

Rodale tour stresses reducing input costs

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Kutztown — "The Rodale Research Center is primarily aimed at helping farmers become more self-sufficient . . . reducing input costs," explains William C. Liebhart, assistant RRC research director. Liebhart, along with Jim Morgan, executive director, welcomed farmers from across the nation to the third annual farmers tour at the research center. Hosting over 300 farmers, the 320-acre study farm between Kutztown and Maxatawny provided morning and afternoon tours viewing ongoing research on reduced cost farming methods.

Farmers were able to view growing crops providing data on overseeding, soybean inoculation, manure compost studies, and conversion trial crops used when switching over to this type of farming. Research dwelled on using less or no herbicides, pesticides, and fertilizer unless it was naturally produced by farm animals or a certain rotation of crops. Crop yields, soil nutrient levels, soil loss rates, and crop production costs are documented and studied through five-year plans using crop rotations and animal manures to provide ingredients necessary for profitable crops. On the tour, farmers rode hay wagons from field to field viewing the trials as well as the conventional crops planted as comparisons.

R.F. Hofstetter, agronomy researcher, introduced the group to the overseeding studies. In these studies a legume or grass sod was seeded into an existing field of corn or soybeans to provide a living mulch, reducing soil erosion, increasing water holding capacity, and decreasing weed competition. Also, legume sods may supply sufficient amounts of nitrogen to the crops.

"The idea is to grow your own nutrient for the crops," Hofstetter stated. He added that they are currently studying many different species of legumes and grasses to see how they perform. They found that under the good growing conditions that are plentiful this year, nothing would grow under soybeans because of the big canopy of the leaves. In a drought year, according to Hofstetter, it could be different. He also said that many species rotted out because of the wet conditions this year. Used mainly for ground cover, the overseeding crops will be plowed under to retain their nutrients for the soil.

"You have to control the weeds before you overseed," he continued. He suggested "timely

cultivation." "If you have a really weedy situation, forget it," he said. The trial patches at Rodale were cultivated two, three, and sometimes four times. No synthetic fertilizers or herbicides were used. Overseeding was done by hand but Hofstetter said that larger areas should be done with a plane.

The researchers found that to date, medium red clover is doing the best. A southern variety of clover also is growing well. According to Hofstetter, annual rye grass always does well and is a good choice to use. Experiments using hairy vetch also proved satisfactory to date. On the experimental plots of corn, 30 inch rows with a 20,000 population were used. Plots were overseeded in late June. "You're not going to eradicate the weeds, but you can suppress them," Hofstetter concluded.

Hofstetter also reviewed the corn population trials for the many corn farmers on the tour. "We found that at low populations, the quality is much better," he stated. The literature from the RCC stated the rationale for these trials. "Although an optimum population has been found for corn planting in conventional farming systems, there is some evidence to indicate that the optimum corn population for organic systems may be different." Resulting grain yields from organically grown corn planted under four different populations were compared.

Hybrid corns were used and according to Hofstetter, the type of corn had a lot to do with the yield rates. Fresh manure was applied and moldboard plowed down immediately. The ground was disked twice and packed. Sandra Rieger, agronomy researcher, was also on hand to further explain the trial. To date no clear trends have been found and further results will be available from the RCC during the winter of 1984.

Rieger was also responsible for the results of the manure compost trials and explained them on the tour. Increasingly used to replace expensive fertilizers, manures and composts were studied to determine effective application methods and rates, management strategies, and differences in manures produced on the farm. Results are ongoing and because of the drought in 1983, crops will be replanted and studied again this fall. Corn was the crop used. The trial consisted of fresh cattle manure, dehydrated chicken manure, composted horse manure with leaves, and standard (nitrogen) fertilizer-urea.

The next stop on the crop tour



Sandra Rieger, agronomy researcher, outlines corn population trials during field day tour at Rodale Research Center.

was to view soybeans planted for the soybean inoculation study.

"When a field is without a crop of soybeans for over five years, the indigenous bacteria found in the soil are so few in number that the soybeans require an inoculation of bacteria for proper growth. The standard means of supplying the bacteria is with a powdered form of bacteria being applied directly to the seed. A new product, (Nitrogen's Soil Implant) has shown evidence of providing "more bacteria per soybean seed" than dry inoculant by use of its granular, furrow applied inoculant," the research center's handout explained.

In this study, soybeans were planted using no inoculum, powdered inoculum, and then the granular inoculum.

Farmers were able to view some shading differences in the leaf color of the soybeans and also some height differences. Although yields were increased almost 18 percent in 1982 with the use of the granular inoculum, due to the drought in 1983 and inconsistent findings, the study has been repeated in 1984 for more conclusive findings. "The yield is definitely better on the granular," Hofstetter explained. "But, we don't know how long this would be."

Soil testing studies were also explained by Kate Showers, researcher, who is completing a standard manual for uniform tests and measurements. "An awful lot of

soil testing is not precise," she stated. "We're trying to get this information to farmers so that they can make their own recommendations." According to Showers, most farmers rely on biased industries to make their soil recommendations. These companies usually have something to sell and make recommendations to their benefit, not the farmer's or the soil's.

The conversion project was explained by Martin Culik, researcher. Using five-year crop rotation plans, weed control and soil nutrient levels are compared to conventional farming methods. Three basic treatments were used; organic farming with animals, organic farming without animals, and conventional cash grain farming.

In the fourth year of the project, the agronomists expect decent yields. Weed control proved to be a severe problem, and the weather often worked against them. A rotary hoe was used to cultivate plots two and three times as the weather permitted and decent yields were harvested.

"Soybeans are a good crop for starting crop rotation," according to Culik. "We don't like to see the weed in there, but there may be a tolerable limit," he added. "Crop rotation may be a good tool to control weeds."

When the tour arrived back at the research barn, farmers heard about the Kutztown study farm of the Brubakers from Liebhart. "The Brubakers basically farm in what we would call a low input farm," he stated. Studied for five years, this Kutztown livestock and crop farm uses crop rotations in their 95 fields on 300 acres to consistently produce higher than average yields. "The farm from a nutrient standpoint is basically self-sufficient," Liebhart stated. "The environmental impact is minimal," he added.

After the tour and discussions ended, farmers dispersed to view the displays around the barn and personally talk with the researchers. As one participant noted, "this may not be the ideal way to farm, but it may be the answer to saving our soils and reducing synthetic materials that farmers need to use."



In soybean trials, R.F. Hofstetter, agronomy researcher, points out difference between the powder and granular inoculum fields.



In conversion trials this plot of soybeans shows numerous weeds.