



# Comparative study on water use efficiency of cotton in sole and relay intercropping wheat-cotton production systems

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## INTRODUCTION

Agricultural areas are limited by climate changes induced water scarcity.

Competition in terms of cultivation areas between staple crops (e.g. wheat) and strategic crops (e.g. cotton) have rising day by day.

## AIM OF PROJECT

Thus, the aim of this project was evaluation to "relay strip intercropping method" in order to find adequate production system that use water and land more efficient.

## MATERIALS AND METHODS



\* A field experiment during 2017/18 was carried out with

### Two different cultivation methods:

- Sole wheat and cotton
- Relay strip intercropping of wheat and cotton

### Two different irrigation treatments:

- Well watered (480 mm) (according to farmer practices)
- Deficit watered (416 mm) (reduced approx. 13%)

\* Setted up drip irrigation system.

\* Water flow meter were used to record water amounts.

\* Sowing time of cottons were same in both cultivation methods.

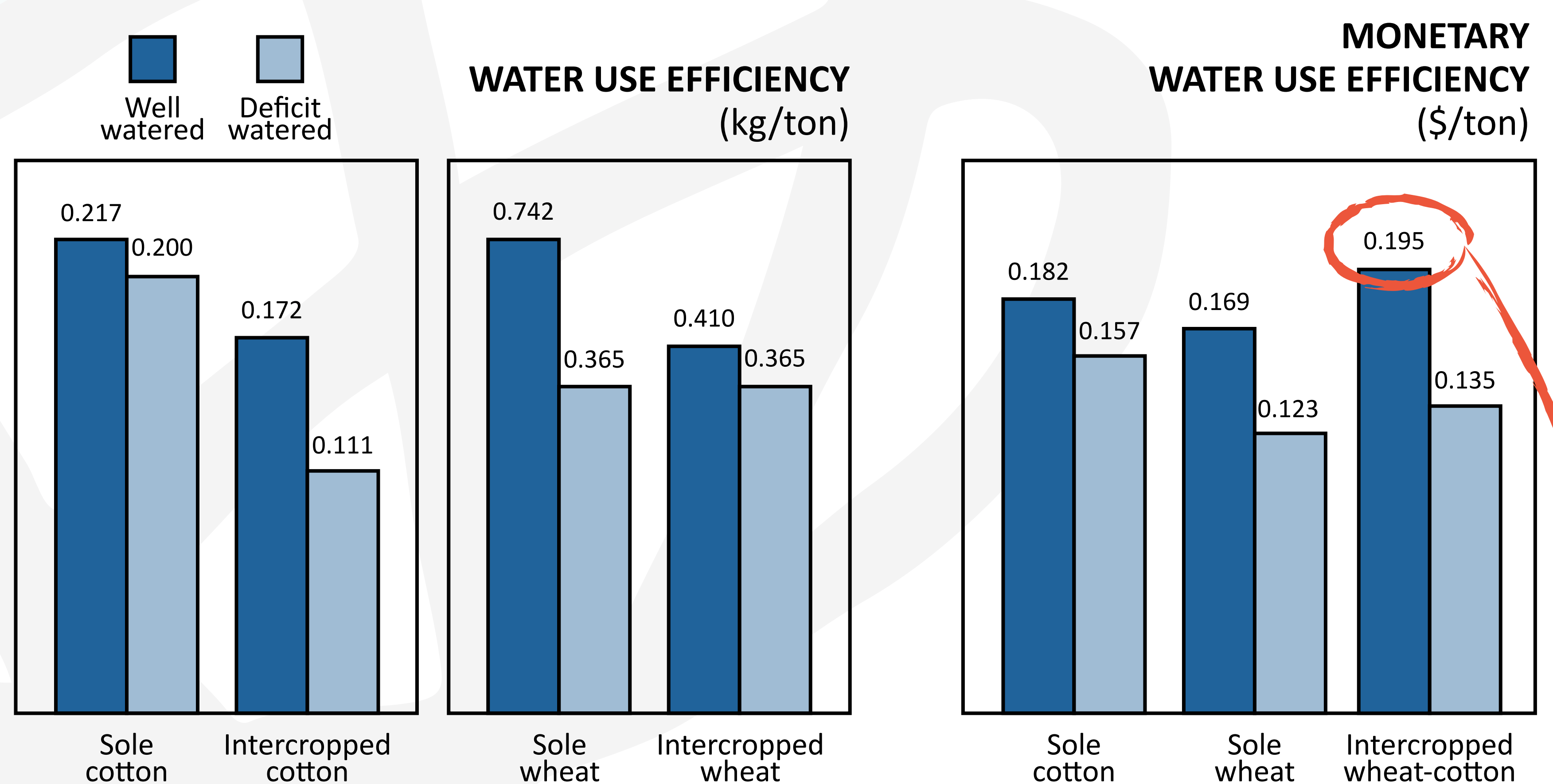
\* In relay strip intercropping system, wheat and cotton crops had same sowing areas (50% wheat, 50% cotton), and were consisted of four wheat and two cotton lines.

\* Co-growth period of wheat and cotton was about 45 days.

## CONCLUSION

While well watering conditions led to increase (17%) in Monetary Water Use Efficiency of sole cotton, the increase was more pronounced (45%) in relay strip intercropping system. The synergistic effects of relay strip intercropping induced to make it more advantageous system than sole cotton and wheat. According to our first findings, wheat-cotton production by relay strip intercropping system could be suggested as alternative system instead of sole cotton in terms of water use efficiency.

## RESULTS



Both **sole cotton** and **sole wheat** have better **water use efficiencies**

**BUT**

**Intercropped wheat and cotton** were better in terms of **monetary water use efficiency**