



## Compost offers high economic return

Supplying sufficient nitrogen to the plant is a primary concern for organic vegetable growers.

They often plant cover crops or apply organic fertilizers to boost the soil's nitrogen content.

To compare their benefits, Santa Barbara County farm advisor Mark Gaskell tested several different organic fertilizers on sprinkler-irrigated bell peppers over 16 weeks of the 1998 growing season. The trial was conducted at Nojoqui Farm, a certified organic farm near Buellton.

Gaskell compared compost, pelleted chicken manure, fish meal, liquid fish, liquid soybean meal, feather meal and seabird guano. The fertilizers were applied once before the bell peppers were transplanted, then three times after planting.

He found that the different fertilizers did not affect total pepper yield as much as they influenced early yield and size. The earliest yield and largest peppers were observed in the plots treated with feather meal at the highest rate — 180 pounds of nitrogen per acre. However, the highest economic return per fertilizer dollar was in the plots treated with

compost at the rate of 180 pounds of nitrogen per acre.

The highest early yields and largest peppers tended to come from plots treated with fish meal, liquid fish, liquid soybean meal, feather meal and seabird guano, all of which had shown higher weekly peak soil nitrate nitrogen.

Compost and pelleted chicken manure, which consistently had the lowest soil nitrate nitrogen levels even at the highest rates, produced fewer peppers than the other plots. The feather meal fertilizer produced larger peppers and a greater early yield, two characteristics that draw a price premium. However, because compost is much less expensive than the other fertilizers, it turned out to be the most economical.

"The economic value of a fertilizer material may depend more on cost per unit of nitrogen than the nitrogen mineralization associated with the material," Gaskell says.

He cautions growers that the cost and quality of compost varies with its composition, "It is unclear whether compost can be managed to attain the levels of soil nitrate nitrogen apparently necessary for optimum bell pepper yield and size," Gaskell says. He found that soil nitrate nitrogen peaks 3 to 4 weeks following application of organic fertilizers, then returns to preapplication levels. Organic fertilizer materials do not offer a slow release of nitrogen to the crop; they need to be managed like soluble fertilizers.

Because the highest yields were harvested from the plots treated with the trial's top rate of fertilizer, Gaskell suggests that rates higher than 180 pounds of nitrogen per acre may further increase bell pepper yields.



Mark Gaskell

Seven different organic fertilizers were compared on bell peppers.

## Radio reaches Hmong farmers

After the Vietnam War, about 300,000 Hmong, Mien and Lao political refugees came to the United States, including 35,000 Hmong who settled in Fresno County. Known as the "mountain people" of Laos, the Fresno County community represents the largest single concentration of Hmong in the United States.

About 630 of Fresno County's Hmong are small farmers. Although many were farmers in Laos, they often find that the practices they learned there are not applicable in California. They often possess limited English language skills, according to Fresno County small farms advisor Richard Molinar.

Molinar and his colleagues tried a variety of methods to provide information to Hmong farmers — newsletters in English and Hmong, grower meetings, newspapers and other publications, video and audio cassettes, telephone, television and one-on-one visits, all with limited success.

Then in February 1998, Molinar and Fresno County Cooperative Extension field assistant Michael Yang launched a 30-minute biweekly radio broadcast program, every other Monday, on local Hmong radio station KBIF.

"This radio show proved to be by far the best method of communicating with Hmong farmers. Our program was broadcast in Hmong and presented in a regularly scheduled block of time when farmers were likely to be home," he said.

The \$1,800 to purchase air time for the first year was provided by the local USDA Farm Service Agency and UC's statewide Small Farm Center.

Yang, who speaks Hmong, prepared each program script. For 20 minutes of each broadcast, he presented topics relevant for local farmers, leaving 10 minutes to answer callers' questions. Half of his program covers UC topics including pesticide safety and crop production practices, and the other half is devoted to USDA subjects including farm loans and El Niño and freeze disaster assistance.

"The radio program has been a phenomenal success," Molinar says, "probably the single most successful outreach method. Phone calls from Hmong farmers increased 300% during the first 6 months of the show, and during the last 6 months of the show, the increase was almost 800%. Calls into our office were especially heavy after announcements about farm loans and disaster assistance."

The radio show filled an unanswered need. Surveys conducted in Fresno County had shown that many first-generation Hmong farmers had limited reading skills, even in their own language, which meant the printed material had limited usefulness. Their comprehension of spoken English was 40% to 60% so they tended not to attend general grower meetings. Attendance improved where an interpreter was provided, but less material could be covered because translation took time. Television was very expensive and the Hmong had expressed little interest in video and audio cassettes.



Phoua Yang

**Michael Yang presents a 30-minute radio broadcast for Hmong farmers.**

At the end of each show, Yang quoted current market prices for selected specialty vegetables. The broadcast aired from 9:30 PM to 10 PM and covered the whole Central Valley.

Listeners have been willing to participate in activities announced during the program.

"We filled a 7-week continuing-education class (20 farmers) within 1 week after the announcement went out over the radio," Molinar says. "We filled a market bus tour in 2 weeks with 45 farmers after one announcement was made."

He attributes the success of the radio program to using a radio station that caters specifically to Hmong, scheduling the broadcasts for a time when farmers are home, purchasing time for consistent broadcasts, having someone who is fluent in Hmong present the program; and being prepared to answer phone calls.

Although topics cannot be discussed in much detail during the show and the airtime must be purchased, Molinar thinks the advantage of reaching large numbers of farmers through radio outweighs the disadvantages.

"Because of these broadcasts, many more Hmong refugees are aware of our respective offices and the services we all have to offer," Molinar says.

Everyone involved in the project was pleased with the results of the first year. The program is continuing with its second year-long contract.

— Pamela Kan-Rice