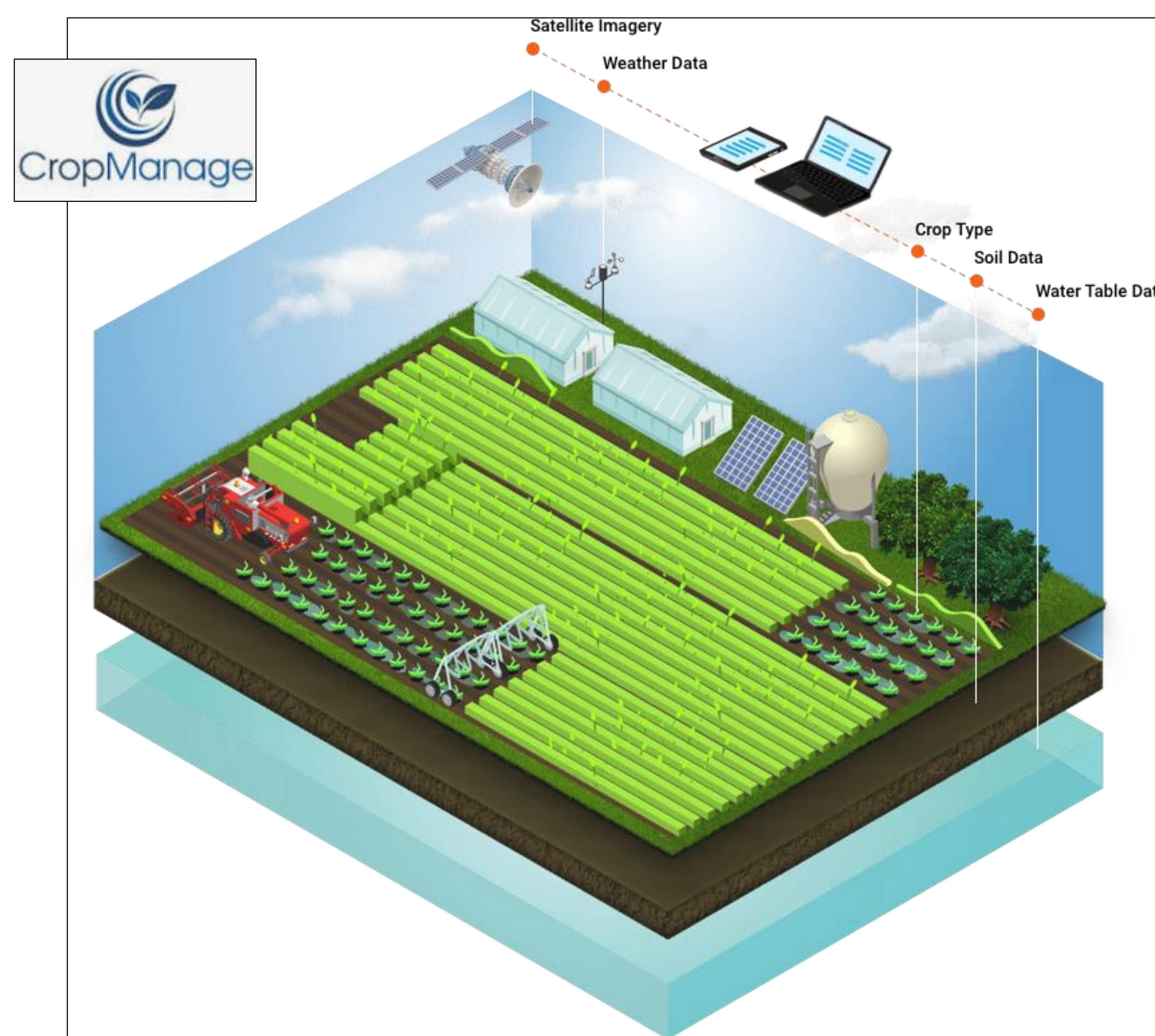


Overview

Monterey County/Salinas Valley is a major region of US vegetable production. The crops are highly sensitive to water stress and tend to be heavily irrigated and fertilized to reduce production risk. Improved water application efficiency can support effective use of available water supplies, enhance drought resilience, and potentially reduce nitrate leaching to impaired groundwater basins. The CropManage (CM) web-app, developed and operated by UC Cooperative Extension (UCCE), promotes best-practices for specialty-crop water and fertilizer management. CM was originally implemented in head lettuce a decade ago. Since then, UCCE has collaborated with CSUMB, USDA, and local industry on a series of replicated field trials involving evapotranspiration (ET) based irrigation management to field-test CM and extend reach to additional cool-season vegetables. Two consecutive years of study were performed for each of the following crops: head lettuce, romaine, cauliflower, celery, broccoli, cabbage, and artichoke. Main measurements were applied water, biomass production, and crop yield associated with water volumes ranging from 50%-150% of ET replacement.



Field trial results for romaine & cauliflower

Key results are shown below for romaine and cauliflower field trials performed at the USDA Research Station near Salinas. A randomized complete block design with 6 replications was employed over 2 successive years for each crop. The trials were initially established by sprinklers, followed by irrigation treatments ranging from 50%-150% of crop ET (T50-T150) administered by surface drip. Top graphs show applied water per treatment. Lower graphs show resulting treatment means for yield and water use efficiency - different **letters** indicate significant difference at the $p < 0.05$ level. The **T100** treatment, which reflects CropManage guidance for crop water requirement, tended to maximize both yield and water use efficiency (crop yield per unit of water).

Romaine



4-way drip irrigation manifold

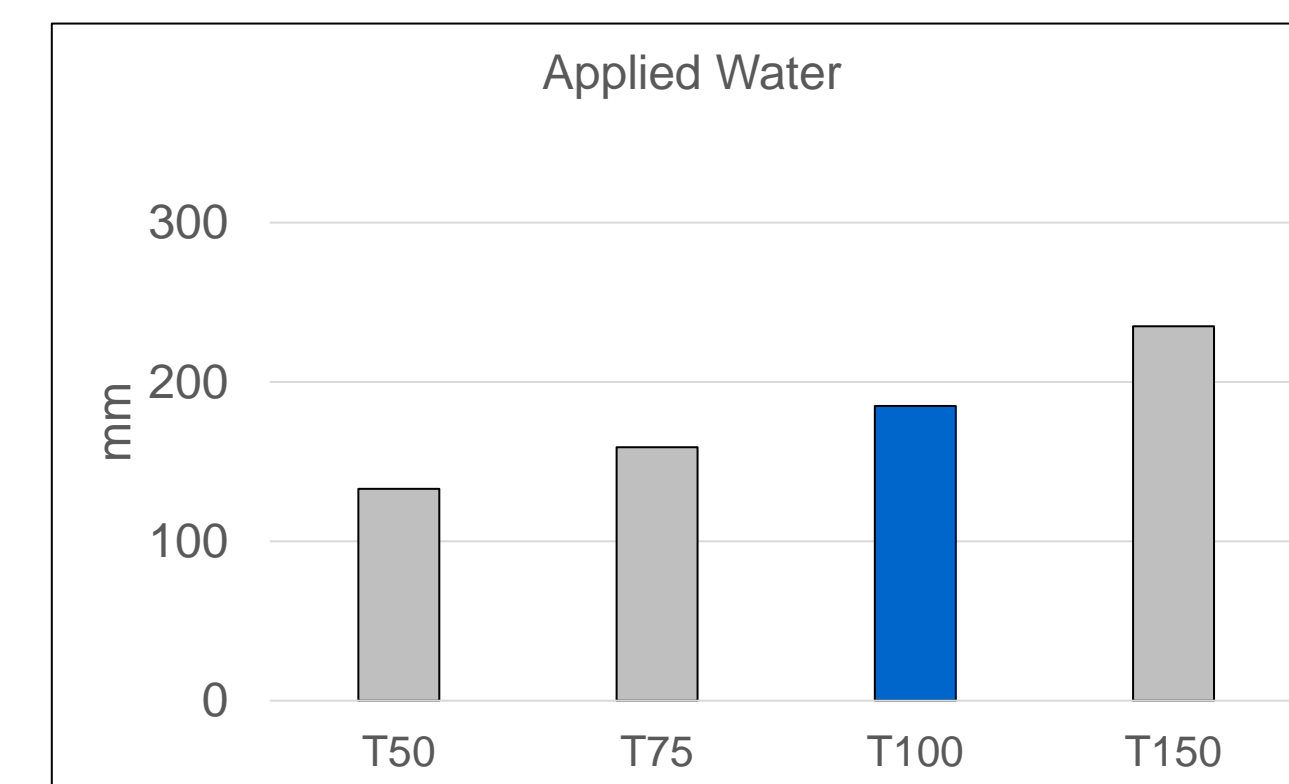


harvest operation

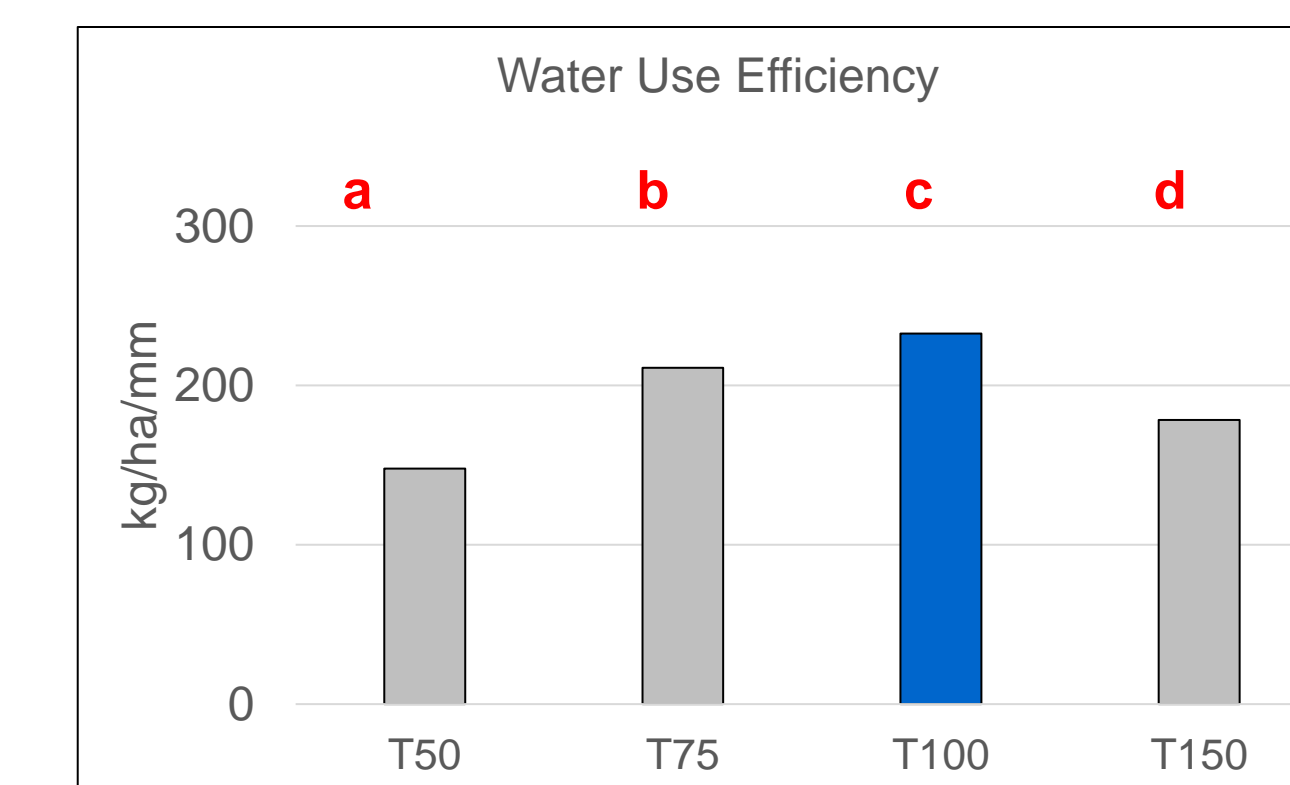
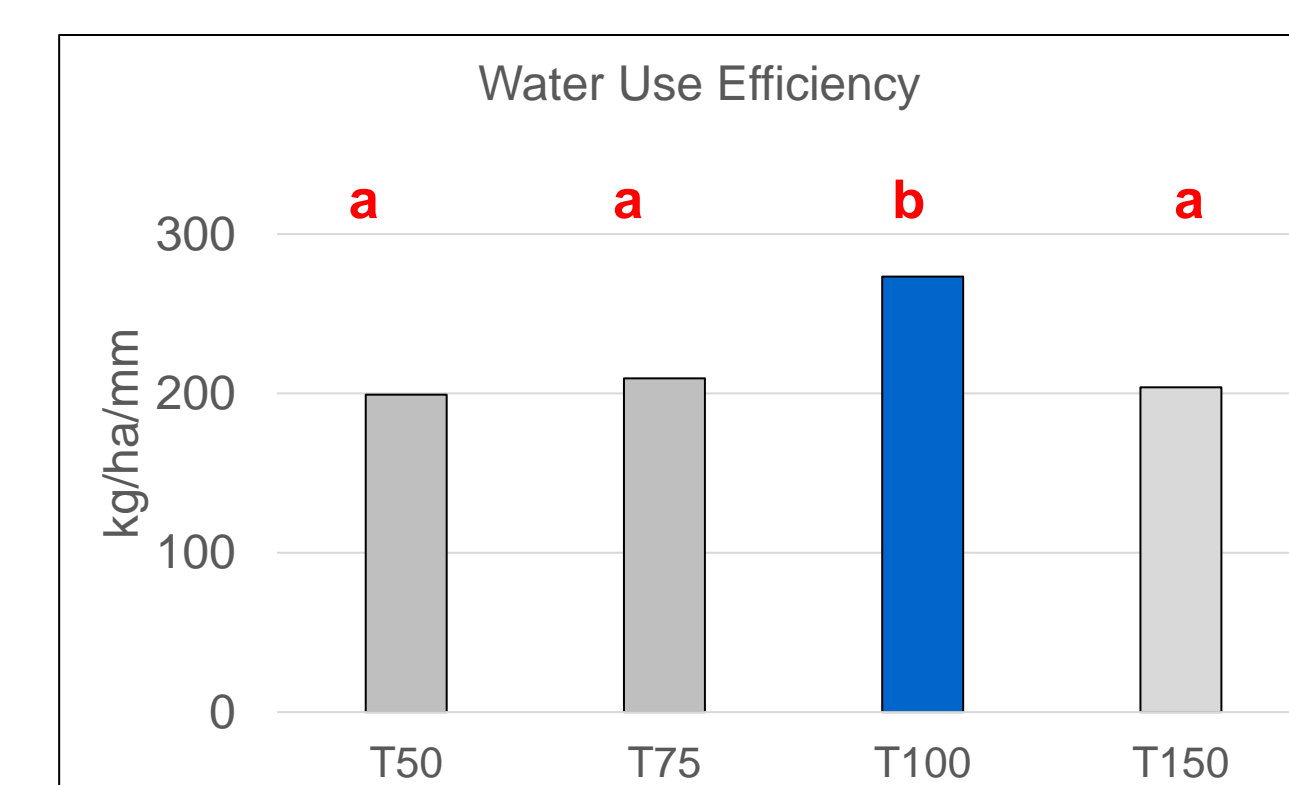
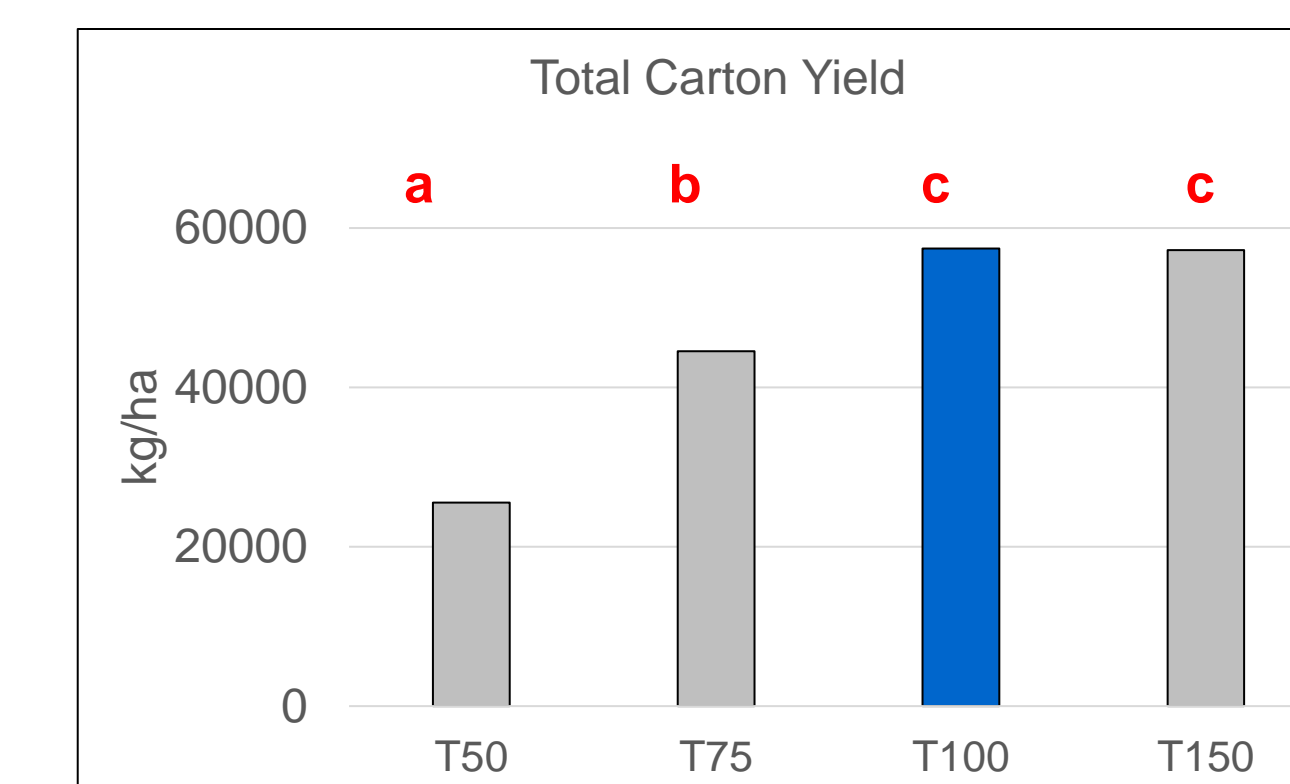
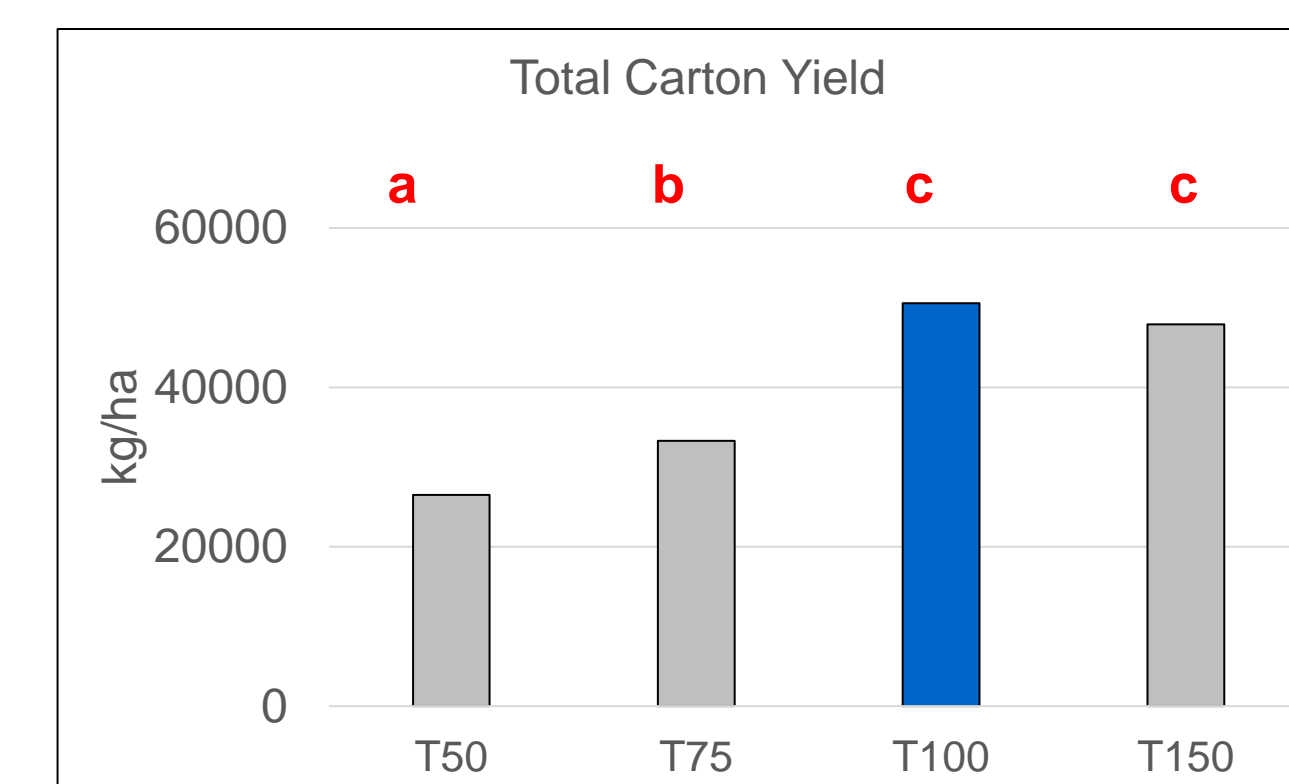
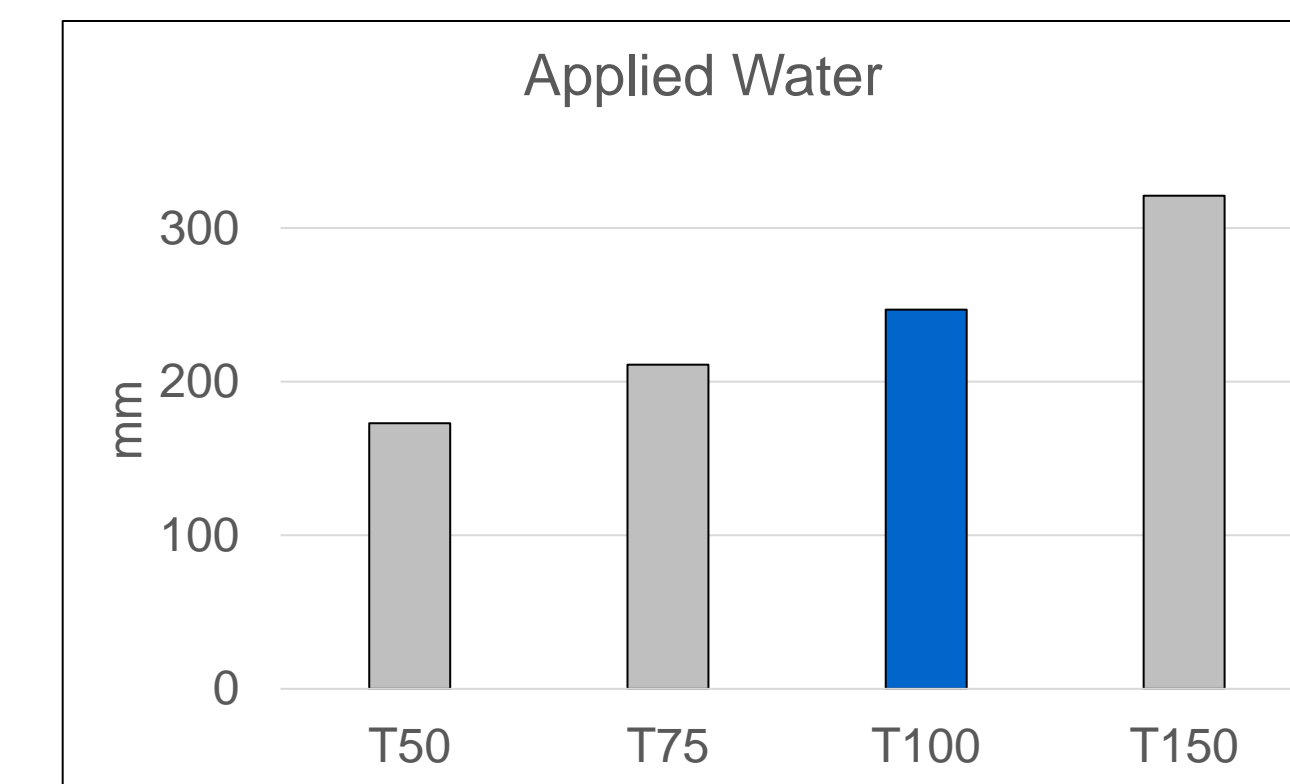


crop quality evaluation

Year 1



Year 2



Cauliflower



irrigation system



biomass harvest



harvest team

Year 1

