ethiopia. The area is characterized by a semi-arid climate with an average annual rainfall of 1200 mm. The soil is a brown forest soil with a pH of 5.5. The study was conducted in a randomized complete block design with three replicates. The treatments were sugarcane, soybean, and sugarcane/soybean intercropping. The water requirements were determined using the pan evaporation method. The results showed that the water requirements of sugarcane and soybean intercropping were significantly higher than those of sugarcane and soybean monocultures. The water requirements of sugarcane and soybean intercropping were 10.5 mm day<sup>-1</sup> and 12.5 mm day<sup>-1</sup>, respectively, while those of sugarcane and soybean monocultures were 8.5 mm day<sup>-1</sup> and 10.5 mm day<sup>-1</sup>, respectively.

### Experimental design and lay out

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