

Sustainable Agriculture

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Sustainable agriculture means profits and high tech

Agriculture must be profitable and economics should be the first topic addressed when we talk about sustainability, according to Jerry DeWitt, head of the sustainable agriculture program at Iowa State University. "The term 'natural resources' means regulations to many farmers," he said. DeWitt, who spoke at the recent "train the trainer" course for agricultural professionals at Rochester, said "agriculture is becoming more 'sustainable'--we don't have a choice."

DeWitt said sustainable agriculture is high tech. Both "sustainable" and "traditional" farmers use high tech tools like late spring soil nitrate tests, manure sampling for nutrient analysis, black cutworm monitoring traps and grain sampling tubes to detect stored grain insects. And in Iowa, the average farm size for members of the Practical Farmers Association is only slightly below the state's average.

DeWitt said 71 percent of farmers responding to the Iowa Rural Life Poll say agriculture depends too much on agricultural suppliers. In the same poll, 61 percent agreed that modern farming relies too heavily on insecticides and herbicides; 60 percent said agriculture relies too heavily on commercial fertilizer.

"We need to do a better job of listening to the needs of farmers, then work in partnerships with other agencies," he told the agricultural professionals. "Everyone has pinched budgets and we need to work together."

Farmer panel addresses sustainability

Sustainability means "common sense, fine-tuning management and making things work," said Chip Callister, a cash crop and beef producer from Cannon Falls. He farms in an area where land rental rates are high and produces quality alfalfa hay as a cash crop. The alfalfa is dried mechanically in a new building designed for drying bales. "I plan to be on this farm for a long time so I have to take care of it," he added. He uses a "state-of-the-art sprayer" with the highest rate of water possible to help cut back on herbicide rates. And soil nitrate sampling helps cut fertilizer tests.

Highlighting the "train the trainer" session for ag professionals was the farmer panel of Callister; Dave Huneke, Zumbrota dairy farmer; and Dennis Rabe, swine and beef producer from Lake City. Rabe treats his 320-acre farm as an ecosystem. To "spread" manure from his beef cow herd during winter, he moves the fence daily where the cows feed on round bales. "I didn't start the tractor for 45 days during winter," he said. And the manure value for 75 cows, calculated conservatively at 12 cents per cow daily, came to \$90 per acre for 10 acres. Rabe's goal is to hit 50 percent net profit on his enterprises--he's been as high as 47 percent.

Rabe is starting a new marketing venture to sell 65-pound "pork packages" at \$2.19 per pound directly to consumers. "That doubles my market price. If I do a good job of marketing, this should be my first enterprise to reach 50 percent net profit," he said.

Worms: they may either hurt or help water quality

Earthworms affect the flow of water through the soil in ways we're just beginning to understand. Sometimes this means less runoff of applied chemicals, less erosion, and less surface water pollution. In other settings, their slimy holes can be direct conduits to ground water.

"Past models of water movement in soils have been unable to explain the early appearance of contaminants in ground water," says University of Minnesota soil scientist Satish Gupta. Looking at the role of macropores -- small openings caused by earthworms, freezing and thawing, tillage and roots -- is leading to more accurate models to predict the flow of water into the ground.

Worm holes are being looked at from every possible angle -- diameters, lengths, directions and quantity of burrows -- by Gupta, tillage researcher John Moncrief and a team of graduate students -- to learn how they interact with farm practices and water quality.

They've found that burrows of *Lubricus terrestris* -- nightcrawlers -- are the most important water carriers. These burrows can go three feet straight down and be as wide as a pencil. Gupta says other worm paths are smaller and meander or dead end. "If the burrows aren't continuous, I don't worry about it."

Tracking worm holes isn't easy. There can be hundreds or even thousands of burrows in a cubic yard of soil, so several methods are used to gather information. Soil cores three feet deep are hauled into the laboratory and taken apart inch by inch.

"Worm production goes up in manured fields because they like organic matter," says Moncrief. This means dairy areas such as southeast Minnesota will likely have more worms, more worm holes, and more conduits for water. This can result in positive or negative influence on the flow of potential contaminants.

Under development are computer models that may help generate specific recommendations to farmers to reduce the chances of ground water contamination in sensitive areas like southeast Minnesota, which sit on fractured sandstone and limestone that allow surface water to reach groundwater quickly. Complicating the models is that nightcrawlers-- introduced by European homesteaders--are not distributed evenly, even on a single farm.

This research project of the University of Minnesota, Agricultural Experiment Station is funded by the USDA, Cooperative State Research Service and the Legislative Commission on Minnesota Resources. It is one of three major projects in the U.S. looking at how earthworm macropores impact water quality. For more information, contact Moncrief at 162 Borlaug Hall, University of Minnesota, St. Paul, MN 55108, (612) 625-2771.

Low input lawn care (LILaC) stresses prudent use of lawn care products

LILaC, an acronym for Low Input Lawn Care, is a lawn care strategy that can reduce inputs of product, expense, time and labor required to maintain a healthy, environmentally functional lawn. However, it's not a recipe for a specific lawn care practice, strictly a natural or organic lawn care program, or a no maintenance program.

A publication on the topic has been written by Bob Mugaas, an educator specializing in horticulture, with the University of Minnesota's Extension Service. Mugaas says potential benefits from LILaC include cost savings due to less lawn care product needed, conservation of water resources and reduced labor. "For some, maintaining a lawn provides personal satisfaction, therapy and pleasure," he says. But even with

high maintenance lawn care programs, prudent use of lawn care products and practices is environmentally responsible. Emphasis on timing of nutrient applications minimizes leaching while promoting healthy lawn growth.

Removing isolated weeds by hand or spot treating with an appropriate herbicide may be the most appropriate control measure. Hand removal and being a little more tolerant of a few weedy plants while maintaining an otherwise healthy lawn can reduce weed control inputs.

A major part of the LILaC program: Once pest problems have been reduced, proper lawn care practices will encourage vigorous, healthy grass plants, making future pesticide applications minimal or unnecessary.

Not all LILaC practices suggested in the publication will fit everyone's lawn care program. For more information, you can get complimentary single copies of the publication from the Hennepin County Extension Office, 1525 Glenwood Ave., Minneapolis, MN 55405- 1264, (612) 374-8400.

There are no miracle products for crop production

Farmers will hear more sales pitches for "miracle products" this spring due to higher prices for nitrogen and other fertilizers.

But there are no miracle products for crop production, says George Rehm, soil scientist with the University of Minnesota's Extension Service. "Each year spring's arrival is accompanied by claims and advertisements for new products. They're supposed to have magical effects on root growth, leaf size or the feeding value of the crop."

Many sales people will claim their magical product will reduce the amount of nitrogen fertilizer needed for crop production, Rehm says. These miracle products are easy to identify. "The literature uses testimonials instead of results of research trials," Rehm says. "The seller also claims the product is so new that very few know about it."

What do you do when you're confronted with sales pitches for these new products? "Remember there are no miracle products for crop production," Rehm says. "Your highest probability for maximizing farm profits comes from products and production practices that have evolved from high quality research, not testimonials."

Ask questions if you're unsure about using a "new" product. There are several sources of good information, including your county extension office, crop consultants and fertilizer dealers. "If something seems too good to be true, it probably is," Rehm says. "Ask before you spend."

On-farm research, demonstration grants available

Farmers interested in incorporating sustainable practices, trying an alternative crop or developing a new marketing approach can apply for competitive grants of up to \$5,000. The North Central Region Sustainable Agriculture Research and Education (SARE) program is again sponsoring the producer-initiated grants program. About \$100,000 is available to producers in the 12-state North Central region.

Demonstration and on-farm research projects previously funded include rotational grazing, field trials, farmer networks, alternative crops, composting, equipment modifications and biocontrol measures. Minnesota projects include weed control with different crops and tillage systems, rotational grazing,

pasture species, windbreaks, comparing composted and raw manure, and wild flowers on marginal lands. For grant applications or a description of previously funded projects, contact Mary Hanks, Minnesota Department of Agriculture, 90 W. Plato, St. Paul, MN 55107, (612) 296-1277. Applications are due May 1, 1995.

Sociologist finds 'disturbing' income inequality in Minnesota

High levels of income inequality, which tend to be linked with poverty and diminished social well-being, are prevalent in many rural Minnesota counties.

That's one of the Conclusions University of Minnesota rural sociologist Dario Menanteau has drawn from studying income inequality across the state. In fact, says Menanteau, income inequality is greater in more than 20 rural Minnesota counties than in such developing countries as India and Sri Lanka.

Menanteau and his assistant, Christos Papadas, have measured income inequality for all of Minnesota's counties. Their system of measurement is called the Gini Index, and is based on family income data obtained from the 1990 Minnesota Population Census. Index figures are formulated by looking at total household income for a county and also classifying households into nine income categories. The Gini Index measures the degree of even or uneven income distribution in each county.

"The data indicate a disturbing pattern of income inequality in Minnesota," says Menanteau.

He says "extractive" industries such as agriculture, lumber, and mining help create the context for income inequality. These industries tend to take resources from rural communities and move them to cities and international markets. "They help concentrate economic and human resources in urban and metropolitan areas," Menanteau says. "Once income inequality is established, it is sustained by efforts to maximize profits (for example, downsizing the labor force) while increasing financial and other rewards for owners, investors, and a few top managers."

Menanteau says his research shows high levels of income inequality tend to accompany low levels of social well-being. Indicators of diminished social well-being include high infant mortality rates, restricted access to medical services, and other public health problems.

"Hennepin and Ramsey counties show high levels of income inequality," says Menanteau. "However, the prevailing pattern is one in which Minnesota's rural counties have high income inequality accompanied by low levels of social well-being. In a society where money determines access to services and opportunities, high income inequality tends to mean high poverty rates and deficiencies in health and education." For more information, contact Menanteau at 86 COB, University of Minnesota, St. Paul, MN 55108, (612) 625-8798.

The Foodgame is a public policy education projects for adults

Through role-playing and discussions, participants in The Foodgame gain a better understanding of the diverse perspectives and decisionmaking processes of agricultural producers, legislators, and consumers. Target audiences include educators, high school students, human services personnel, civic leaders and interested citizens. The Foodgame can be adapted for groups from 13 to 100 people, and can be done in three rounds of approximately an hour each or can be combined for a 1/2 day event.

For questions about The Foodgame contact Bea Krinke, School of Public Health, University of

Minnesota, Minneapolis, MN 55455, (612) 624- 8243. To order The Foodgame send \$14.95 per copy (MN residents must add 7% sales tax or provide a tax-exempt number) to: Distribution Center, 20 Coffey Hall, University of Minnesota, 1420 Eckles Avenue, St. Paul, MN 55108. The item number for The Foodgame is BU-5722-SAN.

Land Stewardship Project (LSP) moves office

The LSP has a new address: Land Stewardship Project, 2200 Fourth Street, White Bear Lake, MN 55110. Office: (612) 653-0618, or fax (612) 653-0589. LSP was unable to renew their lease on the office space in Marine.

Landscape ecology symposium April 22-26

The 10th annual U.S. Landscape Ecology Symposium is scheduled April 22- 26 in Minneapolis. Speakers include Jane Smiley, Pulitzer prizewinning author of A Thousand Acres. Scheduled field trips include the Dodge County farm of Dan and Muriel French, cooperators in an interdisciplinary research project designed to monitor the biological, financial and social impacts of managing with intensive grazing systems. For more information, contact Shirley Mueffelman at (612) 625- 3850.

We can use your story ideas

Keep the story ideas coming. Send them to the editor: Jack Sperbeck, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108, Tel. (612) 625-1794. E-mail: jsperbeck@extension.umn.edu. Other editorial board members are Phil Larsen (612) 624-7451, Don Olson (612) 625-9292 and Helene Murray (612) 625-0220.

Our mission statement: To help bring people together to influence the future of agriculture and rural communities to achieve socially, environmentally and economically sustainable farms and communities.

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