2005 Advanced Training in Organic Crop Production

Session 3: Soils September 19-22, 2005

Location: Hilton Garden Inn, Auburn, ME.

LEARNING OUTCOMES

- Participants understand and can explain how to use a variety of tools to assess the chemical, physical and biological aspects of soil fertility.

- Participants understand and can explain the role of organic matter in soil fertility and the processes the affect organic matter quantity and quality in soil.

- Participants understand and can explain the potential benefits, criteria for selection and practical use of cover crops on organic farms.

- Participants understand and can explain the rules governing production and use of compost on organic farms, methods of assessing compost quality, and the potential benefits and concerns with use of compost in the field, in greenhouses and in potting mixes.

- Participants are able to work with clients and colleagues to develop whole-farm nutrient budgets for organic vegetable farms.

- Participants understand which soil fertility products are approved for certified organic production and are able to make soil test-based fertility recommendations or organic producers.

- Participants understand and can explain a variety of tillage tools and advise clients and colleagues on their effects on soil quality, selection, and use.

- Participants understand the decision-making process that underlies crop rotation planning and can assist clients and colleagues with this process.

MONDAY 9/19

Arrive by noon

12:00 LUNCH

1:00 Welcome, Introductions and Overview

2:00 ORGANIC MATTER: -Marianne Sarrantonio, University of Maine, Orono- Focus is the importance of organic matter to soil health, biological activity, recycling of nutrients and soil husbandry. An organic matter budget will be introduced [organic matter budget is a determination of loss and gain over a cropping year. It can be
determined using a simple algebraic equation of what is lost from soil by breakdown (1-3%, depending on tillage, climate and soil type) and what is gained by amendments (crop residue, manure, compost). Participants will learn to calculate this using a projected rate of decomposition for each amendment in a year (pulled from literature and research - e.g. a legume cover crop will generally leave only 20% of its organic biomass by the end of the year), and multiply by application rate. For example: Hairy vetch may produce 3000 lb/ac, but by November only 20% or 600 lb is left, so that is one gain to offset the loss OM breakdown (which may be 1200 lb/ac for a soil with 3% OM and 2% loss/year)].

3:00 BREAK

3:30 COMPOST - Will Brinton, Woods End Research Laboratory - Composts are not all equal. Some are permitted and some are prohibited on certified organic farms, and some are not wanted. Participants will learn the regulations, risks of contamination with pathogens and pesticides and how to judge the quality of compost that is either made on the farm or purchased.

4:30 SOIL BIOLOGY—NUTRIENT RELEASE; DISEASE SUPPRESSION - Mary Barbercheck, Penn State U. Participants will learn more about the soil food web and its trophic levels. The soil biological community regulates nutrient release and can suppress some pathogenic organisms.

7:00 DINNER

TUESDAY 9/20

7:00 BREAKFAST

8:00 COVER CROPS- Vern Grubinger, University of Vermont Extension - Participants will learn to choose the most appropriate cover crop for particular benefits sought by the farmer, e.g., weed management, adding organic matter, adding nitrogen, catching nutrients, etc. And they will learn how to choose the cover crop that fits into the specific crop rotation (cover crops that do not host particular pests, cover crops that fit window of opportunity, etc.).

10:00 COLSON FARM TOUR – David Colson will lead a tour of the farm and talk about the practices and tools he uses for managing pests and soil and how he uses cover crops in a crop rotation. He will discuss his tillage tools and why he has chosen them.

12:00 BOX LUNCHES

1:00 NUTRIENT BUDGET - DISCUSSION AT COLSON’S- Brian Caldwell, Cornell
Organic farming is based on many principles that protect the environment and one measure of the impact of a farm is the nutrients crossing the farm boundary, either brought in or going out. Participants will learn specific concerns with particular nutrients and cultural practices to conserve and recycle nutrients. Brian will lead an exercise to determine the nutrient budget on the Colson’s farm.

3:00 TURNER FARM- TOUR- Lisa Turner will lead a tour of her winter production houses.

4:00 HOOPHOUSE FERTILITY DISCUSSION -Anu Rangarajan, Cornell
Managing the soil in a hoop house is different than a field because in most cases it is not based on cultural practices and crop rotation but on inputs. What are the techniques and unique problems for hoophouses. Anu will lead a group discussion of this topic and include some specific problems with nutrient management in hoophouses such as nitrate accumulation in crops and other salts in the soil.

5:00 Leave for Wolf Neck Farm

6:00 DINNER- Lobster bake at Wolfe’s Neck Farm. Maine beers available for purchase.

WEDNESDAY  9/21

7:00 BREAKFAST

8:00 NUTRIENT MANAGEMENT ON ORGANIC FARMS - John Howell, University of Massachusetts Extension (retired)- Making nutrient recommendations for organic farmers can be an adventure, because of the wide range of inputs and amendments used, including cover crops, compost, manures, mined minerals and other bagged organic fertilizers. These materials have widely varying nutrient content, availability and cost. A very individual approach is needed to make useful organic farm nutrient recommendations. We will examine several different real life farm situations and discuss the possible approaches to a nutrient plan for each. Eric Sideman will provide information on several approved soil fertility materials.

10:00 LEAVE FOR GORANSON’S

11:00 TOUR GORANSON FARM - Rob Johanson and Jan Goranson will lead a tour of their farm and discuss their farming tools and practices including how they use crop rotation and compost to take care of their soil. They will discuss their tillage tools and why they have chosen them.

12:00 BOX LUNCH/DISCUSSION

1:00 COMPOST/COVER CROPPING DISCUSSION- Mark Hutchinson, University of Maine Extension- Nitrogen is the most difficult nutrient to manage on Goranson
farm. The farm is not near any livestock production. Mark will discuss how nitrogen behaves in the soil and particular attributes on this farm of nitrogen from cover crops, compost, and organic wastes such as fish waste. Then Mark will lead a group discussion of experiences managing nutrients on organic farms.

2:30 ON FARM SOIL QUALITY DEMOS Tim Griffin, USDA-ARS, Rick Kersbergen, University of Maine Extension, Marianne S. Various tools, and techniques will be discussed for measuring soil quality in the field, including building your own inexpensive “tool kit” and mechanisms for farmers to measure changes over time. Participants will judge various soils and (for those that are driving) are encouraged to bring a dishpan of soil from a farm in their region to evaluate against other samples. Topics will include soil quality cards, aggregate stability, active carbon and other measurement techniques for teaching soil quality to producers. How does selection of tillage implements and crop rotation affect soil quality?

4:30 Tour of David Vose farm where he produces greens on about a hundred acres for the wholesale market. We will see how he manages the crop nutrition and the land to facilitate mechanical harvesting.

7:30 DINNER

8:30 Optional discussion on Organic No-till (Brian C. and Anu R.).

THURSDAY 9/22

7:00 BREAKFAST AND CHECKOUT for those leaving today

8:00 PUTTING IT ALL TOGETHER- Making recommendations for organic farms. Anu R, Brian C. and Vern G. Using case studies, we will integrate information gained from all three sessions to practice and wrestle with developing recommendations for organic farmers.

9:30 WHAT’S NEXT- Vern. G. What type of activities or programming do you plan to do in organic agriculture over the next year? How will you share your knowledge with your peers? Ideas for grants or future collaborations among participants?

10:15 BREAK

10:30 FUTURE TRAINING NEEDS- Anu R and Vern G. Brainstorm on ideas for addition training.

11:00 OVERALL TRAINING EVALUATION. Anu R. and Vern G.

11:30 CLOSING

--If you have the time, the Common Ground Country Fair starts on Friday, 9/23.