

# *Sustainable Agriculture*

**Volume 10, Issue 6 – June 2002**

## **Organic farming is more efficient, Swiss study finds**

Organic farming may produce lower yields, but in the long run it's more efficient and much easier on the environment, Swiss researchers reported in the May 31, 2002 issue of "Science." Organic farms have more fertile soil and a higher biodiversity, both of which have been shown to increase efficiency, the Swiss researchers reported.

Paul Mader of the Research Institute of Organic Agriculture in Frick, Switzerland, and colleagues at the Swiss Federal Research Station for Agroecology and Agriculture in Zurich spent 21 years comparing conventional farming to organic farming, which uses no synthetic pesticides or fertilizers. "Mean yields are 20 percent lower, depending on the crop," Mader said. For example, organic wheat yields were 10 percent lower and there was a 40 percent reduction for potatoes.

"But mean energy input per hectare was about 50 percent higher (in conventional plots). As a consequence, energy input per crop unit is lower in organic." Energy input includes fuel used to produce fertilizer and pesticides and their actual ingredients. Mader's team found 34 to 51 percent less nitrogen, phosphorus, and other nutrients were added to the soil in the organic systems than in the conventional ones. So because the crop yields from the organic systems were 80 percent as large as conventional yields, the organic systems use resources more efficiently, they concluded.

Farmers reap the benefits. In Europe, Mader said, consumers are willing to pay 10 percent to 30 percent more for organic produce. They also often get government support.

At the start of the study, only one percent of Switzerland's farms were organic, but that has grown to nine percent, Mader said. "There are farmers converting to organic." Overall, he said, 3 percent of all farms in the European Union are organic, and the numbers are increasing by about 25 percent each year.

Mader said he believed the study to be free of bias, although he works for an organic institute. Government scientists also worked on the project, he said. "Of course, I try to have an objective view," Mader said. "But I have become a big fan of organic because I have seen the positive effects of organic."

Some of the processes that make organic more efficient are going on at the microbe level, he said. "The microorganisms in organic plots work more efficiently than in conventional plots," he said. The tiny organisms make carbon into a form that can be used by plants, for instance. "If there is less stress caused by fertilizers, caused by pesticides, the microbe community works more efficiently," he said.

Mycorrhizae, root-colonizing fungi that help plants absorb nutrients, fared better in organic systems as well. Such fungi were also at least partly responsible for the more stable physical structure of the organic

soils, the researchers said. Insects such as pest-eating spiders and beetles flourished in the organic systems.

*--Adapted from a Reuters/Environmental News Network article.*

### **Farm policy fails rural America, Michigan political scientist says**

"The federal government's historic emphasis on farm productivity has failed to meet broader rural needs," charges Central Michigan University political scientist William Browne, a national authority on agricultural and rural policy.

"Policy has actually increased rural poverty," says Browne, the author of a new book titled "The Failure of National Rural Policy." That policy dates back to the Civil War.

"Modern farm policy emerged in the United States in 1862, leading to an industrialized agriculture that made the farm sector collectively more successful even as many individual farmers failed," says Browne. "Ever since, a healthy farm economy has been seen as the key to flourishing rural communities."

Browne says policymakers largely ignored the problems of rural nonfarmers, former farmers and nonfarm residents. He maintains that nonfarm rural society can make a realistic claim for public policy assistance.

*--Adapted from Farm Progress/DirectAg.com Birch*

### **Birch bark, wild blueberries examples of non-timber forest products**

Picking wild blueberries, collecting willows and dogwood for basket material and harvesting birch bark to make canoes and baskets are only a few examples of what non-timber forest products are about.

There are probably about 250 native Minnesota plants that are subject to commercial or hobby harvest, according to a new University of Minnesota website titled "Non-Timber Forest Products and Implications for Forest Managers."

The website is a cooperative effort of the U of M Extension Service and College of Natural Resources plus the Minnesota Department of Natural Resources. It's based on meetings where landowners were invited to discuss whether current forest management practices assure the sustainable use of non-timber products.

"The meetings weren't held to promote the use of any plants or groups of plants," says Mike Reichenbach, forest economic development educator with the U of M Extension Service. "We had the meetings to increase awareness about what's being harvested and to help define forest management needs in relation to resource sustainability."

The website includes sections on considerations for biodiversity and conservation; hazelnut production; birch and birch bark; balsam boughs; botanicals; berries, nuts and fruits; and use of native plants.

"New uses for products are occasionally discovered and developed," Reichenbach says. "This is true of birch bark, where the bark has been found to contain compounds with potential use in medicines and paint pigments."

The parts of plants that are used and the harvest practices can affect ecological sustainability at four levels: the individual plant, the population, the community and the ecosystem.

At the individual level, a plant that's partially harvested may become less vigorous or be more susceptible to disease. Populations of plants may diminish if they're harvested before they can reproduce sexually. And at the plant community and ecosystems levels, harvesting plants has an effect on the abundance and distribution of other species. However, Reichenbach says this effect can be hard to quantify.

For more detailed information, click on the website at [www.extension.umn.edu/environment](http://www.extension.umn.edu/environment).

### **Publication on feed for natural, organic pork available from U of M**

"Designing Feeding Programs for Natural and Organic Pork Production" is the title of a new publication available from the University of Minnesota Extension Service.

The 18-page bulletin has information on standards for organic pork production, management of organically raised pigs, energy and protein sources, alternative feeds and use of forage and pasture. It has tables with diet formulations for early and late grower and early and late finisher swine growth stages, as well as sow gestation and lactation.

The authors are Jerry Shurson and Mark Whitney of the U of M Department of Animal Science, Lee Johnston of the West Central Research and Outreach Center at Morris, Bob Koehler and Robert Hadad of the Southwest Research and Outreach Center at Lamberton, and Dean Koehler of Vita Plus Corporation in Shakopee.

"Designing Feeding Programs for Natural and Organic Pork Production" is available at a nominal cost from county offices of the U of M Extension Service. It's also available by credit card from the U of M Distribution Center at (800) 876-8636 or (612) 624-4900. Ask for item 07736-BU.

### **Field Course in Organic Management and Organic Field Day at Lamberton**

A Field Course in Organic Management will be held at the U of M SW Research and Outreach Center at Lamberton on July 24-25. Following the course, an Organic Field Day will be held July 26.

The Field Course in Organic Management is designed for ag professionals who are interested in working with the rapidly growing community of organic producers. Participants will develop a grounding in the basics of organic production plus hands-on knowledge of organic management through field exercises on the Elwell Agroecology Farm, which has about 120 acres of land in certified organic production, the largest certified organic acreage at any Land-Grant institution in the U.S.

The Elwell Farm has demonstrations of over 20 field crops, an organic vegetable garden, a composting demonstration, and a variety of replicated organic field trials, including a long-term study comparing organic and conventional production. Classroom work with a team of university researchers, representatives from certifying agencies and experienced organic producers will allow participants to gain further insights and information on organic systems.

The program will start at 8:30 a.m. on July 24 and finish at 3:00 p.m. July 25. A registration fee of \$125 includes all meals and written materials. Enrollment will be limited, so please register by July 1 to ensure your participation.

To register for the Field Course or for further information, call the Southwest Research and Outreach Center (SWROC) at (507) 752-7372.

On July 26, the 5th Annual Organic Field Day will be held at the SWROC. Events include a tour of organic research and demonstrations and workshops with experienced organic producers on soil and weed management and certification issues. No registration is required; contact the SWROC at (507) 752-7372 for more information.

## **Calendar of events, 2002**

These events are sponsored by numerous organizations. More information is available on MISA's website: [www.misa.umn.edu](http://www.misa.umn.edu).

June 10. **Installing Rock Tile Inlets in Faribault County**, Faribault County SWCD in Blue Earth, (507) 526-2388.

June 19. **Flour Corn as an Alternative Crop--the Benefits of Using Corn Flour**, Joel Middendorf farm, Verndale, (320) 594-2456 or [converse@rea-alp.com](mailto:converse@rea-alp.com).

June 21-23. **Renewable Energy & Sustainable Living Fair**, Custer, Wis., [www.the-mrea.org](http://www.the-mrea.org).

June 23-25. Minnesota Rural Summit 2002: Linking Health & Economic Development, Duluth, [www.minnesotaruralpartners.org/summit](http://www.minnesotaruralpartners.org/summit).

June 25. **Minimum Till and No-till Pasture Renovation**, Dan Persons, Kensington (320) 986-2336.

July 10. **Alternative Methods for Wintering Dairy or Beef Cattle**, Art Thicke, Lake City, (651) 345-2557.

July 13. **Big Woods Dairy Demonstration Farm Open House**, Nerstrand-Big Woods State Park, (507) 526-2388.

July 14-17. American Forage and Grassland Council Annual Conference/Trade Show, Best Western Thunderbird Hotel/Convention Center, Bloomington, Minn., [www.afgc.org](http://www.afgc.org).

July 24-25. Field Course in Organic Management for Ag Professionals, U of M Research and Outreach Center, Lamberton, (507) 752-7372 or [swroc.coafes.umn.edu](http://swroc.coafes.umn.edu).

July 25. **Potassium Rate Trial on an Established Grass/Legume Pasture**; Determining Economic Rates for Grazing/Haying Systems, Dan and Cara Miller, Spring Valley (507) 346-2261.

July 26. **Fifth Annual Organic Field Day**, U of M Research and Outreach Center, Lamberton, (507) 752-7372 or [swroc.coafes.umn.edu](http://swroc.coafes.umn.edu).

July 27. **Woolly Cupgrass Research**, Leo Seykora, Owatonna, (507) 451-2906.

July 29. **Research/Demonstration Garden for New Immigrant Farmers at UMore Park**, Nigatu Tadese, Rosemount, (651) 423-2413

Aug. 1. **Alternative Swine Program Field Day**, West Central Research and Outreach Center, Morris. RSVP by July 27 to Wayne Martin at (612) 625-6224 or (877)-258-4647, e-mail [marti067@tc.umn.edu](mailto:marti067@tc.umn.edu).

Aug. 17. **Windy River Renewable Energy Sustainable Agriculture Fair**, Lion's Park, Long Prairie, (320) 594-2456 or [converse@rea-alp.com](mailto:converse@rea-alp.com)

Aug. 21. **Digesters for Managing Animal Waste, Holiday Inn**, St. Cloud, (651) 645-6159, x21, or [cnelson@mnproject.org](mailto:cnelson@mnproject.org).

## **What we're about**

This newsletter is supported by the Minnesota Institute for Sustainable Agriculture (MISA). It's also supported by the University of Minnesota Extension Service, the North Central Region Sustainable Agriculture Research and Education (NCRSARE) Professional Development Program (PDP), and the Minnesota Department of Agriculture (MDA). MISA is a partnership between the Sustainer's Coalition and the University of Minnesota College of Agricultural, Food, and Environmental Sciences (COAFES).

Send story ideas to the editor: Jack Sperbeck, 405 Coffey Hall, 1420 Eckles Ave., University of Minnesota, St. Paul, MN 55108, (612) 625-1794, fax (612) 625-2207, e-mail: [sperb001@umn.edu](mailto:sperb001@umn.edu). Other editorial board members: Helene Murray, (612) 625-0220, [murra021@umn.edu](mailto:murra021@umn.edu); and Bill Wilcke, (612) 625-8205, [wilck001@umn.edu](mailto:wilck001@umn.edu). Please send address changes directly to: Bill Wilcke, Biosystems & Agricultural Engineering, 1390 Eckles Ave., St. Paul, MN 55108.

Also check MISA's home page at [www.misa.umn.edu](http://www.misa.umn.edu).

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.**

To stimulate thinking and discussion about sustainability, we try to present items that reflect different points of view. This being the case, we aren't promoting and don't necessarily agree with everything we publish.