

Lee F. Johnson

[lee.f.johnson@nasa.gov](mailto:lee.f.johnson@nasa.gov)

California State University - Monterey Bay

### **Evapotranspiration-based Irrigation Scheduling in Salinas Valley Vegetable Crops**

Crop evapotranspiration (ETc) monitoring may support improved irrigation water management in California's Central Coast agricultural region. The CropManage (CM) web-application, developed and operated by the University of California, informs irrigation and nitrogen scheduling decisions made by growers and crop consultants. Daily weather conditions are accounted for by use of grass reference ET data imported from the California Dept. Water Resources. Satellite observations of crop development from NASA's Satellite Irrigation Management Support can be imported and used by CM to adjust crop phenology. A replicated irrigation trial was performed July-October 2018 to investigate yield response of drip-irrigated celery (*Apium graveolens*) to applied water volume, and to further calibrate CM for use in that crop. Water was uniformly applied by sprinklers to establish the crop, and CM was then used to guide surface drip irrigation treatments applied three times weekly at 50%, 75%, 100%, 125% and 150% of ETc replacement level. Nitrogen fertilizer totaling 380 kg/ha was applied through the drip system generally once per week. Treatments were evaluated for commercial yield 85 and 93 days after transplanting (DAT). The 100% ETc treatment yielded 83 Mg/ha 93 DAT, which was 10 Mg/ha higher than the reported regional average yield in 2017. The 100% treatment received a seasonal total of 34 cm of water, compared with reported grower average exceeding 48 cm. Higher yields of 102 and 108 Mg/ha were observed in the 125% and 150% ETc treatments, respectively. Regarding crop quality, however, the 150% ETc treatment suffered greater incidence of pith breakdown and basal rot than the 100% treatment. Yields from the 50% and 75% treatments were below regional average. Aboveground biomass was evaluated 87 DAT. Fresh and dry biomass accumulations were positively related to applied water volume. Additional findings will be presented for a cauliflower trial conducted spring/summer 2019.