

Sustainable Agriculture

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"New" Perennial Legume Crops Could Reduce Soil Erosion, Energy Costs

New crops developed from native perennial legume plants could reduce herbicide use, soil erosion and energy costs.

But it won't happen tomorrow or next year: University of Minnesota researchers say it may take 20 years to develop a new crop plant.

"Our project is long term and is focused on the development of sustainable cropping systems for the future. These systems must be profitable and environmentally friendly," says Nancy J. Ehlke, plant breeder with the University of Minnesota's Agricultural Experiment Station.

The new perennial legume crops that she and co-workers David Somers and Donald Wyse are working on could be used for grain, forage and biomass production. They could also be used as cover crops to prevent soil erosion, suppress weeds and add nitrogen in corn and other crops that don't "fix" or manufacture their own nitrogen.

They're working with seven indigenous or native legumes. One of the most promising for grain production is pale pea, or *Lathyrus orchroleucus*. But Ehlke says toxic amino acids may need to be removed and seed shattering reduced to domesticate the plant. The other six species have survived at least one Minnesota winter and may potentially fix nitrogen.

Annual crops such as corn, soybeans and wheat require annual planting and seedbed preparation, requiring energy and leaving bare soil susceptible to erosion. But Ehlke says there are many advantages with a perennial legume crop:

- Used in rotations with annual crops, the perennial legumes could provide alternatives and flexibility to cropping systems and weed control strategies.
- Year-around soil cover reduces soil erosion.
- Legumes fix nitrogen for themselves and leave nitrogen in the soil for future crops, thus reducing the need for applying fertilizer nitrogen.
- Perennial plants that produce a useful product (forage, biomass or grain) could be established on marginal lands or adjacent to surface waters to minimize soil erosion and surface runoff.

"There's a lot of interest in developing cropping systems that rely less on pesticides, reduce soil erosion, and add to the economic viability of rural communities. Perennial legumes would be helpful in obtaining these goals," Ehlke says.

For more information, contact Ehlke at 411 Borlaug Hall, University of Minnesota, St. Paul, MN 55108, (612) 625-1791.

New Software Helps Farmers with Manure Application Plans

Many farmers are concerned about the environmental impacts of their farming operations. For livestock producers, a primary concern is proper manure handling and utilization. Producers are equally concerned, however, about the financial status of their farm business.

A new software tool from the University of Minnesota allows farmers to address both these concerns. Developed by the Center for Farm Financial Management at the University of Minnesota, Manure Application Planner (MAP) version 3.0 helps farmers develop environmentally sound and economically viable manure application plans.

Based on individual farm planning data, it helps users calculate a plan that does not overapply nutrients and is also cost effective. It also compares the cost of applying manure versus the cost of applying commercial fertilizer.

"Developing manure management plans is one of the hottest topics these days for livestock producers," says Mike Schmitt, University of Minnesota soil scientist. "But any management changes we suggest for a specific field must fit into the overall plan of that farm. While generic recommendations, such as manure analyses and equipment calibration, may be suitable for most farms, manure application rates and methods are dictated by the economics of that practice for the individual farmer."

To develop a plan, users enter the quantity and nutrient analysis of manure on the farm gained from laboratory analysis, the fields where manure may be potentially applied, crop nutrient recommendations, manure application and hauling costs, and the cost of commercial fertilizer. If farmers are evaluating a new livestock enterprise, or if a manure test is not available, MAP can estimate the manure production and analysis amounts.

Once this information has been entered, MAP determines the most cost effective plan that does not overapply nutrients. It calculates the best application rates and locations for manure to be applied. If more than one application method is available, MAP selects the optimal application method as well.

If users already have an application plan in mind, they can enter it directly. MAP then calculates the nutrients applied from manure, any supplemental fertilizer needs, and identifies the application plan.

The software includes user-friendly features such as a pop-up calculator and context-sensitive help messages. It also comes with a comprehensive user's manual and toll-free technical support.

MAP was developed by soil science and farm management extension specialists at the University of Minnesota. For the past four years, the software has been used by staff of the Minnesota Extension Service, Minnesota Natural Resources Conservation Service, and the Minnesota Pollution Control Agency. With the new version, MAP is also available for individual farmers to use in developing and documenting manure application plans.

MAP retails for \$95. Hardware requirements include an IBM or compatible computer, MS-DOS 3.3 or higher, 80386 or later processor and at least 2 megabytes of RAM. For more information, write Center for Farm Financial Management, 249 Classroom Office Building, 1994 Buford Avenue, St. Paul, MN 55108 or call (800) 234-1111.

Tim King is New SFA Program Manager

Tim King, a Long Prairie area market gardener and agricultural journalist, has been hired by the state board of the Sustainable Farming Association (SFA) as its program manager. The SFA is a 10 - chapter, 850 -member strong organization dedicated to farmer-to-farmer information exchange. SFA members exchange ideas and educate one another about farming practices that are economically and environmentally sound, and contribute to rural communities.

King will be responsible for working with existing chapters and developing new chapters in southwestern Minnesota and other areas unrepresented by the SFA. He will also administer the activities of the state board, including the organization's newsletter "The Cornerpost."

"The SFA is one of the most exciting things to be seen on Minnesota's agricultural horizon in a long time. Its unique bottom-up nature is well suited to farmers nurturing and exchanging their own native wisdom about the right way to accomplish a sustainable agriculture," King said. He is also a founding board member of the Minnesota Institute for Sustainable Agriculture (MISA).

The SFA created the position of program manager with funding from a grant from the Legislative Commission on Minnesota Resources (LCMR). The grant will also allow the SFA to expand the numerous field days and workshops held by chapters across the state. Additionally it will assist in collaboration between the SFA and the University of Minnesota's Southwest Research Station in Lamberton.

"Dave Huggins at Lamberton was a key author of the LCMR proposal. He, along with Don Wyse at MISA, is very interested in forming partnerships between farmers and researchers to determine the direction agricultural research. The SFA is very excited by university researchers taking the needs of farmers seriously. We look forward to building a long term partnership between the university and farmers," King said.

Deon Stuthman Joins MISA Board of Directors

The MISA Board of Directors is pleased to welcome Deon Stuthman as a new member. Deon is a professor in the Department of Agronomy and Plant Genetics on the St. Paul Campus, where he leads the Oat Breeding and Genetics Research Project.

Deon has been involved in sustainable agriculture in a number of ways during his life, his first introduction to which was growing up on mixed crop and livestock farms in northeast Nebraska. In his oat breeding research, he recently shifted some of the project emphasis to more sustainable agriculture related activities including the recent variety release of Pal, a semi-dwarf oat that is well-suited for companion cropping.

Deon is currently treasurer and board member of the American Oat Association, an industry-wide organization which promotes oats as an environmentally-friendly crop and advocates a more level playing field among all crops in U.S. farm policy. In 1993-94, Deon served as president of CAST (Council of Agricultural Science and Technology), during which time CAST adopted a strategic plan which places food, fiber, and environmental issues on an equal footing with other agricultural issues. He has been active in a number of University organizations as well and he currently is a member of the COAFES faculty consultative committee.

Deon is filling the vacancy left on the board by the resignation of Kent Crookston, who served on the MISA board since its inception in 1992. Kent, who resigned in order to pursue other interests, will continue to be involved with MISA. The MISA Board sincerely appreciates Kent's pioneering efforts in sustainable agriculture in Minnesota and his years of thoughtful and dedicated service on the Board.

MDA Accepting Applications for Sustainable Agriculture Grants

The Minnesota Department of Agriculture (MDA) is again accepting applications for grants from farmers, researchers and educators that have great ideas for sustainable agriculture farming systems, but need financial help to get the project started. MDA's Energy and Sustainable Agriculture Program has \$210,000 to award to grant projects during this fiscal year.

Grants of up to \$25,000 each will help farmers try creative, new approaches, says MDA Commissioner Gene Hugoson. Projects eligible for funding are those that benefit the environment, increase net farm profits or improve quality of life for a farm family. Successful grant applications in the past include rotational grazing systems, alternative livestock worming techniques, range farrowing of hogs, Swedish-style deep litter bedding for hogs, weed control, alternative fertilizers, strip cropping, composting and cover crops. There have been 98 grants awarded since 1989.

Projects must be conducted on farms and are funded for three years. Joint applications for watershed projects or farmer groups are encouraged. Funding could be higher than \$25,000 with matching funding. One-page optional pre-proposals will be accepted through Sept. 15, and MDA staff will assist applicants develop full proposals, due Dec. 8. Applications are available from Wayne Monsen, Grant and Loan Program Coordinator, MDA Energy and Sustainable Agriculture Program, 90 West Plato Blvd., St. Paul, MN 55107, (612) 282-2261.

A Wetlands Proposal That's Friendly to Farmers

"Wetlands are essential to the environmental and economic health of our communities, but so are farms," says Ann Robinson, agricultural specialist for the Izaak Walton League of America. Robinson is one of the authors of a new report, *Sustaining Wetlands and Farms: Critique of Current Proposals and Recommendations for a Reasonable Wetland Policy*. The report "cuts through the rhetoric and shows us that we can have policies that both respect the rights of farmers and recognize the need to preserve wetlands," she says.

The report is a cooperative effort of The Sustainable Agriculture Coalition, members of the Midwest Sustainable Agriculture Working Group, and the National Association of Conservation Districts. Proposals critiqued by the groups include: weakening or eliminating the Swampbuster rules in federal commodity programs, offering blanket permission to drain small wetlands, and exempting certain wetland types from regulation.

"These proposals would hasten dramatically the destruction of key wetlands--wetlands that provide critical wildlife and waterfowl habitat, help prevent or mitigate flooding, and protect the quality of groundwater and drinking water," the report says. Instead, the groups advocate a wetlands policy that maintains no-net-loss of existing wetlands and that equitably protects different types of wetlands.

For more information and copies of the report, contact Robinson at (319) 382-2947, or Elizabeth Mansager Higgins, Sustainable Agriculture Coalition, (202) 547-5754, 110 Maryland Ave. NE, Box 76, Washington, D.C. 20002, e-mail: sustag@access.digex.net

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, 612/ 625- 1794. E-mail: jsperbeck@extension.umn.edu. Other editorial board members are Phil Larsen (612)625-1999, 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.

Calendar of Events—Sustainable Agriculture Field Days and Tours

Sept. 6, 1 p.m. Establishing Trees in Pasture Paddocks, Dave & Diane Serfling, Preston, (507) 765-2797.

Sept. 6, 1 p.m. Seasonal Dairying/Value Added Enterprises in SW Minn., Robert & Sherril Van Maasdam, Westbrook, (507) 274-5149.

Sept. 8, 12 p.m. Pasture walk at the David and Rochelle Cook farm near Clarissa, (218) 756-2692.

Sept. 9, 2 p.m. Graziers Circle: Pasture Planning, Craig Murphy, Morris, (612) 392-5176.

Sept. 9, 11 a.m. Buffalo—Animal From the Past, Key to the Future, Richard Brobjorg, Pipestone, (507) 825-5049.

Sept. 12, 10:30 a.m. Low-Input Pasture Establishment, Ralph Lentz, Lake City, (612) 345-2557, followed at 1 p.m. by a Base Saturation of Calcium demonstration at the Randy Meyer farm, Lake City, (612) 345-4925.

Sept. 13, a.m. Legumes as a Protein Supplement in Fall-Grazed Corn Stalks, Grant Herfindahl, Benson, (612) 843-2523.

Sept. 13, 8:30 a.m. Corn & Soybean Field Day, U of M Southwest Experiment Station, Lamberton, (507) 752-7372.

Sept. 14 Corn & Soybean Day, U of M Southern Experiment Station, Waseca, (507) 835-3620.

Sept. 15, 9:30 a.m. Grazing Techniques in SW Minn., Dennis Schentzel, SW Tech College, Canby, (507) 223-7252.

Sept. 15 Grazing Stockers, Joe Rolling, Arco, (507) 487-5742.

Sept. 16 Rotational Grazing Sows and Gilts, Byron Bartz, Barrett, (612) 528-2301.

Sept. 22, 1 p.m. Marcia Rapatz and Greg Nolan farm near Browerville, (612) 594-6317

Oct. 13, 12:15 p.m. Sustainable Agriculture in the Schools, Jim Postance/Toivila-Meadowlands, (218) 427-2564. Community meeting at 7:30 p.m.