

## **“USDA NRCS Technology News” ~ March 2002**

United States Department of Agriculture  
Natural Resources Conservation Service  
Science and Technology

“USDA NRCS *Technology News*” is a monthly electronic information piece provided by Science and Technology. It is designed to deliver pertinent information to our customers about new technology, products, and services available from the Soil Survey and Resource Assessment and the Science and Technology deputy areas. “USDA NRCS *Technology News*” is in a format that is available to all NRCS field staff.

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## **MESSAGE FROM THE DEPUTY CHIEFS**

Lawrence E. Clark and Maurice J. Mausbach

Keeping our Field Office Technical Guide (FOTG) complete and technically current has always been a priority of the Natural Resources Conservation Service (NRCS). But, have you noticed lately the flurry of work at all levels of the Agency to make sure the FOTGs and specifically the National Handbook of Conservation Practices are up to date? Let's review some of our recent activities involving the FOTG and what they mean to you.

We have recently revised the Technical Guides Policy: GM Title 450 - Technology, Part 401 - Technical Guides. The policy is posted on the Web at [http://policy.nrcs.usda.gov/scripts/lpsiis.dll/EDSnf/GM\\_450.htm](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/EDSnf/GM_450.htm) in the NRCS Directives System Web site. This revision reflects the current organization of NRCS and responsibilities for employees at each level of the Agency that have responsibility for our conservation technology. All employees should understand this directive especially line officers and employees having technology responsibilities.

In March 2000, we completed the revision of GM 450, Part 401, Subpart A – Policy and Responsibilities. Recently, Subpart B – National Handbook of Conservation Practices was revised and is currently making its way through the Directives System. It will be available online soon. Currently, we are revising Subpart C – Guidelines for Resource Management System Quality Criteria and Guidance Documents. Our goal is to have Subpart C revision completed within the next month, but at a minimum it will be revised and online for your use before the Farm Bill 2002 is signed into law.

Every NRCS employee that has any technical or planning responsibilities should read and be familiar with the General Manual, Title 450, Part 401, Subparts A, B, and C. And, new employees should be required to familiarize themselves with this material.

One of the most frequently used parts of the FOTG is Section IV – Practice Standards and Specifications. Our policy requires that the Practice Standards and Specifications be updated every 5 years. The National Technical Guide Committee starts this dynamic process by conducting review and revision of each of our 161 National Conservation Practice Standards (NCPS) on a 5-year cycle. The NCPS are written so they can be used in a State without modification. However, the national standards are intended to be general, giving only the minimum acceptable requirements for application of practices through NRCS assistance. Through the State Technical Guide Committee, the national standards are made more usable and directly applicable to each locality. State level and other technical specialists, including NRCS field personnel, may be called upon to adapt the NCPS and to develop the practice specifications. Technical processes and procedures from handbooks and manuals, and other details may be added; and State laws and local ordinances may impose performance criteria that must be addressed.

The FOTG is the foundation that supports NRCS' technical assistance. It is, therefore, the "nuts and bolts" that hold our conservation technology delivery system together. Our

reliance on the FOTG sets us apart as a science-based, technical organization. The FOTG is uniquely dynamic and is location specific. The FOTG has been cited in Federal regulations and codified in the laws of several states. It is critical that employees know how to maintain the technical guide and be able to explain its use. National policy defines the minimum requirements for the FOTG, how it is maintained, and how we use it. Can you explain the FOTG to a customer?

Recent activities that deal with keeping our FOTGs current are part of the preparations for the forthcoming Farm Bill. We do not have a signed Bill at this time, but we do know that NRCS will need to have its conservation technology coordinated, up-to-date, and user friendly as the national farm legislation is finalized. We will provide more specifics when farm legislation is enacted into law.

Take some time to familiarize yourself with our technical guide policy, reacquaint yourself with the FOTG, and ask for assistance if your FOTG is not 100 percent current. If you have technical application or conservation planning responsibilities and you complete these three steps, then we know NRCS will be ready to meet the challenges that lie ahead.

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### **CONSERVATIONIST'S CORNER**

Julie Francis, Specialised Rural Industries Extension Agent, Australia

(Editor's Note: To maintain the flavor of the article, we have kept the author's Australian spelling of some English words.)

The USDA runs a range of innovative programs that could complement Extension activities undertaken in Australia. A 5-month visit to the United States in 2001 provided the opportunity to learn new skills from professionals and gain insight on issues associated with small farms and sustainable agriculture. The visit was funded by the Victoria State Government's Department of Natural Resources and Environment and facilitated in part through Lawrence Clark, Deputy Chief, and the International Programs Division of the Natural Resources Conservation Service (NRCS). NRCS is the second largest agency in the United States Department of Agriculture.

Distance education can be a useful method of reaching Extension staff or farmers in remote areas of the Australia. Participation in NRCS staff training afforded an opportunity to investigate various methods in use in the U.S. Through the Social Sciences Institute, I was able to partake in a leadership seminar that was delivered in a videoconference format to distant sites. Listeners were able to call and ask questions at the end. Discussion with Iowa's Co-operative Extension agents revealed that they have used similar technology to deliver education to farmers across the state. The use of the fibre optics network to deliver theory, in conjunction with weekend 'practicals' or pre-reading and post-seminar activities, may be an approach that could be duplicated in

Australia. However, cost may be a significant obstacle, along with inferior telecommunications systems in outback areas. The ability for groups to interact at the receiving sites can increase the learning opportunities even though the speaker is not in the same room.

Through the NRCS National Employee Development Center, I was able to enroll in a water quality course via the Internet, have materials posted out to me, and then assess my learning through an online test. This is a training delivery method that could easily be adopted in Victoria to increase understanding of specific topics. Training provided by the Ecological Science Division of NRCS through interactive CD-ROMs, such as the Nutrient Management Course, could also have immediate application in Australia.

Another readily transferable initiative I came across whilst in the U.S. was the CD-ROM toolkit, "Alternative Enterprises and Agri-tourism," provided by the Resource Economics and Social Sciences Division of NRCS. It appears that in both countries a significant amount of learning about organic systems, alternative agriculture, and direct marketing is occurring outside of educational institutions, and it can be difficult for Extension professionals to keep up with the latest developments. The CD is an effective method of increasing Agency staff's awareness of relevant resources.

Apart from resources, education is important for Extension professionals. The Sustainable Agriculture Research and Education's (SARE) Professional Development Program (PDP) presents an innovative approach to training, with an emphasis on "teaching the teachers." The PDP grants provide an opportunity for Agency staff to learn from small research groups, including farmer organisations. This allows farmer participation and partnership with Extension professionals and keeps our agencies up to date.

It was interesting to see the Practical Farmers of Iowa, along with NRCS and Iowa State University, use a PDP grant to hold a series of workshops to educate NRCS and Cooperative Extension staff on local food systems. (1) Some farmers were paid to attend the workshops to balance discussions and to present part of the proceedings. This twist on traditional 'top down' Extension methods seems valuable, and I am recommending that Victoria provides funding for similar projects.

For further information about my exchange, Australian Extension, or contacts, please e-mail me. I would like to especially thank NRCS Deputy Chief Larry Clark for all his assistance and recognise the kindness of the farmers, USDA, and Co-operative Extension staff and their families who offered accommodation, transport, and friendship throughout my visit.

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1. Local food systems include farmers' markets, community supported agriculture, selling direct to hotels and schools, pick your own operations, roadside stalls, and agritourism.

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## NEW PRODUCTS AND SERVICES

### **#1 New Willow Released for Bioengineering Applications**

Morton Germplasm, a pre-varietal tested selection of a shrub-type willow (*Salix koriyanagi* Kimura ex Goerz) that has potential for use in the Southeast, mid-Atlantic, and possibly southern portions of the Midwest, has recently been released by the Jamie L. Whitten Plant Materials Center in Coffeerville, Mississippi.

This willow does not exceed 15 feet in height and is tolerant of pruning, which makes it an ideal plant for bioengineering systems to reduce stream-bank erosion. It also appears to be resistant to cankers that have plagued other dwarf willows used in bioengineering applications. Its attractive leaves and flowers give it great ornamental appeal.

Morton Germplasm is currently available for commercial production, and interested producers can contact the Plant Materials Center. A fact sheet providing more complete information on this willow will soon be accessible on the NRCS Mississippi home-page at <http://www.ms.nrcs.usda.gov> or the Plant Materials Program Web site at <http://Plant-Materials.nrcs.usda.gov>.

For more information, contact:

Janet Grabowski  
Jamie L. Whitten Plant Materials Center  
(662) 675-2588  
jgrabowski@ms.nrcs.usda.gov

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### **#2 Small and Limited Resource Farmers Survey Released**

"Core Conservation Practices: Adoption Barriers Perceived by Small and Limited Resource Farmers" examines sociological variables, such as education, income, knowledge, and farm size, relative to adoption patterns of the "Core 4" conservation practices among African American and Caucasian small and limited resource farmers. This "first of its kind" report compares the understanding and adoption of the "Core 4" conservation practices based on group affiliation. Survey findings of 834 small and limited resource farmers in Alabama, Georgia, and Mississippi are summarized and barriers to the adoption of the "Core 4" are identified. From the findings of the report, an Executive Summary was developed that lists key NRCS action items that can be undertaken to overcome cited barriers.

The Social Sciences Institute (SSI) developed the report, in cooperation with rural sociologists at Auburn University. The report and Executive Summary are at the SSI Web site <[www.ssi.nrcs.usda.gov](http://www.ssi.nrcs.usda.gov)>. A limited number of print copies are available from the Social Sciences Institute - Grand Rapids, Michigan (616) 942-1503 or e-mail <[ssinter2@po.nrcs.usda.gov](mailto:ssinter2@po.nrcs.usda.gov)>.

For more information, contact:

Gail Brant  
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[gail.brant@po.nrcs.usda.gov](mailto:gail.brant@po.nrcs.usda.gov)

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## **TECHNOLOGICAL ADVANCES**

### **#3 Collaborative Project Demonstrates Assessment Tool for Community Planning**

A spatial analysis of the natural resource base, existing land use, and local economic and social values can assist communities in developing comprehensive growth and preservation plans. In the fall of 2000, NRCS asked two communities, one each in Wisconsin and Ohio, to participate in a community planning initiative to demonstrate a methodology for natural resource and socioeconomic assessment. Suitability models were selected to identify (1) areas of agricultural importance, (2) areas of ecological importance, and (3) areas suitable for development. The models were built using the NRCS soils data as the base data layer for assessment. Much like the Customer Tool-Kit, the assessments were done in an ArcGIS environment at a scale smaller (larger in area, smaller in resolution) than that of a farm field. Assessments like these, displayed in several map layers, will help communities make more enduring land use decisions. Planning decisions can be based on existing inherent natural resource attributes and existing cultural and community attitudes. A handbook that defines the concept and methodology for resource assessment for community planning is being developed for the

National Planning Procedures Handbook. A strategy to integrate resource assessment for community planning into the Agency's current operations is being discussed.

This initiative was a collaborative project of the NRCS Social Sciences Institute, Watershed Sciences Institute, State offices in Wisconsin and Ohio, County and District offices in Calumet and Fulton, NHQ Farmland Protection and Community Planning staff, University of Wisconsin, University of Toledo in Ohio, and St. Lawrence University in New York.

For more information, contact:

Ginger Murphy  
Farmland Protection and Community Planning  
(202) 690-5979  
[ginger.murphy@usda.gov](mailto:ginger.murphy@usda.gov)

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### **Long-Term Monitoring Activities Advance Wet Soils Study**

Wet soils monitoring activities begun in 1988 are winding down, but managing the data will go on for some time. Ideas are under discussion for sharing the data, such as having monitoring data available online at the National Soil Survey Center (NSSC) Web page.

The activity began when the International Committee on Aquic Soils (ICOMAC) established 10 sites each in Louisiana and Texas to represent a number of expressions of wet soils. The sites were monitored under a common protocol with wells, piezometers, tensiometers, thermocouples, and a field test for ferrous iron in the soil solution. Soils were described and analyzed. In 1990, the Committee reviewed these data on site and used the information to modify definitions and keys for aquic classes in Soil Taxonomy. Subsequently, similar projects were initiated with NSSC and National Cooperative Soil Survey Cooperators at Oregon State University, University of Alaska, North Dakota State University, Purdue University, and the University of Minnesota. An existing water table study in New Hampshire was expanded to include the ICOMAC protocols. A project with Utah State University to study effects of long-term irrigation on soil properties was added in 1996. Most of the post-1990 studies were on catenas, a topographic sequence of sites on a landform. Hydric soil indicators were tested in all of the studies.

Mollisols in Minnesota commonly have deep, dark surface horizons that mask aquic morphology. The study showed that aquic morphology immediately beneath the mollic surface reliably indicates aquic conditions higher in the soil. In New Hampshire monitoring stations have aided in development and testing of hydric soil indicators.

Research was conducted primarily through graduate student theses. More than 94 publications/presentations (oral and poster) have been made, including a presentation at the Quebec 2000 Millennium Wetland Event.

For more information, contact:

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(402) 437-5135  
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## TECHNOLOGY TRANSFER

### **#5 Alabama Establishes a Mesonet Measuring Network**

Seven automated climate and soil monitoring stations were recently installed in Alabama forming the beginning of a new State meteorologic measuring network (mesonet). With funding from Alabama A-&-M University (AAMU), the National Water and Climate Center (NWCC) has installed these stations as part of the nationwide Soil Climate Analysis Network (SCAN) network. SCAN capabilities enhance the mesonet, allowing monitoring stations to provide hourly data from a full complement of atmospheric sensors and soil moisture and soil temperature sensors. The NWCC works closely with the National Soil Survey Center to collect soils information at each of the sites.

AAMU plans to conduct research and is collaborating with NASA on remote sensing of soil moisture conditions. AAMU will also provide products for agricultural producers to assist them with management of their resources, including providing potential drought, pest, and disease information that may affect their crops. An Alabama television weather service has already put a link on its Web site to the NWCC homepage, with plans to use the information from the seven sites to augment the station's mesonet to provide additional forecasts.

The data from all SCAN stations are available in near real-time at the NWCC homepage: <http://www.wcc.nrcs.usda.gov>.

For more information, contact:

Garry L. Schaefer  
National Water and Climate Center  
(503) 414-3068  
gschaefer@wcc.nrcs.usda.gov

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## **#6 Forage Suitability Group Descriptions Useful for Budgeting Forage**

Forage suitability groups (FSG's) are groupings of soil map unit components that have similar characteristics and limitations for producing forage crops, either pasture or mechanically harvested forages. Within the group, all soils are capable of supporting the same forage species and producing comparable yields, and they require similar soil and water conservation treatment and agronomic and grazing management practices. FSG data are useful in the Grazing Lands Application (GLA) software or in comparable forage-livestock balance sheets for budgeting forage to grazing livestock throughout the year.

Each FSG description provides the climate and soil characteristics common to the soil map unit components named. Climatic or soil limitations to forage production are described, along with the agronomic and grazing management interpretations that can overcome or reduce the impact of any limitations present. Adapted forage species and production estimates are given, and the seasonal distributions of growth of commonly grown pasture forage crops are also provided.

FSG descriptions provide the soil and plant science information needed for conservation planning where forage crops are produced. The Field Office Technical Guide and the National Range and Pasture Handbook are resources for both information and guidance on FSG's.

For more information, contact:  
James B. Cropper  
Grazing Lands Technology Institute  
(814) 863-0942  
jbc9@psu.edu

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## **WEB-BASED TECHNOLOGY**

### **#7 Conservation Plant ID Guides on the Internet**

Two popular and useful publications, "Conservation Plant Pocket ID Guide" and "Conservation Tree and Shrub Pocket ID Guide," are now available on the Plant Materials Program Web site, <http://Plant-Materials.nrcs.usda.gov>. The guides feature pictures and line drawings as well as text describing the major traits of conservation species and key identification characteristics. They can be accessed for online viewing or downloaded as .pdf files through the "Conservation Plant Identification" link under "Tools."

For more information, contact:

John Englert  
National Plant Materials Center  
(301) 504-8175  
John.Englert@md.usda.gov

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## TRAINING

### **#8 Rehabilitation of Aging Watershed Dams Training CD Available**

"Rehabilitation of Aging Watershed Dams" is a computer-based training course available from the NRCS National Employee Development Center (NEDC). This is awareness level training intended to provide an overview of primary issues involved with the rehabilitation of aging project dams. The targeted audience for this training is NRCS field employees, watershed project sponsors, and State dam safety officials. The training includes background information on dams constructed under NRCS watershed programs, an overview of aging dam issues, highlights of new rehabilitation legislation, common rehabilitation alternatives to address typical problems with aging dams, and details of implementing rehabilitation projects.

This training consists of eight modules on a single CD-ROM. The modules can be viewed individually or as a complete course. The training is self-paced and can be completed in approximately 4 to 6 hours. Learning objectives are available at the NEDC homepage at [www.nedc.nrcs.usda.gov](http://www.nedc.nrcs.usda.gov). Select "Course Catalog," select "Course Listing Page," and then select "Rehabilitation of Aging Watershed Dams" from the course list.

For more information or to obtain a copy of the CD, contact:

NRCS State Conservationist in your state  
or  
Janie Wade  
National Employee Development Center  
(817) 509-3258  
jwade@ftw.nrcs.usda.gov

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## **#9 *The Leader in You* Spring Series Begins**

“The Leader in You” series for spring 2002 begins with Peg Neuhauser and Ray Bender presenting their seminar, “Tribal Warfare in Organizations,” based upon Neuhauser’s book with the same name. This satellite seminar will broadcast on April 2, 2002, from 1:00 p.m. to 3:00p.m. E.T. This seminar is for those who wish to improve their negotiation skills and produce more effective collaboration and problem solving among various groups in their work setting. Participants will learn how developing profiles for various professional groups can be a helpful tool to identify new ways to bridge the gaps between them. Satellite broadcast information and handouts will be available by March 20.

“The Leader in You” training program is designed to enhance the skills of all levels of The Conservation Partnership as they continue to implement locally led conservation. The NRCS Social Sciences Institute and National Employee Development Center in cooperation with the National Association of Conservation Districts, National Association of Conservation District Employees, and National Association of State Conservation Agencies sponsor it.

For more information, contact:

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