UC Santa Cruz research focuses on organics

By Bob Johnson

For more than four decades the University of California, Santa Cruz, Farm and Garden program has paralleled the growth of the organic produce sector.

What began in the 1960s as a two-acre hillside organic garden intended to add a touch of charm to the coastal campus has evolved into one of the most reputable university organic farming research and teaching programs in the country.

At one area of the farm, researchers are searching for effective disease control systems for organic strawberry farmers, and for conventional strawberry farmers who find that buffer requirements leave them unable to fumigate areas of their fields.

"In a conventional field they have fumigation, so they can plant strawberries year after year. We have a seven-year rotation here," said Joji Muramoto, UCSC associate researcher.

But even a seven-year rotation is not always enough to protect strawberries against deadly soil pathogens, especially verticillium wilt.

Muramoto is comparing numerous organic methods of ridding the soil of strawberry disease pathogens with the support of the California Strawberry Commission, the U.S. Department of Agriculture Sustainable Agriculture Research and Education Program and the Organic Farming Research Foundation.

"We are comparing anaerobic soil disinfestations, mustard cake and broccoli residue in this trial," Muramoto said. "Disinfestation was discovered independently in the Netherlands and Japan. We're trying to optimize this method for California strawberries. We've been successful on a small scale, and now we're trying it on a larger scale in Salinas. Oil from mustard seed can be used as a biostat. The cake that is left is 6 percent nitrogen, and can also be used for disease and weed control."

UC plant pathologists Krishna Subbarao and Steve Koike discovered years ago that broccoli residue releases a biofumigant that can help control disease pathogens in the soil. Most organic farmers use broccoli residue to help control diseases, and many Salinas Valley lettuce growers include broccoli in their rotations because it helps to manage lettuce drop.

On the edge of the 25-acre farm overlooking the Pacific Ocean, a few dozen blueberry plants growing under the protection of bird netting are yielding important information about varieties suited to the cool coastal climate.

"In 2004 we planted 15 blueberry varieties in cooperation with UC Cooperative Extension to see what might work well on the Central Coast. They are low-chill varieties. Some of them have produced $80,000 to $100,000 an acre, after we put up the bird netting because we lost the first crop to the robins," said Liz Milazzo, UCSC Center for Agroecology and Sustainable Food Systems field production manager.

"Our biggest challenge has been figuring out how to acidify the soil. We've used sulfur, wood chips and vinegar," Milazzo said.

But the farm is also home to a range of educational activities, most prominently a six-month apprenticeship in organic farming that has graduated 1,400 students who became farmers, students at agricultural colleges or leaders of urban garden programs.

"The apprenticeship program has been around for 44 years, training farmers. Graduate and faculty research is done here, some of it in conjunction with people from"
"It's unusual for a campus farm to have this much production," Milazzo said. The farm includes six acres of vegetables and blocks of apple, pear and plum trees.

The mild climate in the campus by the sea makes it suitable for an unusual range of tree fruits.

"We probably grow in the vicinity of 100 varieties of apples; we're all about varieties. There's not many places you can grow citrus spitting distance from deciduous fruit like apples, but you can here," said Orin Martin, UCSC Center for Agroecology and Sustainable Food Systems garden manager.

The food from the farm is sold, and the proceeds make a substantial contribution to the cost of the research and educational projects.

There is a community-supported agriculture program that began as an experiment in direct marketing with 16 weekly subscribers in 1996, and has become a significant source of funding with 130 weekly subscribers through the growing season. Sixty percent of the harvest from the farm is sold through the CSA.

Another 30 percent of the harvest is sold through the farm's food cart on campus, and the remainder to campus dining facilities and other local outlets. (Bob Johnson is a reporter in Santa Cruz. He may be contacted at bjohn1135@aol.com.)