

# THE USE OF PRIMED ACCLIMATION AND STRIP TILLAGE TO INCREASE WATER USE EFFICIENCY IN COTTON

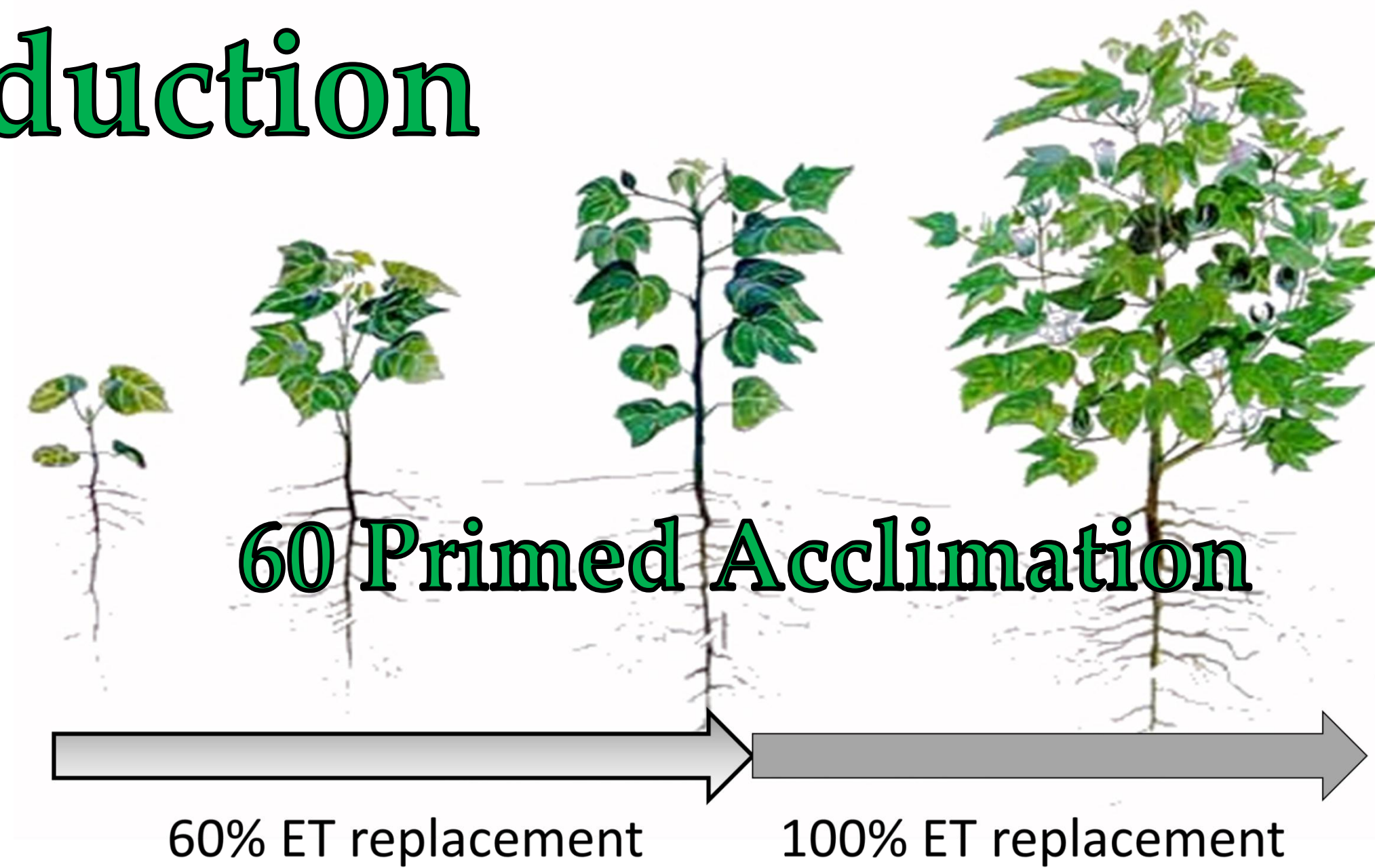
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2011 Results



## Introduction

- Diminishing water resources, infrequent rainfall and irrigation costs necessitate the efficient use of water
- Conservation tillage and deficit irrigation may help increase WUE in cotton
- We hypothesize that primed acclimation (PA) and strip tillage will enhance water-use efficiency primarily by enhancing root growth and conditioning plants to mild water stress



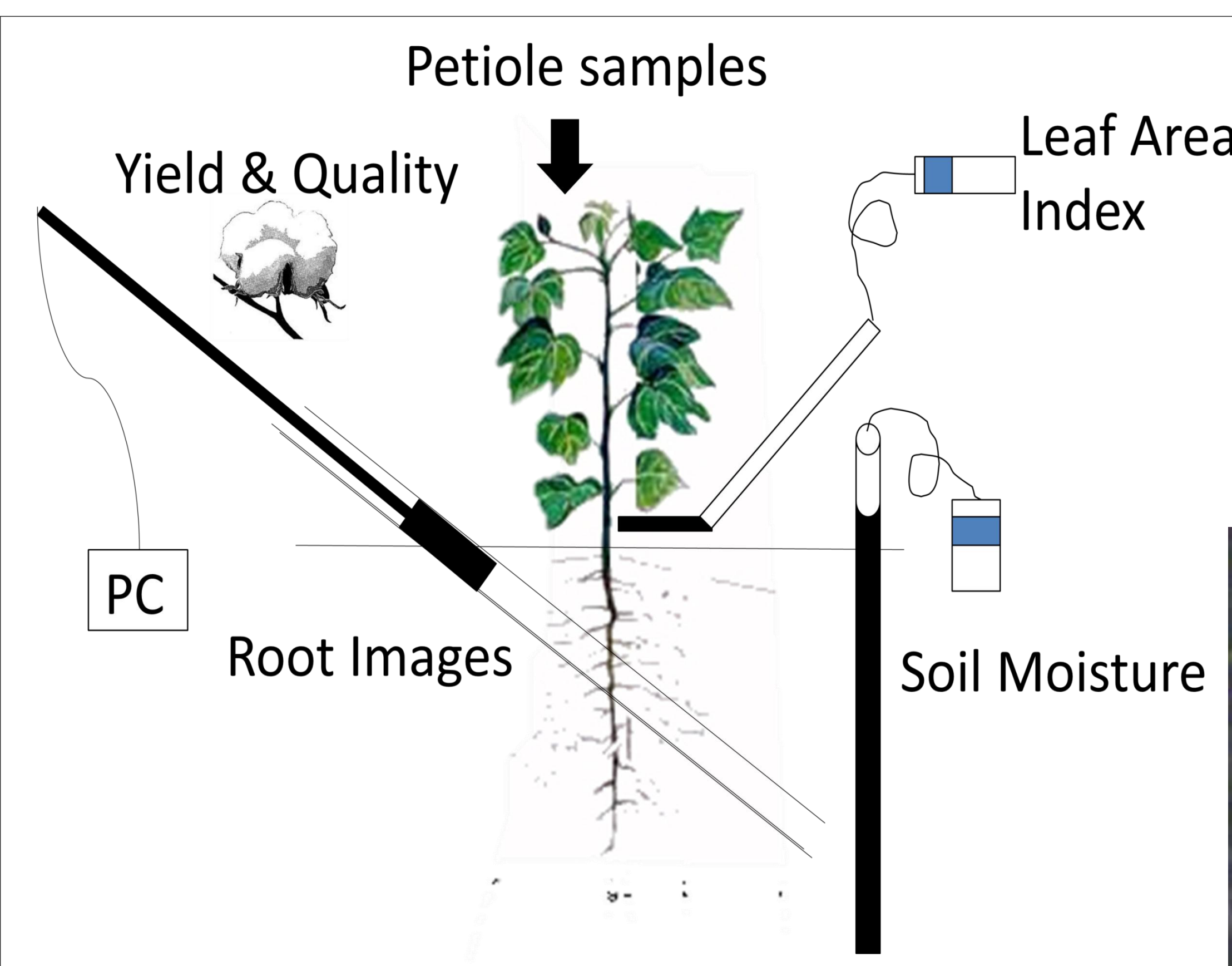
During vegetative growth, a deficit irrigation (60% of ET) is applied until prior to the first pinhead square. Then irrigation is applied at 100% ET replacement until harvest.



- Yield was significantly different between cultivars and dry land compared to all irrigated treatments
- There were no differences in yield between irrigation levels
- However, decreased irrigation reduced pumping costs which was an economic and environmental benefit

## Materials and Methods

- Irrigation treatments: 100%, 60%, 60PA, and Rain-fed
- Tillage treatments are conventional and strip-till
- Cultivars PHY 375 & PHY 499
- Located in Citra, FL



- We will characterize root architecture, leaf area index, soil moisture, petiole analysis, yield and grade.
- These measurements allow us to measure plant morphological changes that affect plant water use efficiency

