

# *Sustainable Agriculture*

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## **Crisis in rural Minnesota caused by simplified farming with few crops**

More plant diversity is needed to help avert a budding crisis in rural Minnesota, according to a 60-member task force on plant diversity consisting of farmers, agribusiness, public agencies, and nonprofit organizations. The task force is being coordinated by the Center for Alternative Plant and Animal Products and the Minnesota Institute for Sustainable Agriculture at the University of Minnesota.

"Our current agricultural cropping systems have less biological diversity than at anytime in history," the task force report says. "The cause is continued simplification of farming leading to production of a few crops over large acreages. It is increasingly clear that simplified farming is causing a crisis in rural Minnesota.

"This crisis is felt in rural communities that have lost population, businesses, churches, schools and social institutions as smaller diversified farms have been replaced by larger operations focused on a single commodity. Production of single, low value commodities does not add substantially to the economic base of the community and creates a high level of biological and environmental risk for farmers and society.

"The crisis is felt by all citizens as our precious water resources are degraded by agricultural pollution and at-risk farmers are subsidized with tax dollars when crops fail to provide adequate returns to support the current system," the report says, and gives two examples:

In the Red River Valley of Minnesota and North Dakota, a scab epidemic associated with short rotations of wheat and barley monocultures has severely threatened the livelihood of farmers and rural communities. Wheat and barley growers have lost \$4.2 billion of income since 1992.

In southern Minnesota, farm diversity has declined and about 70 percent of the land is now planted to corn and soybeans. The system requires high inputs of agricultural chemicals, including fertilizers and pesticides, which are required by a dramatic proliferation of serious plant pests such as European corn borers, soybean cyst nematodes, white mold, root rots and weeds. Leakage of agricultural chemicals and soil into rivers and lakes has seriously degraded extremely valuable water resources.

Southern Minnesota farmers are now being asked to modify their cropping systems to reduce that environmental impact, but just modifying current systems may cause greater economic risk to farmers and puts rural communities at risk. Farmers need new cropping options to meet these environmental and economic demands.

**"A sustainable agriculture is needed** for the long-term viability of our society," the report says. "To date, challenges to current systems have been met with increased inputs of costly technology or tax supported subsidies, which have often failed to be cost-effective and socially acceptable. Our concerted effort to promote diversification of Minnesota agriculture offers a promising alternative to these failed

past approaches. We believe this diversity effort will provide an essential catalyst to Minnesota agriculture that is sustainable in environmental, social and economic terms."

The proposed plant diversity initiative will be submitted to the Minnesota Legislature for funding in the next biennium. It's a comprehensive effort to identify and develop new or modified plant germplasm for social, economic and environmental benefits. It will be carried out on a regional basis and guided by community input. For more information or a copy of the report, contact Don Wyse at the Minnesota Institute for Sustainable Agriculture, (612) 625-8235, or 1-800-909-MISA. Fax (612) 625-1268, e-mail: [misamail@tc.umn.edu](mailto:misamail@tc.umn.edu).

## **Minnesota is a leading state in agroforestry**

Minnesota is a leading state in agroforestry, and here are some reasons:

- The state's unique geographic location—forest and prairie meet in Minnesota.
- Well developed agriculture and forest-based industries and markets.
- An impending shortage of aspen from natural forests, which drives increased demand for wood fiber produced from non-traditional sources.
- Socio-economic changes in the agricultural sector.

Here are some examples of agroforestry activities underway in the state:

- There are over 10,000 acres of hybrid poplar plantations in Minnesota, with another 20,000 to 40,000 acres to be established over the next 5 to 10 years.
- Over 1,000 miles of field windbreaks will be established in Minnesota in 1998 under the Conservation Reserve Program.
- The new Conservation Reserve Enhancement program of USDA will establish up to 190,000 acres of forested riparian buffers in the Minnesota River Basin.
- Some 4,000 snow deposition sites (1,000 miles) along state and county roads have been identified as critical locations needing living snow fences.
- About 300 farmstead windbreaks (nearly 1,000 acres) recently destroyed by tornadoes in southern Minnesota will be replaced over the next several years.
- The U.S. Forest Service is planning a major research initiative on forested riparian buffers for agricultural landscapes in the Upper Midwest.
- The first international conference on forest farming is being planned for the Twin Cities this October.
- And, the University of Minnesota is establishing seven research and demonstration plantings with cooperators around the state. The U of M Extension Service has also established two Extension Educator positions in agroforestry.

Agroforestry proponents see a day when agricultural landscapes are vibrant, diverse places where people and communities dependent on a sustained and productive natural resource base prosper **while protecting their environment**. Integration of woody perennials into agricultural systems will be seen as the right thing to do, as common sense, and as a way to make a profitable living with less risk while protecting the natural resource base upon which we all depend.

For more information or to get on the mailing list for a new agroforestry newsletter, contact the Center for Integrated Natural Resources and Agricultural Management, 107 Green Hall, University of Minnesota, St. Paul, MN 55108, (612) 624-4296, e-mail [CINRAM@forestry.umn.edu](mailto:CINRAM@forestry.umn.edu)

## **Post-emergence herbicides give highest yields in ridge-till trials**

Effective weed control is usually a concern for growers who use the ridge-till planting system. "Since some cultivation is needed to build ridges, there has been some question about the need for herbicide use in this planting system," says George Rehm, soil scientist with the University of Minnesota Extension Service.

Rehm found that use of post-emergence herbicides in a ridge-till system produced higher soybean yields than cultivation in a recent two-year study in Kandiyohi County, Minn.

Average yields of soybeans not cultivated were compared with yields where the soybean crop was cultivated one or two times. Each of the cultivation systems was evaluated with or without post-emergence herbicides. Herbicides used varied each year due to differences in populations of the broadleaf and grass weeds in the field.

With no cultivation and no herbicide use, the yield was 14 bushels per acre. Post-emergence herbicides without cultivation controlled weeds, and the average yield was 47 bushels per acre. "The value of this increase was much more than the cost of the herbicide program," Rehm says.

Herbicide use was also important when two cultivations were used. Two cultivations without herbicides produced 26 bushels per acre. The combination of two cultivations and post emergence herbicides produced average yields of 36 bushels per acre. The reason for the drop from 47 bushels with herbicides and no cultivation to 36 bushels with herbicides plus two cultivations is unclear, Rehm says.

Some weeds were controlled by the cultivations. But the post-emergence herbicides with or without cultivation produced the highest yield. "The post-emergence herbicides were very effective in controlling weeds in the ridge-till planting system," he says.

The study was funded by the Energy and Sustainable Agriculture Program, Minnesota Department of Agriculture. For more information, contact Rehm at (612) 625-6210, e-mail [grehm@extension.umn.edu](mailto:grehm@extension.umn.edu).

## **Visions for Change is Helping start the Hispanic Outreach Project**

A Hispanic Outreach Project (HOP) is being established in Minnesota, Michigan and North Dakota. Its objective is to help Latino and migrant youth develop leadership skills and attract them to food systems careers and higher education.

The project was funded through a seed grant from Visions for Change, a Kellogg-sponsored program in the University of Minnesota College of Agricultural, Food and Environmental Science. Now HOP has gained additional university support and many corporate and foundation resources to begin a long term effort.

A pilot program is beginning in Michigan, Minnesota and the Dakotas are working to build a full program in the coming year, with implementation set for summer, 1999. For more information, contact Margaret Adamek, (612) 624-7451, e-mail [madamek@tc.umn.edu](mailto:madamek@tc.umn.edu).

The overall Visions for Change objective is "Rediscovering the Land Grant mission: skilled workforce, educated citizenry, and a healthy food system."

## **Program on Agricultural Technology Studies at the University of Wisconsin**

You can get information about the Program on Agricultural Technology Studies (PATs) at the [University of Wisconsin](#), phone (608) 265-3020, e-mail [carlisle@ssc.wisc.edu](mailto:carlisle@ssc.wisc.edu). The mission of PATs is to ensure that the future of Wisconsin includes a strong agricultural economy that is supportive of family farming, of the role of farm families in strengthening rural communities, and of land stewardship.

### **Coming Events**

**June 23**—Crops and Soils Field Day, Southern Experiment Station, Waseca, (507) 835-3620.

**June 24**—Southwest Experiment Station, Lamberton, (507) 752-7372

**July 9**—West Central Experiment Station, Morris, (320) 589-1711

**Sept. 10**—Corn and Soybean Field Day, Southern Experiment Station, Waseca, (507) 835-3620.

### **About this newsletter...**

For the past year we've been funded by the Minnesota Extension Service and the Minnesota Institute for Sustainable Agriculture (MISA) with support from the Minnesota Department of Agriculture.

We're always looking for story ideas. Send them to the editor: Jack Sperbeck, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108, (612) 625-1794. E-mail: [jsperbeck@extension.umn.edu](mailto:jsperbeck@extension.umn.edu). Other editorial board members: Helene Murray (612) 625-0220, [murra@021.tc.umn.edu](mailto:murra@021.tc.umn.edu); Tom Wegner (612) 374-8400, [twegner@extension.umn.edu](mailto:twegner@extension.umn.edu); and Bill Wilcke (612) 625-8205, [wwilcke@extension.umn.edu](mailto:wwilcke@extension.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.