

Special Seed Central session at the USDA/ARS station in Salinas

April 27, 2017 from 11:15 to 2:00

Site tours at 1:00

Plant Breeding: Lettuce, Spinach, Melon, and Sugar beet

The Salinas Lettuce, Spinach and Melon breeding and genetics project has been working on lettuce since 1922 with the first Salinas-based lettuce project initiated in 1955. Melon breeding was initiated in 1928; Spinach in 2001. Disease and insect resistance and abiotic stress tolerance are major components of past and current research. Shelf life of lettuce is a relatively new facet that has made significant progress.

Current project scientists: Jim McCreight, Beiquan Mou, Kelley Richardson, and Ivan Simko (ARS).

Sugar beet breeding and research was established at Salinas in 1948. The California sugar beet industry has largely migrated northward to Oregon, Washington, Idaho, Montana, and the upper plain states. The program released many significant cultivars and breeding lines and germplasm resources. The program was recently designated for transfer to Kimberly, Idaho, and is anticipated to be phased-out by September 30, 2017.

Current project scientist: Kelley Richardson (ARS).

Virology

The Salinas lab is known for its virus–vector research and has described more than 40 plant viruses since 1954. The initial focus was on sugar beet, but the project has made significant contributions to controlling viruses of a wide array of vegetable and cucurbit crops, and strawberry. The project is well known for its extensive research on whitefly-transmitted viruses.

Current project scientists: Bill Wintermantel and one vacancy for a vector entomologist (ARS).

Soil borne diseases

Leafy greens and strawberry are adversely affected by numerous soilborne pathogens. A major part of this research has been development of molecular diagnostic tools for Oomycetes pathogens *Phytophthora* spp. and *Pythium* spp. Verticillium wilt of lettuce was first reported by our Salinas-based UC Davis colleague.

Current project scientists: Steve Klosterman, Frank Martin and three vacant positions for preplant disease control: soil microbiome, and Fusarium wilt and Macrophomina on strawberry (ARS); Krishna Subbarao (UC Davis)

Downy mildew of Spinach

This airborne, foliar pathogen has become more of a problem as organic spinach increases its market share. New races of spinach downy mildew detected in recent years pose challenges for development of resistant cultivars.

Current project scientist: Steve Klosterman (ARS).

Postharvest, Methyl Bromide Alternatives & APHIS

Ultralow oxygen treatment, oxygenated phosphine fumigation, and nitric oxide fumigation are studied for postharvest pest control on fresh products. Nitric oxide is a newly discovered fumigant that can be safely used on fresh commodities and has also been demonstrated to improve postharvest quality of strawberries.

Project scientist: Yong-Biao Liu (ARS).

Alternatives to methyl bromide/chloropicrin soil fumigation are sought for soilborne disease and weed control.

Project scientists: Husein Ajwa and Steve Fennimore (UC Davis).

USDA, APHIS, Center for Plant Health Science and Technology (CPHST) conducts research on invasive species for regulatory decisions and operations. The Salinas CPHST lab collaborates with the postharvest insect control project.

Project scientist: Greg Simmons (APHIS).