

FARMER TO FARMER

REPORTS FROM THE FIELD

SPRING 2005

*Central Coast***Irrigation & Nutrient Management Meeting and Cover Crop Field Day**

BY WILL STOCKWIN

Researchers, farmers and ag professionals presented their latest findings at the February 2005 Irrigation and Nutrient Management Meeting in Salinas. The event was presented by the University of California (UC), the US Department of Agriculture (USDA), and CAFF. After reports from researchers in the morning, the day continued with an afternoon tour of USDA cover crop trials and CAFF's hedgerow plantings.

Phosphorus in Run-off Water

Richard Smith, UC vegetable crop and weed science farm advisor in Monterey County, advised growers concerned about excessive phosphorus (P) in runoff water to measure soil P before making applications. The Olsen bicarbonate extractable P test is a reliable way to measure field levels.

"Generally, as soil levels of P increase, the amount of P in runoff also increases," Smith said. "It's an environmental issue not because P is toxic, but because P stimulates algal growth in water bodies and that, in turn, reduces the water's oxygen content."

Salinas Valley soil averages a P content of 70 parts per million (ppm). "In 2002/03 we monitored lettuce response to P applications and determined that on sites with less than 55 ppm you will see a response, especially in colder temperatures," Smith said. He noted that organic farm soil can also have high P levels, but that cover cropping with rye can produce "significant reductions." *Smith can be reached at (831) 759-7350 for more information.*

Traci Roberts from the Monterey County Farm Bureau presented growers with a farm plan checklist of practices designed to keep farms in compliance with new ag waiver discharge requirements.

First on the list was evaluating available soil nutrients and then applying only enough to provide what the crop needs. Roberts advised growers to talk to their irrigators about reducing excessive runoff and checking the overall efficiency of pumps and irrigation systems.

Asked about the need for holding ponds, Roberts said that a grower may be able to solve a runoff problem by just slowing runoff down without containing it. "Using filter strips and grassed waterways can slow runoff enough to allow sediments to drop out," she said. "In many cases, filter strips and grassed waterways are the best bang for the buck on water quality problems."

Increasing Soil Salinity

UC irrigation and water resources advisor Mike Cahn reported on the second year of trials he's running on the effects of increasing

soil salinity, measured in units of electrical conductivity (EC), on "Salinas" and "Sniper" varieties of head lettuce.

His first year of trials (2003) demonstrated that a soil EC greater than 1.5 will reduce yields and lettuce head biomass. "In 2004, because the salts have built up to higher levels, we also saw leaf burning in the highest salt treatments," he said.

Soil Fumigants

UC Davis vegetable research scientist Susanne Klose reported on a study she's conducting with Husein Ajwa on the impact of fumigation on soil microbiology. First-year results showed that after fumigation with methyl bromide and alternative fumigants, total soil microbial biomass returned to pre-application levels in as soon as three months.

The study is also revealing reductions in soil nutrient cycling following fumigation. "There's a 25% reduction in P cycling with methyl bromide and between 5-10% with the alternatives (chloropicrin, InLine, propargyl bromide, and iodomethane). Nitrogen (N) is the most crucial nutrient for crop yield and quality, and at four weeks after fumigation (i.e., at strawberry planting) we're seeing a 100% reduction in nitrification, which controls soil nitrogen availability, in soils fumigated with the methyl bromide alternatives, and a 80% reduction with methyl bromide."

Klose said future research will concentrate on confirming the first-year results, and investigating soil nutrient status and microbial transformations in organic production systems. For more information, *Klose can be reached at (831) 755-2805.*

Cover Crop Field Day

Mike Cahn opened the field day portion of the meeting at the USDA Spence Vegetable Research Station with a demonstration of the effectiveness of Polyacrylamide (PAM) in reducing sediment loading in irrigation runoff on highly erodible soils.

The trials were conducted using solid-set sprinklers with PAM injected in irrigation water at a 5 ppm concentration, making for an application rate of 0.5 to 0.75 pounds/acre. In dollars, this is \$2.00 to \$4.00/acre.

"We saw a consistent effect that lowered suspended solids and turbidity of runoff by 95%," Cahn said. "In two of the trials we also saw significant lowering of total nitrogen (N) and P in tailwater." *For a copy of the trial results, contact Cahn at (831) 759-7350.*

Biomass Production

Field day participants toured cover crop trials looking at the effects of variety and seeding rates on biomass production and weeds, water usage, nitrogen mineralization, and vegetable crop yields. The cover crops in the trial include a legume/rye mixture, mustard and rye. All were planted in mid-October and allowed to grow until early March, followed by a period of incorporation and decomposition lasting to early May, before planting Romaine lettuce.

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USDA organic research horticulturist Eric Brennan said the legume/rye mixture at the 300 lbs/acre rate produced the greatest biomass and was most effective in controlling weeds. "Ideally, you want a cover crop that grows and covers the ground quickly so that it can out-compete weed growth," he said. The higher rate legume/rye mixture produced a greater amount of legume biomass. "I think that may be because biological N fixation is giving the legume the edge," he said. "The rye in the legume/rye mix looks greener too, and that may be due to N 'leaking' out of legume nodules to the rye's benefit." Brennan can be reached at (831) 755-2822 for more information.

Cover crops can reduce leaching of nitrates by tying up N, and by reducing the amount of water percolating through the soil profile. Mike Cahn's trials looking at these specific effects show that the higher rates of mustard and rye (30 pounds/acre and 240 pounds/acre respectively) extracted the most moisture from the top 18 inches of soil between November and January.

"The higher seeding rate in all the cover crops was more effective in reducing soil moisture than the normal seeding rates," Cahn said. "Between mid-January and mid-February, the cover crops also extracted significant moisture from the 30-inch depth."

"The issue with cover crops is do they provide N when the commercial crop needs it and the answer is generally: No, they don't," Richard Smith said about his trials on cover crop N content and the impact of cover crops on Romaine yields. "To get up to commercial production levels takes some amount of supplemental N, especially for high-N demanding crops."

Applications of supplemental N may be reduced over time, however, with cereal cover crops that release N at slower, more steady rates. Smith's first year results showed the high seeding-rate legume/rye mix had the greatest impact on Romaine yields, measured as roughly 800 24-size boxes/acre. Mustard seeded at 30 lbs/acre ran second.

Smith is also running trials comparing total soil N from 1) compost applications to bare soil and 2) cover-cropped soil following incorporation of cover crops. First-year data measured from March 9 to April 6, shows that cover-cropped soil had more than twice as much N on March 24 than the soil that had received only compost. By the last measurement on April 6, the cover-cropped soil still had nearly twice as much N.

Hedgerow Tour

The day ended with a tour of the hedgerows CAFF has planted on the USDA test site. Over thirty different species of California native trees, shrubs and herbs were planted around two sides of the organic research field. These plants attract beneficial insects, help control soil erosion and dust, protect from drift, moderate winds, and generally increase the biodiversity of the area. As with many farmscape plantings, they only need irrigation the first two years, after which they rely on seasonal precipitation. More information on hedgerows can be found under Biological Farming at www.caff.org. ■

Putting Local Food on the Table

Farms & Food Service in Partnership

June 16-18 at Kenyon College, Gambier, Ohio

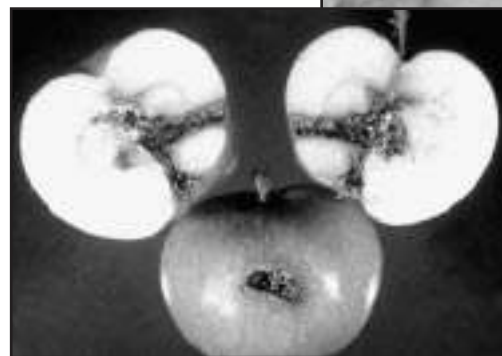
Conference Co-sponsors: Community Food Security Coalition, Farm Aid, Center for Food & Justice, Food Routes, Ohio Ecological Food & Farming Assoc.
www.foodsecurity.org/f2conf2005.html

Tenth Annual Moth Madness

BY JANET BRYER

The 10th Annual Moth Madness Apple Meeting on March 3 was co-sponsored by CAFF, Center for Agroecology and Sustainable Food Systems (CASFS), UCCE, the Santa Cruz County Agricultural Commissioner's Office and State Water Resources Control Board (SWRCB).

Sean Swezey, from CASFS, spoke about the use of pheromone traps to monitor the flight of codling moths and how to determine a biofix date. When the temperature reaches 62° F at sunset and adult moths are found in the traps, it is time to begin a degree day (DD) accumulation. By charting wetness period, temperature and careful monitoring, it is possible to reduce the need for protectant sprays. Sean has a codling moth and scab conditions phone update service available at (831) 763-8002.



Codling Moth (above) and damage in apples (left).

The Pests

Bill Coates, UCCE Farm Advisor from San Benito County, spoke about the increasing problem with the eyespotted budmoth (ESBM) in organic orchards. With the reduction in acreage of prunes and cherries (which ESBM was a major pest of), along with decades of heavy insecticide spray regimes, it is coming back as a prevalent pest in apple orchards. Larvae are black-headed with a brown body. The adults have a distinguishing white horizontal band on their outer wings. Adults appear in May and lay eggs which give rise to overwintering larvae which feed primarily on buds and leaves early in the season. As fruit gets larger, larvae attach leaves to the fruit with silk and feed under the attached leaf, making shallow feeding marks on the fruit surface. There has been some success combining *Bt* with products such as *Success* (spinosad) and *Entrust*, which are organically certified and are best applied from pre-bloom to post-bloom. However, work has been done showing that *Entrust* can increase the mortality of beneficial insects.

Tom Unruh, Research Scientist, USDA-ARS in Wapato, WA, talked about the work he is doing with pome fruit growers using insectary habitats near orchards to enhance biological control of pest leafrollers. With the increased use of mating disruption for codling moth (CM) and the reduced collateral control of leafrollers, the oblique banded leafroller (OBLR) has become a bigger problem. A parasitic wasp, *Colpochypeus florus* was parasitizing leafrollers and

overwintering on another leafroller, the strawberry leafroller (SLR) on wild rose in the Wenatchee, WA area. Proximity to rose patches naturally infested with SLR increased parasitism by *C. florus*. In 2000, they began planting rose gardens near orchards to test the parasitism rates through the season on leafrollers and found that near SLR infested roses, *C. florus* is abundant, and while spring parasitism can exceed 25%, summer parasitism can be very high.

Techniques for Control of Codling Moth

Janet Caprile, UCCE Farm Advisor from Contra Costa County talked about a similar biological control study of codling moth centered around Eastern Contra Costa County. The parasitoid, *Mastrus ridibundus* was released in 16 (mostly unsprayed) apple, pear or walnut orchards from 1998-2003 to evaluate the rate of establishment and parasitism.

Results show that parasite recovery in the orchards just prior to the first release of *Mastrus* had high numbers of overwintering CM with 6-12% parasitization the year of the release and as high as 34% in apples in 2003. Subsequent releases caught relatively few CM, indicating that *Mastrus* had survived in the orchard and was having a significant impact in reducing the overwintering CM population. The pheromone traps showed suppression of the overwintering generation for at least two to three seasons after the release, again indicating *Mastrus* survival. CM damage was reduced in the seasons following large releases and increased again following seasons with no or very small releases. Unsprayed walnut orchards with *Mastrus* releases were able to maintain pheromone trap counts that were similar to conventional, sprayed comparison orchards. Unfortunately, *Mastrus* was unable to provide an acceptable level of control in apple orchards.

John Dunley, Associate Professor from Washington State University, spoke about an area-wide organic IPM program in pear production using mating disruption for CM. Growers agreed to a pest management program based on organic practices. He compared three management types: (1) organic; (2) soft (use of organic methods, insect growth regulators and selective pesticides); and (3) conventional. Weekly monitoring was done sampling pear psylla, mites, CM and grape mealybug as well as key predators. The overall results showed that pear psylla and CM populations went down, spider mites were not a problem and the costs of production of the organic and soft programs were no more than the conventional treatment. A take-home message from this project suggests that organic IPM tactics are available, there are non-organic growers using them and they are not more costly.

Vince Gizdich spoke of using IPM techniques, and of the installation of perennial grasses and wetland plants in a successful attempt to control the gully. The planting was done as part of the SWRCB "Vegetative Conservation Practices for Water Quality and Habitat Diversity on Pajaro Valley Farms" project, managed by CAFF from 2002 – 2005. After two seasons, the vegetation has successfully withstood several major storm events, with the grasses and wetland plants preventing gully, slowing runoff and holding silt and sediments. The primary grass used was creeping wild rye (*Leymus triticoides*), which was planted both by seed and by plugs in March 2003. Vince irrigated it over the first summer, and after that the plants have established themselves and need no further irrigation. This planting has been estimated to have prevented approximately 35 tons of soil per year from being eroded and entering the local aquatic system. ■

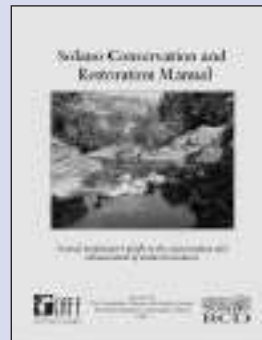
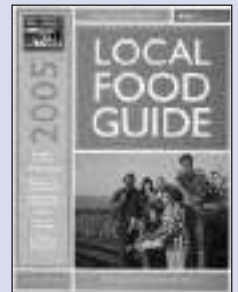
CAFF Publications

Hedgerows for California Agriculture. This manual will help you choose and care for regionally appropriate plants that attract beneficial insects and prevent erosion. It lists native plant nurseries and consultants/contractors specializing in hedgerow and other restoration projects. Download it at www.caff.org.



Making the Farm Connection. This manual is designed to let farmers know what to expect when hosting a farm visit. The booklet is also very useful for teachers and classes so that they may get the most out of their farm visit. Download at www.caff.org.

Central Coast Local Food Guide. A free booklet from the Buy Fresh Buy Local Campaign, this will tell you where to find seasonal, fresh, locally-grown food, including farmers' markets, CSAs, restaurants, and family farms. Available at various locations. Call (831) 761-8507 for details.



Solano Conservation & Restoration Manual. Do you constantly battle unwanted weeds on your land? Are you tired of watching the stream carry away your land? Worried about that gully that grows larger every year? Find the solutions to these and other resource concerns in this manual. Establishing native grasses, managing rangeland, pond habitat, hedgerows,

grassed waterways, riparian practices, prescribed burns, and much more. 145 pages, easy to use, update and share. \$15. To order, e-mail marcia@caff.org.

Basic Cotton Production Manual. BASIC Cotton Manual: Practical Lessons Learned from the Sustainable Cotton Project's Biological Agriculture Systems in Cotton (BASIC) Program, San Joaquin Valley, California, 2001 to 2004.

This manual describes management and marketing options for cotton production systems that use bio-intensive, integrated pest management to reduce chemical inputs. \$15. To order, e-mail marcia@caff.org.



Buy Fresh Buy Local Campaign

Measuring the Success

CAFF has been assessing the progress of the *Buy Fresh Buy Local (BFBL)* campaign on the Central Coast.

Between March 19 and 23, CAFF's Liv Nevin did a telephone interview of 22 local farmers, who were asked to evaluate nine questions on a scale of 1 (strongly disagree) to 5 (strongly agree).

1. The Campaign has helped distinguish my farm's products from others in the market place. *Average: 3.7; Range: 3-5*
2. The Campaign provides advertising and outreach tools that enhance the marketing of my products. *Average: 4.3. Range: 3-5*
3. Participating in the Campaign has enhanced my business with existing customers. *Average: 3.5; Range: 2-5*
4. The Campaign has helped me access new markets and new accounts. *Average: 3.3; Range: 1-5*
5. Campaign-related opportunities to network with other farmers are valuable to me. *Average: 4; Range: 2-5*
6. Campaign-related opportunities to network with retailers and other vendors are valuable to me. *Average: 3.8; Range: 1-5*
7. The Campaign has enhanced the security of my farm income. *Average: 3.1; Range: 1-5*
8. The Campaign's media and public relations work has created greater community awareness of locally grown food. *Average: 4.8; Range: 4-5*
9. The Campaign has helped increase sales of my products. *Average: 3.5; Range: 1-5*

One fruit farmer said the Campaign increased her sales by 30%. A Watsonville vegetable grower claimed that the Campaign had increased their sales by 10% and that CAFF's efforts had stimulated local retailers to consider buying from local growers.

Eight farmers mentioned the importance of working with independent retailers. Four wanted increased staff and funding for the Campaign. Three thought progress was very hard to measure and that we needed to sustain the effort for many years in order to see results. Many acknowledged that discerning direct, personal benefits from the Campaign was not easy; rather, they felt they were receiving indirect benefits from increased public awareness.

Other Surveys

To determine the success of the *BFBL* label, we surveyed 32 people at the Aptos Farmers' Market (FM) on March 19 and 21 shoppers at Deluxe Foods of Aptos on the evening of March 22.

	FM	Deluxe
Have seen the label	63%	50%
Thought label was useful	100%	100%
Said label influences what they purchase	81%	100%

We also tracked produce purchases at a local grocery store for the past three years, and found a 25% boost in local produce purchases (from 19 farmers) over the past year.

The *BFBL* Campaign has been most successful at creating greater community awareness of locally grown food through media and public relations work, and providing advertising and outreach tools that enhance the marketing of farmers' products. ■

Farm-to-School Update

The Davis Farm-to-School program opened its first salad bar in 2001 at Pioneer Elementary School through the collaborative work of the Davis Education Foundation, the California Department of Education, the University of California Sustainable Agriculture Research and Education Program (UC SAREP), the Davis Farmers' Market, and CAFF. Now the program has expanded to all eight elementary schools in the Davis Joint Unified School District. They offer seasonal, locally procured produce two days a week, along with a recycling program, garden-based learning, composting, farm visits, and in-class tastings. CAFF is currently working with the Esparto Unified School District to build the district's capacity for Farm-to-School.

This is the fourth year that CAFF has organized spring farm visits for the Davis School District. This year, 15 second grade classes will visit a local farm. The trips help them understand what farmers really do and make the connection between the farm and the classroom.

Building on this work, CAFF has been facilitating local produce sales to the student-operated UC Davis Coffee House since last November. Sodexho, the commercially operated University food vendor, is also considering this program for their residency hall meals. The groups are exploring ways to integrate more local food into the UC Davis food service.



Capay Valley Update

The Capay Valley Grown label is off the ground, with a media packet, grower biographies, and a brochure. In addition, Capay Valley residents now have regular access to local produce at the Capay Valley Regional Farmers' Market in Esparto on the first Saturday of every month from 10 a.m. to 2 p.m. Inspired by the success of the Gold Coast Growers Collaborative in Ventura County (see page 1), CAFF is working with local farmers and organizations to explore collaborative distribution of local produce and meats in the Sacramento Valley. *For more information about Farm-to-School, Buy Fresh Buy Local, or distribution in this region, contact Temra Costa, 530-756-8518, ext 18.* ■



San Joaquin Valley

New BASIC Cotton Manual Now Available

The Sustainable Cotton Project is now a program of CAFF. The project's Biological Agriculture Systems in Cotton (BASIC) program has been working with cotton growers in the Firebaugh, Mendota, and Dos Palos areas since 2001.

The BASIC program offers strategies to save money by reducing the need for insecticides, miticides, chemical fertilizers, and water. Planting habitat for beneficial insects, monitoring for insects, and using improved soil management practices, growers have reduced their pesticide use by up to 73% of the county average. To share this information, the program offers field days, demonstrations, and on-farm trials. The just published *BASIC Cotton Manual* explains the program's improved management practices. *If you would like a copy, contact Marcia Gibbs at 530-756-8518, ext. 34.* ■