The Farm

Update on West Virginia University Organic Research Project

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Student Interns Learn While Working at the WVU Organic Research Farm

The WVU Organic Research Farm produces more than just research. Education and grower outreach is an important mission for the Farm. This summer, the USDA has funded three interns to assist with research activities and gain new insight into organic farming in general.

Sigrid Schumacher is a soil science major from Salem, WV. She joined the intern program to learn more about the differences between organic and conventional growing. Sigrid had apprenticed at Green Heron Farm a few years ago and wanted to learn the technical details of what actually happens to soil and plants.

When asked what was the most memorable thing about this summer, she replied, "Getting a chance to learn about the crops, insects and diseases and other things because of all the people participating in the research. Using a sod cutter was interesting too."

Sigrid is working with Dr. Louis McDonald on a study evaluating soil dynamics in a compost rate trial. There is no such thing as a typical day for Sigrid. The activities vary from weeding plots to lab work doing soil tests for phosphorus, nitrogen, calcium, bulk density, pH " and tons of other things about soil." She says she is looking forward to results at the end of this experiment.

Norman Varnes is a Horticulture major. He is originally from Florida and came to West Virginia to pursue educational opportunities. He is working on an apple disease control experiment and assists with nematology lab work and field activities of every kind. He also has responsibility for marketing the produce from the Farm.

Norman emphasizes the importance of education. "It is better to be an educated farmer than an uneducated one. I have learned how much there is to learn. Don't ever give up on learning. Stay in school while you are young."

Catherine Simmons is a Regents major studying Horticulture. She came from Washington, DC when her husband came to West Virginia and applied for the internship in order to learn the organic gardening business. She is working with Dr. Sven Ver Linden on the vegetable Market Garden and shares lead responsibility for marketing. She is also interested in the research aspects as a way to help organic growers.

Catherine learned that organic growing takes a lot of labor. "I had no idea how many weeds we would have. And it takes a good marketing plan to make money." Catherine's most memorable thing from the summer: "The gobs and gobs of zucchini."

The internship program is designed to increase student awareness of agriculture in general and techniques of organic farming research specifically. I believe that these students are achieving those goals and I think we can all be proud of the efforts they are making.

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The Organic Harvester

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Cropping Systems Influence Biological Weed Control

Agricultural Research Service, USDA
June 27, 2000

Boosting organic matter in soil creates a healthy environment for soil-dwelling bacteria that suppress weeds. That's according to Agricultural Research Service scientists who for the first time have determined which cropping systems provide the best home for these beneficial bacteria.

ARS scientists report that to create ideal soil conditions, farmers should rotate their crops, reduce tillage and keep herbicide applications to a minimum.

The beneficial microbes, called deleterious rhizobacteria (DRB), live on—or within millimeters of—weed roots, and they feed on substances that ooze from those roots. As the name DRB implies, these bacteria are bad for weeds. Although they suppress weed growth, DRB normally don't interfere with crop plant growth.

Robert J. Kremer, a microbiologist with the ARS Cropping Systems and Water Quality Research Unit in Columbia, Missouri, says many DRB keep weed seeds from germinating and produce toxins and excessive concentrations of plant growth hormones that put the life processes of weed seedlings in "overdrive." Consequently, root cells may rupture and leak, replenishing the DRB diet. Once weakened by DRB, weeds are less able to compete with other plants, and they become more vulnerable to other control measures.

Kremer and graduate student Jianmei Li researched cultures of DRB associated with the most dominant species of weeds in six different cropping systems. In general, the highest numbers of weed-suppressing DRB came from fields where crops were rotated, chemicals and tillage were minimal, and organic materials like composts were added. DRB fared best in a corn-soybean-wheat-cover crop rotation. An organic strawberry system with compost was a close second.

The researchers believe the research information can be used to modify current cropping practices or design novel ones to promote development of DRB and take advantage of their natural weed-suppressive effects.

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