

Field Day Compares Sustainable Systems

by Brian Baker



Panel discusses how lessons learned in the SARE project can be applied to commercial farming operations. From left to right: Gene Miyao, Bruce Rominger, Ed Sills, Jim Durst, and Tom Kearney

The University of California Sustainable Agriculture Farming Systems Project held its annual field day on June 20, 1996. Investigators provided farmers, farm advisors, researchers and the public with the results of experiments on four treatments: conventional two-year rotation, conventional four-year rotation, low-input four year rotation and organic four year rotation. In its eighth year, the project is completing the second cycle.

The project is modeled after large scale operations typical of the Sacramento Valley. Crops grown include processing tomatoes, safflower, corn, wheat and beans. Field tours provided information on soil and water relations, plant disease management and soil biology. Results presented included agronomic, soil fertility and economic data.

The researchers offered insights into the

cycling of nutrients, particularly nitrogen. The organic system has consistently shown an early-season nitrogen deficiency, but researchers are looking at the timing of working the cover crop and irrigation to narrow this deficiency. Soil-water relations showed significant differences, in that the organic fields had greater field capacity and the short-term rotation had the least. Plant pathologist Areina van Bruggen

showed the four specimens of tomato roots from organic and two-year conventional treatments. The short-rotation tomatoes had black roots—symptomatic of corky roots apparently brought on by poor drainage, poor aeration and wet conditions. The two-year conventional rotation has developed a shallow hard-pan that has stunted root growth compared with the organic. The organic specimens were white, and showed no sign of corky roots.

After Steve Temple presented an overview of management practices of the different systems, Diana Friedman made a presentation of the dynamics of the transition and how the organic system is transitioning into a steady state. Karen Klonsky presented an economic analysis of the different treatments. Over the duration of the project thus far, the two-year rotation has been the

most profitable, and the organic without a price premium has been the least profitable. However, organic with the premium prices has turned out in some of the recent years to be the most profitable. This has been caused by a combination of favorable organic prices and a lower level of increase in productivity on the high-input short rotation.

Organic farmers Ed Sills, Bruce Rominger and Jim Durst sat on a panel with Gene Miyao, Yolo-Solano farm advisor, and Don Stewart, the project's farm manager. Bruce Rominger supported continuing the project for at least one more cycle. "This [project] gives us the opportunity to ask why—why tillage is better, why there are fewer



Healthy white organic tomato roots show no visible symptoms of corky root.

disease organisms in organic soil. These are things we want to know," Jim Durst added. "This project is replicating things we've done on our own farms. Everybody can benefit from the mistakes we've made. It's time we took a serious look at how these systems work so we can make them work better."

People interested in finding out more about the project should contact Julie McNamara, Information Specialist, Department of Agronomy and Range Science, University of California, Davis, CA 95616, 916-752-8940, 916-752-4361, fax jrmcnamara@ucdavis.edu (e-mail).

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