

Conservation Technical Service Provider Training and Certification Project

February 2007 – June 2009

Final Project Report

June 2009

Project administered by the University of Minnesota Water Resources Center
with funding appropriated to the Minnesota Department of Agriculture and
the Board of Water and Soil Resources from Minnesota Clean Water Legacy
fiscal year 2007 one-time appropriations.

Final Project Report.....	3
Summary of Goals, Activities, and Outcomes	3
Conservation Professional Training.....	4
Long-term Training Needs and Delivery	5
TSP Website and the Training Database.....	7
Work Plan Changes	9
Assessment of Courses	10
Summary Observations.....	10
Participants: Results from Course Evaluations	12
Impact: Results from Follow-up Surveys.....	13
Logistics and Other General Issues.....	16
Core TSP Courses.....	18
Planning and Assessment Courses	23
Other Courses	25
Supplemental Files	30

**Clean Water Legacy
Conservation Technical Service Provider
Training and Certification**

Final Project Report

Project Coordinators: Ann Lewandowski, Kevin Blanchet, and Leslie Everett,
University of Minnesota Water Resources Center

Minnesota Department of Agriculture Project Manager: Barbara Weisman

June 2009

Acronyms

- CAWT – Commercial Animal Waste Technician
CEU – Continuing Education Units
CFANS – University of Minnesota College of Food, Agricultural and Natural Resources Science
CIG – Conservation Innovation Grant
CCA – Certified Crop Advisor
CNMP – Comprehensive Nutrient Management Plan
CPM – Crop Pest Management (a short course offered by MCPR)
CSREES – Cooperative State Research, Education, and Extension Service
LEQA – Livestock Environmental Quality Assurance
LiDAR – Light Detection and Ranging (high resolution topographic data)
MCPR – Minnesota Crop Production Retailers
MDA – Minnesota Department of Agriculture
MinnFARM – Minnesota Feedlot Annualized Runoff Model (Replaced FLEVAL)
NMP – Nutrient Management Plan
NRCS – USDA Natural Resources Conservation Service
PCA – Pollution Control Agency
RCPTP – Regional Conservation Professional Training Program
RUSLE2 – Revised Universal Soil Loss Equation 2
TMDL – Total Maximum Daily Load (refers more generally to the PCA's impaired waters program)
TSP – Technical Service Provider
WRC – University of Minnesota Water Resources Center

Final Project Report

Summary of Goals, Activities, and Outcomes

The Technical Service Provider Training Project ran from February 2007 through June 2009 with funding appropriated to the Minnesota Department of Agriculture and the Board of Water and Soil Resources from Minnesota Clean Water Legacy appropriations. The goal of this project was “to establish a certification-based Technical Service Provider (TSP) training system to expand Minnesota’s capacity to meet increasing demands for landowner technical assistance in implementing priority conservation practices to restore and prevent impaired waters.” Achieving this goal involved “coordinating existing conservation technical training offerings relevant to nonpoint source pollution, impaired waters, and TMDLs, and rounding out the existing offerings with additional training modules as needed to develop and deliver a complete package of nutrient management and other conservation planning training courses. It will also entail developing a long-term plan for making the training available on an ongoing basis after the contract ends. The project will support Minnesota’s Clean Water Legacy Act during and beyond the contract period by increasing the pool of private and public sector TSPs who are qualified to plan and oversee the implementation of priority practices in TMDL watersheds.”

The project delivered 16 training sessions in six core conservation topics needed for TSP certification, and expanded the pool of certified TSPs. Based on follow-up surveys 6 months after each course, 29% of respondents were getting first-time or additional TSP certifications. In addition to core courses, we piloted 9 training sessions in six topics that are not part of the TSP certification system but are important skills for the private sector if they are to become more involved in restoring and preventing impaired waters.

To ensure future impact, we convened an interagency group to develop a long-term plan for making conservation training more efficient and effective and available to the private sector. The coordination plan (available at tsp.umn.edu) will help guide future funding for conservation training.

The screenshot shows the Water Resources Center website. The main navigation bar includes links for Home, About Us, Faculty & Staff, Research & Public Engagement, Training & Professional Development, Water Resources Science Graduate Program, News & Events, Publications, and Water Links. A "Make a gift" button is also present. The central content area displays the "Minnesota Conservation Professional Training" page, which includes a brief description of the site, reports (Draft Final Project Report and Draft Conservation Training Coordination Plan), and contact information for Ann Lewandowski. The footer contains the University of Minnesota logo and a note about the Water Resources Center's affiliation with the College of Food, Agricultural and Natural Resource Sciences and University of Minnesota Extension.

The conservation training web site at <http://tsp.umn.edu>.

Conservation Professional Training

Technical Service Provider Training was provided to agricultural professionals and agency staff by the University of Minnesota and USDA-NRCS in the following courses in 2007 and 2008 (Table 1). Future courses are listed through the end of the project. Course descriptions are found at <http://tsp.umn.edu>.

In addition to project-sponsored courses, the training needs of TSPs and other ag professionals were served throughout the project period with presentations like those from 2009 shown in Table 2.

Table 1: Courses Presented

Course	Date	Location	Participants
Nutrient Management (590) Plans	March 20, 2007	Mankato	42
Nutrient Management (590) Plans	January 29, 2008	Mahnomen	17
Nutrient Management (590) Plans	January 31, 2008	Morton	19
Nutrient Management (590) Plans	September 3, 2008	Hutchinson	19
Nutrient Management (590) Plans	January 22, 2009	Owatonna	10
CNMP (Comp. Nutrient Mgt Plans)	March 28-29, 2007	Mankato	26
CNMP	April 1-2, 2008	St. Cloud	28
Crop Pest Management (595) Plans	September 4, 2008	Hutchinson	14
RUSLE2 Introduction	November 8, 2007	Owatonna	27
RUSLE2 Introduction	November 4, 2008	Alexandria	10
RUSLE2 Introduction	January 21, 2009	New Ulm	12
RUSLE2 Advanced	November 29, 2007	Owatonna	17
RUSLE2 Advanced and MN P Index	November 18, 2008	Alexandria	7
RUSLE2 Advanced and MN P Index	February 4, 2009	New Ulm	15
Land Treatment	November 9, 2007	Owatonna	9
Land Treatment	April 1, 2009	New Ulm	8
Tile Smoke Demo	August 24, 2008	Waseca	20
Intro to Invasive Plants Mgt	October 28-29, 2008	Duluth	36
Rapid Whole Farm Resource Assessment	February 18, 2009	Hutchinson	6
Livestock Environmental Quality Assurance Program Technician	March 24-25, 2009	Mankato	17
Prescribed Burn (3 courses)	February 2009	Ridgewater	42
LiDAR Conservation Applications	June 4, 2009	Rochester	120
NMP Software	June 17, 2009	On-line	
Introduction to Organic Agriculture	June 23, 2009	Madison	14
Introduction to Organic Agriculture	June 25, 2009	Waseca	24
Total			559

Table 2: 2009 Training Events

Event	Presentation Topic	Audience
Commercial Animal Waste Technician (CAWT) recertification, Blooming Prairie, March 12, 2009	Manure Economics	55 Manure applicators
Certified Crop Advisor (CCA) Update, Elrosa, March 13, 2009	Manure Management Issues	68 Ag professionals
Manure Application Planning Training, Hutchinson, March 30-31 2009	Nutrient Recommendations for MN Crops, and Writing a Manure Management Plan	20 Commercial manure applicators
Nutrient and Pest Management Considerations	U of M Fertilization Recommendations	70 Ag professionals

Long-term Training Needs and Delivery

Interagency coordination. Over the course of the project we convened an Advisory Group to oversee project activities and help identify training needs and project priorities. Later, an Interagency Conservation Training Coordination Group was convened to develop a long-term plan for providing training. Table 3 summarizes the activities of the two groups. The “Minnesota Conservation Professional Training Coordination Plan” (available at <http://tsp.umn.edu>) is the result of the Interagency Group’s work. The group also helped generate an inventory of current training that was used to populate the on-line database and to evaluate future needs and opportunities.

Table 3: Project Meetings of the Advisory Group and Interagency Coordination Group

Date	Group	Discussion
March 9, 2007	Project Advisory	Upcoming training. Post-training survey. Handout summarizing TSP demand. Publicity issues.
April 13, 2007	Project Advisory	Evaluate March courses. 2007 courses, 2008 courses, website, need for fact sheets.
July 24, 2007	Project Advisory	Potential 2008 courses, publicity methods, and fact sheet content. Updates from members. MN technical delivery system, planning requirements, training tracks and private sector training.
December 14, 2007	Project Advisory	Review of 2007 courses and plan for 2008/2009 courses. How to meet technical assistance delivery needs and create long-term stability for conservation training.
March 24, 2008	Interagency Coordination	Past training collaborations, reasons for collaborating, barriers, drivers, and initial ideas for a coordination structure.
April 28, 2008	Project Advisory	Reports on regional roundtable and 2007/8 courses. Future course needs.
May 29, 2008	Interagency Coordination	Potential for collaboration on specific courses, especially farm assessment and planning. Planned to identify goals for the group.
December 18, 2008	Combined	Options for training coordination. Planned to write proposal for long term coordination.
May 14, 2009	Interagency Coordination	Draft proposal for coordination.



Discussions with training professionals from other states at the Great Lakes Regional Conservation Professional Training Program Roundtable, March 2008.

Regional partnerships. We have collaborated with the Cooperative State Research, Education, and Extension Service (CSREES) Great Lakes Regional Conservation Professional Training Program in the development of curricula, coordination of course promotion, and sharing with other states. We have used the regional system for online course registration for several courses. The regional team is exploring the expansion of regional web-based tools to support state-level training. Specific regional collaborative activities include:

- Wisconsin provided training models and hours of personal assistance in developing the CNMP, Land Treatment, Conservation Planning, RUSLE2, and Invasive Plants Management courses.
- Used the regional online registration system for some courses.
- Worked with the Regional program to try to bring a pollinator course to Minnesota.
- Participated in the Regional Roundtable in March of 2008 to build regional networks to support conservation training.
- Participated in follow-up working groups to continue the activities started at the Roundtable.
- Collaborated on the development of a regional Conservation Innovation Grant (CIG) proposal that would coordinate the creation of distance learning modules and support training coordination staff in Minnesota and other states.
- Trainers in Minnesota have the option of using the regional project management web site to create an online training component available only to course participants. This could be used for online discussions or file repositories.

The Regional Conservation Professional Training Program is a collaboration among University Extension and other partners in Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. More information about the regional program is at <http://conservation-training.wisc.edu/>.

TSP Website and the Training Database

Web site and fact sheets

The web site <http://tsp.umn.edu> has been established and maintained by the UM Water Resources Center on a server at the UM College of Food, Agricultural and Natural Resources Science (CFANS). The site has provided course descriptions, schedules, registration information, and general information about the TSP program and conservation planning (Table 4). From its inception through February 23, 2009, the site pages had over 6000 unique visitors and 20,000 page views. Over 70% of the activity has been at course pages. The remainder were visits to the home page and pages providing general TSP information.

The site also links to several printable fact sheets including

- “[Demand for Conservation Planners in Minnesota](#)” which quantifies demand for manure and nutrient management planning,
- “[Why Farmers are Choosing Comprehensive Nutrient Management Plans \(CNMPs\)](#)” which explains to land owners the value of CNMPs, and
- [Comparison of Conservation Plans](#), which describes various types of conservation plans and assessment tools side by side.

Table 4: The TSP website

[Minnesota Conservation Professional Training](#) Home page <tsp.umn.edu>

Announcements

Links to other sections

For more information

[Minnesota Conservation Training Database](#)

Training topics and upcoming courses

Add a course

Training tracks

[Technical Service Provider Information](#)

Why become a TSP?

What is a TSP?

Opportunities for TSPs

“[Demand for Conservation Planners in Minnesota](#)”

How to Become Certified

[Conservation Plans: Terminology and Programs](#)

Conservation Programs (links to information)

Definitions of Conservation Plans (summary of types of conservation plans, plus a link to [Comparison of Conservation Plans](#) comparing types plans)

“[Why Choose a CNMP](#)” fact sheet

[About this site](#)

Contact information

Site created by . . .

Regional Activities

[TSP Training Initiative](#)

A static page about the project

Course pages (Access from the [TSP Training Initiative](#) page, or the [About this site](#) page.)

Individual course information including description, agenda, who should attend, and pre-requisites. If a session is scheduled, the page will show date, location, registration, and CEU information.

Online Training Resources

We began to explore the potential for non-classroom-based training by creating videos that learners can access online. The first set of training videos (available at <http://wrc.umn.edu/randpe/agandwq/nmpsoftware>) explains how to install and use the Nutrient Management Planner software. This series of 18 videos, averaging 5 minutes each, was hosted by Jeff St. Ores (USDA-NRCS) and serves as a comprehensive training program.

Barbara Weisman (MDA) hosted the second set of four short videos showing how to use MDA's Conservation Funding Guide.

The final set of three five-minute videos demonstrates how LiDAR data can be used to identify critical areas on the landscape for conservation practices. The videos were developed and narrated by Jake Galzki and Joel Nelson of the University of Minnesota Department of Soil Water and Climate, and produced by David Lindeman of UM OIT Video Solutions.

Minnesota Conservation Training Database

An interactive, web-based database was developed to provide lists of conservation training topics, available courses, and training tracks for private and public sector professionals and certifications. The site is designed to 1) help public and private sector professionals develop conservation training plans by providing a list of skills needed; 2) create a central place for listing all scheduled conservation training opportunities; and 3) help course providers identify gaps and overlap in the delivery of training.

The database will be accessible from <http://tsp.umn.edu> or directly at <http://mnct.cfans.umn.edu>. From the home page users will be given the following options:

- Search for a specific course.
- Browse courses by topic . Click on the triangles to open topics and subtopics and view courses.
- Create a personalized training plan by checking the boxes in front of topics and subtopics important to your work. Then click "View Selected Courses" for a downloadable list of topics and courses.
- Browse training tracks to see lists of courses required for a particular certification, or suggested continuing education courses for a particular job. (This section under development.)
- Learn more about the database.

Work Plan Changes

Adjustments were made to the work plan as circumstances evolved over the life of the project. The original work plan was based on assumptions about demand for TSPs that would be created by the new Farm Bill in 2007. In fact, passage of the Farm Bill was delayed until 2008, and implementation of certain Farm Bill provisions such as the Conservation Stewardship Program, which might have increased demand for TSPs, still had not begun by the time this work plan ended. The timing and content of the Farm Bill affected demand for training, particularly with regard to the Conservation Planning course. The following changes were made to the original project work plan.

Cancelled courses

- Conservation Planning – There were not enough conservation planning opportunities to create demand for the full 8-day course.
- CNMP for 2009 – NRCS determined there were enough CNMP-certified TSPs.
- Land Treatment for fall 2008 – Registration was too low.

Added courses

- Drainage Tile Smoke Demonstration
- Invasive Species Management
- Prescribed Burning for Grasslands
- Ag Resource Assessment
- Livestock Environmental Quality Assurance
- Conservation Applications of LiDAR – a conference for local conservationists
- NMP Software training – online videos
- Introduction to Organic Farming Systems

Cross-advertising activities

- CPM Short Course/MCPR Trade Show, December 2007: Pest Management training (~50 attended)
- CPM Short Course/MCPR Trade Show, December 2008: Updates on Nutrient Management Planning, NMP software, Web Soil Survey, and Pest Management. (~50 attended)

Conservation Training Database. The database was added to help facilitate interagency collaboration and describe training tracks.

Web enhancements and fact sheets. Web site pages were added to provide information about program definitions and demand for conservation skills.

Training videos. Three sets of videos were created to give TSPs and other conservation professionals an alternative method for learning.

Field Record for Minnesota Farms. The project contributed to the reprinting of these booklets which are popular tools for nutrient and pesticide management planning.

Conservation Funding Guide informational postcards. The project contributed to the printing of postcards to be distributed to ag professionals and others who can use the Conservation Funding Guide (<http://www.mda.state.mn.us/protecting/conservation/funding.htm>) to more effectively take advantage of available conservation funding programs.

Assessment of Courses

Summary Observations

This chapter includes detailed discussions of the courses and recommendations for future offerings. Some of the important recommendations are:

- There is a need both for basic core courses and advanced update courses.
- Increase the diversity of trainers. Use private ag consultants and local agency field staff who have direct experience with the material and the audience.
- Expand distance learning opportunities and improve the availability of online guidelines for creating conservation plans.
- Even as distance learning is increased, a field component should be added to more courses. For teaching effectiveness, nothing replaces seeing a lesson first hand.
- Software training requires a low student-to-teacher ratio.
- Use carefully targeted exercises as the core method of teaching software.
- Exercises are an essential component of most training and should be further developed. For example, the planning courses teach specific procedures as well as expert judgment calls. If students were asked to complete all the steps of a site assessment and plan, they would do a better job of retaining procedural steps and discussing ambiguous issues. Planning courses could be divided into an online component and a field component with a week or two between for participants to work on their own plan.
- During field trips, use structured exercises so participants have more guidance about how to approach a site and what is expected of them. Examples include the CNMP and Land Treatment field trips.
- Determine whether there is a need for liability insurance for visiting farms.

Unlike on a large bus, people on this medium-sized bus could see and hear speakers. This allowed for group discussions and observations as we travelled between sites on a field tour.



Costs

Average cost of providing courses was \$1900 per day or \$100 per person-day. This does not include coordinator's time, and in most cases does not include instructors' time. Most instructors were provided in kind by NRCS, Extension, and state agencies, but the project occasionally hired private consultants for a portion of the presentations.

Most of the training sessions were instructor-intensive, with four to eight instructors at each to ensure a range of expertise, provide personal attention during class exercises, and retain participant attention throughout the day. Two of the courses, CNMP and Land Treatment, include field exercises which require additional planning time for instructors. A new field site is used each time a course is offered, so support materials for the field visit cannot be reused. For several of the courses, extensive documentation was assembled in 3-ring notebooks for participants.

Table 5: Costs per day of training

	Average over all courses	Notes
Meeting room and food	\$420	Usually included lunch and morning and afternoon refreshments.
Course materials	\$228	Copying, binders, CDs, etc.
Instructors	\$130	Instructors were generally not paid out of project funds. When they were, the typical rate was \$500 per day per instructor.
Instructors' travel	\$122	Also included lodging for some courses.
Promotion	\$43	Postcard printing and mailing. Four mailings were done at an average of \$330 each.
Other	\$35	Includes travel to sites for preparation before courses, and production of a DVD for the drain tile smoke demonstration.
Bus for field trips	\$25	Buses were used for four field trips. Typical rate for a half-day trip was \$300.
Development and registration	\$400	Fees paid to the Regional Conservation Training Program for managing registration and supporting course development.
Total per course-day	\$1400	Range was \$60 to \$3500

Participants: Results from Course Evaluations

A consistent evaluation template was created to allow for comparisons across courses and time. Evaluations were collected from participants at the end of each course. Details for each course are in <EvaluationSummaries.xls>.

Who attended?

The participants were:

Self-employed consultant	76	34%
Agribusiness or engineer employee	70	31%
Crop and/or livestock producer	9	4%
Agency or Extension employee	70	31%

Compared to these overall averages, there were more agency employees in the RUSLE2 courses, and fewer in the nutrient and pest management courses. In fact, the September 2008 nutrient and pest management courses were attended almost exclusively by the private sector.

Was the information new or refresher?

Mostly or entirely new	74	33%
Mostly or entirely a "refresher"	46	20%
Part new, part "refresher"	107	47%

The Introduction to RUSLE2 was the only course where the material was new to most participants.

How did you hear about this training?

Email	128	56%
From another individual	45	20%
Direct mail	40	18%
Web search	21	9%
Newsletter or news release	17	7%
Other (other training, events, and individuals)	16	7%

How would you prefer to be notified about future training opportunities?

Email	78	34%
Direct mail	11	5%
CCA website	2	1%
NRCS TSP website	2	1%
Newsletter	1	0%

How many acres are impacted?

Participants in the nutrient and pest management course were asked how many acres they manage or consult on. Responses ranged from 1,000 to 140,000 acres and averaged 24,000 acres. The total of 62 responses from 6 courses was nearly 1.5 million acres. (Acres would have been counted twice if the same person attended two courses).

What other training did participants request?

RUSLE2 and conservation planning were the most requested courses.

Conservation planning, land treatment, resource assessment	35
Erosion assessment and control, especially RUSLE2	33
CNMP, MinnFARM, Manure storage	14
Field training	8
MN Phosphorus Index	6
Nutrient management planning	4
NMP software	4
Pest management	4
Program information and certification info	3
Water quality trading and general info	2
Other (native grass seed, grazing, EQIP, field training, updates, agronomy)	9

Impact: Results from Follow-up Surveys

Follow-up surveys were sent at least 6 months after each course to learn whether people were using the training and had become certified as TSPs.

Is the training promoting TSP certification? Less than half (43%) of respondents were certified before the training and 30% were not intending to become certified. The remaining 27% became certified after the training or were intending to become certified. A total of 32% of respondents (including previously certified TSPs) planned to get a new or additional certification.

What kind of TSP certification do people have or are getting? Half of respondents already had a Nutrient Management TSP certification; 41% had a Pest Management certification; and 30% had a CNMP – Nutrient Management certification. Plans for certification were evenly distributed among all the options (Nutrient Management , Pest Management, CNMP Plan Development – Nutrient Management, CNMP Plan Development – Land Treatment, Land Treatment – Tillage and Erosion, and Manure and Wastewater Handling and Storage).

Are participants using the training? Many participants had exposure to the topics before the training, so the survey measured little increase in the amount of application of the skills. We did not attempt to measure whether their comfort and skill levels increased in response to the training.

RUSLE2: Sixty percent of RUSLE2 trainees used the software after the training to prepare a Nutrient Management 590 plan or a CNMP, to run the MN Phosphorus Index, or for other purposes.

Land Treatment: Respondents found the information useful in support of conservation practice planning, but there is not a stand-alone market for these skills.

CNMP: Ten respondents (27%) either completed their first CNMP after the training or had plans to complete one. Fifteen (41%) had completed one before the training. Only two people started writing MMPs after the training. (Fourteen (38%) had been doing them before the training.)

NMP: Four respondents (8%) said they started writing NMPs after the training. Almost half had been doing them before the training.

What future training did people ask for? Hydrology management and MinnFARM were the most frequent requests. Several people asked for updates on various topics. Other topics mentioned are listed in Table 6.

Table 6: Requests for future training

Topic	Number of mentions
Hydrology management	5
FLEVAL/MinnFarm, feedlot runoff	3
Conservation tillage	2
On-farm, examples	2
TMDL load calculations	2
P Index	2
Engineering - manure	1
Manure Management Planner	1
CNMP-Nutr Mgt	1
Urban	1
Soils	1
Pasture	1
Programs	1
Biosolids	1
Resource assessment	1
General updates	5

Other comments

RUSLE2

- Went really fast & loading was confusing -- create a step by step guide how to load in numerical order
- Try to keep training for these packed into 1 day if possible. It's hard to go to multiple places when you have a full work load already, also mainly winter meetings only can be attended due to work load in fall spring summer.
- It was a good training & provided a lot of information
- go a little more in depth of how to use the manure application part of the RUSLE2 program.
- Good instructors and good location
- A reference manual to walk a person through some of the various areas of the program. I use RUSLE2 periodically and need a reference sometimes to get back into the program for all the resources it contains.
- It would be nice to spend a little more time on the management areas such as watersheds or larger areas than a field.
- Good training
- Great job
- It was an excellent training. Thank you very much.
- It was good training to help understand the process behind RUSLE2. I will be using it in the future.
- Very good instruction and great value for the money.

Land Treatment

- I liked the on farm part. would like more of that type of training. I am certified in nutrient mgmt, land treatment & manure & wastewater handling. Does no good because I don't have total plan certification.
- More of them.
- There is a lot of good information presented but, without financial incentives to write conservation plans nothing will be done in the country by farmers.
- It was a very informative class

- *The training and refresher course are beneficial to me and my employee.*

CNMP

- *I review plans for NPDES permits (manure management) [I don't plan to work on a CNMP]*
- *I think the LEQA and CNMP Facility Assessments could be merged? This would allow 1 certification.*
- *Rich Giles has been very helpful as a reference for answering questions. I appreciate the cooperative effort of the NRCS in Minnesota towards TSPs.*
- *Good hands-on makes it easier for me, review and go through demonstration.*
- *Good to get on the farm and actually look at a site & make evaluations*
- *Having worked with nutrient mtg for over 10 years and been a TSP since the joint venture started I still learned much over the training course to be recertified. Thank You!*
- *I am certified in Wisconsin and would like that certification to be applied to Minn w/o having to complete the whole course work involved. What is the process?*
- *Keep training in Southern MN Good work on the site visit to the dairy farm!*
- *The CNMP training gave me much needed insight into the various aspects of nutrient management and agriculture. Thanks!*
- *training was very good -- I just switched employers and don't need this certification anymore*

NMP

- *herbicide rotation with least amount runoff with the best results w/o herbicide resistance like Roundup & Liberty Linked limited, & others*
- *I found the training to be of little value. I needed to start from the beginning if I want to become certified as a TSP, and this session did not fill that need. If I want to continue - I need to know how & where to start at the beginning.*
- *Its been too long. -- I always like to have research data combined w/ the training principles.*
- *I found it very helpful*
- *Other than the Rules & Regs. the NRCS is way behind the Prof. Crop Consultants. Some of the Ideas are behind.*
- *The information was well planned and the instructors did a good job.*
- *The training was designed to update those already certified. I struggled trying to understand and keep up as a new person. Thanks.*
- *Great job. I learned so much!*
- *It was beneficial!*

Logistics and Other General Issues

Promotion

Notifications of training opportunities were sent through US mail, email, and postings to web sites and newsletters (Table 7). The most important methods were occasional direct mail to Minnesota CCAs, and one or two email announcements to CCAs before each course. The CNMP course targets both agronomists and engineers, but there were fewer lists available for the engineers. RUSLE2 participants are more diverse than NMP/CNMP/Pest Management participants and required broader advertising to the public as well as private sector. The Land Treatment course also has a broad potential audience, but it is difficult to communicate how the skills fit with their work.

Course evaluations revealed that people prefer receiving course notifications via email.

Table 7: Course promotions

Target group	Methods
Certified Crop Advisors (CCAs)	Direct mail. Mailing list purchased each time from the National CCA office in Madison WI. Email: generally 4-8 weeks before a course and then 2 weeks before.
Technical Service Providers (TSPs)	Email to all who are TSPs or who have expressed an interest in certification. List provided by Jeff St. Ores (NRCS TSP Coordinator). NRCS regional nutrient management specialists were able to directly contact TSPs whose certification was about to expire and other interested people. Posted the core TSP courses on the TechReg web site.
Conservation District staff	Email to MASWCD through Leann Buck (MASWCD Executive Director). Email to MACDE through Rick Reimer (MACDE President).
EQA technicians	Email through Tim Gieseke.
NRCS staff	Jeff St. Ores periodically sent bulletin to all offices.
PCA feedlot officers	Added NMP course to web list of feedlot events
Extension	Notices to appropriate group lists.
NRCS, DNR, MNDOT, County Ag Inspectors, FWS, MDA, MISAC, UM Extension, MN Environmental Partnership, Wisconsin agencies	A wider mix of agencies was targeted for the invasive plants course than other courses. Contacts from the listed departments distributed email announcements to their respective agencies.

Table 8: Potential advertising avenues

Target group	Methods
MNICCA	Minimal web maintenance so might not be used as a resource by members.
Watershed organizations	Generally these people are reached through the MASWCD and MACDE lists. Also try working through the Minnesota Association of Watershed Districts, (http://www.mnwatershed.org , Ray Bohn, coordinator).
Minnesota Crop Production Retailers/ MN CCA	The MNCPR site posted CCA courses after they were approved, but this was generally late. By the end of the project, they stopped keeping their own list and referred users to the national site course listings. However, this function is underutilized, so may not be a useful place to post. Find out if state office (Bill Bond) will send announcements to membership. MN CCA email addresses are also available (tediously) through https://portal.sciencesocieties.org/BuyersGuide/ProfessionalSearch.aspx
eXtension	Post to appropriate calendars at http://www.extension.org

Registration

Course registration, invoicing, and payment were handled either through the Regional Conservation Professional Training Program (<http://conservation-training.wisc.edu>) or through University of Minnesota offices at the Farmington Regional Center or the Water Resources Center. The regional system has improved over the course of the project and may be a good place to do future registrations. The regional site has an advantage of reaching a multi-state audience. UM Extension also has a well developed system for managing course registrations that was not used for this project. Managing registration internally (e.g. through the Water Resources Center) gives organizers more direct control and avoids fees associated with external registration systems. However, the internal system can be less efficient and cannot handle all forms of payment.

Timing

For the private sector, the preferred times for training are:

Best: January, February

O.K.: March, November

O.K. for some: July, August, early December

Bad: April, May, early June, September, October

Audience demand

Continuing Education Units (CEUs) are valuable for increasing the demand for a course, but even more important is that there be a marketable need for the skills.

Course materials

Core courses required extensive time for collecting and duplicating training materials. To the extent possible, it will help to identify materials that can be printed less often as a “text book”. This was done for the NMP course, and may be possible for others.

Summary of suggestions

Below are key recommendations for future course offerings. ***Suggestions scattered throughout the rest of this document are indicated in bold italics.***

- Increase the diversity of trainers. Use private ag consultants and local agency field staff who have direct experience with the material and the audience.
- Add a field component to more trainings. For teaching effectiveness, nothing beats seeing the lesson first hand.
- Software training requires a low student-to-teacher ratio.
- Use carefully targeted exercises as the core method of teaching software.
- Exercises are also an essential component of nearly all other training. For example, the planning courses involve a mix of specific procedures and expert judgment calls. Students would better retain procedural steps and discuss the issues if they were asked to complete all the steps of a site assessment and plan.
- During field trips, use structured exercises so participants have more guidance about how to approach a site and what is expected of them. Examples include the CNMP and Land Treatment field trips.
- There is a need both for basic core courses and advanced update courses.
- Determine whether there is a need for liability insurance for visiting farms.

Core TSP Courses

The project curriculum emphasized core TSP courses aimed at training the private sector to perform conservation planning tasks to fulfill NRCS program requirements. These include Comprehensive Nutrient Management Planning, Nutrient Management Planning (590), Pest Management Planning (595), and RUSLE2.

Audience demand

Demand for these courses is created by federal Farm Bill conservation programs that allow participants to hire certified TSPs to complete CNMPs, NMPs, and Pest Management Plans. The development of these three plans is the most common use of TSPs in Minnesota.

Content

The content emphasized policy and procedures, but necessarily also includes discussion of nutrient and manure management issues. Participants were assumed to have experience in nutrient, manure, and pest management, but skill levels varied. This created an ongoing challenge to provide information that was neither too advanced nor basic for most of the group. Wisconsin provides annual policy and program updates for TSPs. **Consider providing statewide updates for the more advanced TSPs to separate the experienced from the novice students.** Comments from experienced TSPs were helpful. **Try to schedule a TSP to help teach these courses.**

Course materials

Preparing course materials requires a large amount of time for reviewing and updating the dozens of documents, and for printing and collating the packets. In January 2009 we created a “textbook” of the less dynamic materials and printed enough copies to meet NMP training needs for the next 2 years. NRCS is holding this supply. **Similar compilations could be made for CNMP and Pest Management training. Consider ways to make these resources more accessible online.**

Instructors

The course content is closely tied to agency guidelines, yet NRCS employees need to minimize time spent on private-sector training. **The challenge for a conservation training program is to increase the use of trainers from UM Extension, the private sector, and Soil and Water Conservation Districts while recognizing that NRCS will retain oversight over the content and will always provide a large proportion of the instruction.**

Nutrient Management (590) Training

Audience demand

Five workshops were held between March 2007 and January 2009 with a total of 107 participants. Just over one-third of training participants were certified TSPs. Another 20% became certified after the training or plan to become certified. About 125 TSPs are certified to do Nutrient Management Plans in Minnesota, and are required to re-certify once every three years. The potential audience for re-certifications (and a few new TSPs) may be 40-70 participants per year. **To meet the needs of previously certified TSPs, future training should**

emphasize review and advanced topics. Staff from Soil and Water Conservation Districts and other agencies are also an important audience who do not require TSP certification. NMP training has a pre-requisite of completion of NRCS NMP modules 1-6 or a CCA or the Manure Application Planning (MAP) course from the University of Minnesota. **Ideally, time the NMP course to follow the MAP course.**

Course materials

A training manual is provided to each participant containing the course presentations, exercises and reference material in a three-ring binder. As noted above, gathering, copying and assembling the notebooks takes a considerable amount of time and was streamlined for the last course by making a 2 year supply of the bulk of materials. Extra books were given to the NRCS Regional Nutrient Management Specialists to be used when working one-on-one with TSPs and for future training courses.

Content and structure

The training is a one day course condensed down from the two-day training given by NRCS to their staff. For the one-day course, the pre-requisites are: Certified Crop Advisor certification, or the UM Extension Manure Management two-day course, or the NRCS on-line training modules 1-6, all of which assure a prior basic knowledge of nutrient recommendations and nutrient management. **In-class exercises are essential for some topics such as nutrient rate determinations. However, training time is limited relative to the amount of material so exercises need to be kept short and concise.**

Instructors

Because the focus is on nutrient management plans for EQIP, it is essential for NRCS staff to present the material about EQIP program requirements. Non-NRCS people should present other topics. For example, manure management material can be presented by an Extension specialist, and nutrient management plans by an experienced TSP.

Comprehensive Nutrient Management (CNMP) Training

Audience demand

The March 2007 session had 26 participants and the April 2008 session had 28. Compared to NMPs, far fewer CNMPs are required statewide annually for two reasons. First, CNMPs are one-time plans that do not require annual updates, and second, in the past, the cost-share projects that required CNMPs (animal waste handling, storage, transfer or treatment systems) are high cost. NRCS staff chose not to offer the CNMP course in 2009 because there were adequate numbers of trained TSPs, and they did not want to create excess competition for existing TSPs.

Course materials

Like the NMP course, a large packet of reference materials and exercises is required.

Content and structure

The first CNMP Training ever held in Minnesota was delivered by this project in March 2007. It followed the Wisconsin model for CNMP education by bringing

engineers and agronomists together to hear the same message, since both parties need to work together to create a CNMP. Most participants came from the agronomy sector.

The Wisconsin training model requires two days of training. The first day is a classroom setting with the full group in the morning and breakout sessions in the afternoon. The breakout sessions are divided into engineering components and agronomic components, and focus on the “How-to-do” a CNMP. The second day consists of a livestock site tour in the morning and a short classroom session in the afternoon.

A livestock site visit enables the participants to take part in an actual site evaluation. Participants are divided into small groups and an instructor experienced in making site assessments leads each group around the operation. The instructors will need to have visited the site prior to the workshop to gather talking points for the training day and to visit with the livestock operator on history of the operation and any safety, liability or bio-security concerns. The livestock operator is allowing a group onto their operation so all concerns need to be addressed before the workshop. Recommended bio-security measures include supplying disposable plastic boots for everyone visiting the site and reducing the number of vehicles entering the site by renting a van or vans to move people to and from the hotel. Reminding participants not to travel directly from another livestock site to the training site and to wear a clean set clothes when arriving at the farm is important. Make sure all participants understand the safety and bio-security guidelines set out by the livestock operator.

Selection of the farm site will need to represent as much diversity in operations as feasible for the time allowed. A confinement setting and an open lot operation provide a good mix of topics to discuss during the visit. Early spring (late March or early April) is an ideal time to conduct this training because there is more potential to see runoff problems with the feedlot. Because there is a chance of finding pollution problems with the selected site during a spring visit, it is important to protect the livestock operator from being accused as a violator of the MN 7020 Feedlot Rules. There could be regulatory staff taking the class and the focus should be on education, not enforcement. This is probably best handled by communicating directly, prior to the workshop, with the regulatory staff that are registered to take the course.

The course could be improved by completing an actual site assessment following the site tour. Completing the assessment documentation and discussing the options for making improvements to the site would provide a good working example of that portion of the plan.

Instructors

For the 2008 course, we hired an experienced TSP to lead the site visit. This was worth the expense to have the material presented from the perspective of a private sector engineer. *The course should continue to take advantage of instructors from the private sector and agencies other than NRCS.*

Sampling of participant comments

The value of discussion: I liked the discussion & interaction time on the first day. I liked the open talk sessions it was good to hear other opinions.

Need for coordination: Try to coordinate between agencies to lower the repetitive paper work. Please consider using certification and training from other states (WI) to transfer to use in MN. Continue to couple with other CCA training events.

Need for specific guidance: Get more in-depth as to exactly how a plan needs to be done and what exactly will be looked at when a plan is turned in.

Other suggestions: It would be nice for the nmp and eng people to see more of the other side of CNMP -- to the people who have their 590 certification, it got a little repetitive. After completing a facility site assessment, run the MinnFarm model.

Pest Management (595) Plans

Audience demand

Only one Pest Management course was presented as part of this project (in September 2008). However, NRCS helped re-certify other pest management TSPs by presenting Pest Management update training to about 50 people at each of the Minnesota Crop Production Retailers annual short courses in December of 2007 and 2008. ***Providing update courses is an important part of a conservation training program.***

Course Materials and Instructors

Issues related to course materials and instructors are similar to those for Nutrient Management Planning training.

RUSLE2 – Introduction and Advanced (with MN Phosphorus Index)

Audience demand

RUSLE2 expertise is required for many aspects of conservation planning including NMPs, CNMPs, and watershed planning associated with TMDL work, as well as private sector interest in the economics of tillage and residue management. The training attracted a diverse group of participants ranging from local, state and federal agency staff to the private sector TSPs. Because of the broad applications of RUSLE2, there will be on-going demand for training.

Course materials

Most participants were able to bring laptops. It was essential for instructors to bring extra computers for those without them, but in the last four courses in 2008 and 2009, we never needed all three of the extras. Instructors also needed to supply power strips and drop cords. The program did not need to be loaded for the intro course, but must be preloaded for the advanced course. Participants should be warned that they need to have administrative privileges to load RUSLE2 as well as to run the software. This has been a problem with some NRCS computers.

The folder of training materials provided to participants included a CD with the most recent version of the RUSLE2 software program and electronic copies of the printed materials in the folder.

Content and structure

The November 2007 introductory course had 27 people. This was too large to provide effective software training. Through experience and talking to other software trainers, we concluded ***the student-teacher ratio during hands-on software training should be less than eight to one.***

The Introduction to RUSLE2 required 5-6 hours of training time. The first 1-2 hours was used for presenting the background and explanation of the model, and an initial demonstration of the program prior to participants being distracted by having it on their own computers. Then the group worked together to install the program – a task that easily loses some students. This required one instructor explaining the steps at the pace of the second slowest student and another assistant moving around the room to help troubleshoot. ***It was helpful to provide exercises and specific instructions for those people who already had the program loaded or were moving through the steps quickly. These exercises should be further refined to provide optional material to these speedier students.***

The training was designed by developing a specific list of skills that students should learn, and then designing exercises that require them to apply the skills and build on previous exercises. ***Providing well-targeted exercises was essential to the effectiveness of the training. We focused on teaching a single pathway for accomplishing tasks, and only at the end introduced alternative approaches.*** The introductory course should ensure that participants leave with the ability to generate a basic soil loss estimate by assuming they come in with no familiarity with the program and by focusing on a few core skills.

It worked well to conduct the advanced course three weeks after the introductory course and in the same location. This was enough time to absorb the basic material without forgetting the lessons. After improving the introductory course, we only needed three hours to review the introductory material and present advanced topics. The advanced session was important for helping participants imprint on the material and become confident with the software.

The afternoon was spent on MN Phosphorus Index training. ***Although MNPI training could stand alone, it was valuable to link it to RUSLE2 explaining the importance of erosion and the difference between soil loss and sediment delivery.***

Instructors

The course was taught by the NRCS state RUSLE2 specialist and a University staff member with RUSLE2 experience.

Land Treatment

The course was renamed “Field Evaluation for Conservation Practices” in an effort to provide a more descriptive name. However, this may have caused more confusion than help. ***It may be preferable to go back to “Land Treatment” to be consistent with TSP terminology and the Wisconsin course.***

Audience demand

The November 2007 session had 9 participants and the April 2009 session had 8. The majority of the group was from the private sector and already certified as TSPs. This course has to be timed to not conflict with field activities but when there is little enough vegetation to show engineering practices. Participants appreciated the value of this material, but there is little or no demand for TSPs with Land Treatment certifications. ***In the future, reassess where this course fits in the required TSP curriculum.***

Course materials

The training folder contained the morning presentations, conservation practice fact sheets, and a resource inventory for the field practice site.



Field trips are essential to conservation training.

Content and structure

This was a one-day training with classroom activities during the morning and field tours in the afternoon. ***Land Treatment training should be timed to follow RUSLE2 and other resource assessment courses and participants in the earlier courses should be encouraged to take this field course which takes the step from assessment to planning.*** RUSLE2 could be tied more closely to the Land Treatment course by using the slope and slope length from one of the field sites to calculate soil loss.

The classroom training explained the different types of upland land treatment practices that a landowner could implement and when to choose one or another. The field trip showed examples of installed land treatment practices and sites where they were needed, and then gave participants a chance to evaluate a site and recommend practices. ***The practice exercise could be improved by having more structured instructions for participants explaining what they were expected to accomplish during the site visit.***

It was helpful to have everyone travel in one small bus for the field trip. This minimized vehicles parked at sites and allowed instructors to point out and discuss issues while driving through the countryside.

Instructors

Trainers included NRCS staff with experience in conservation planning, and SWCD staff, local Extension Educators, and private ag consultants with experience with conservation practices. NRCS staff are important for providing the big picture of conservation planning, but expertise in applying conservation practices may also come from outside NRCS. It is essential for the field trip to be planned and lead by local people including NRCS staff who understand the full palette of conservation practices, and SWCD or Extension Educators who work closely with producers to install practices and can discuss practical issues.

Planning and Assessment Courses

Conservation Planning

The intent at the beginning of the grant period was to present an eight-day conservation planning course similar to the nine-day course presented by Tim Gieseke in 2006 for the Minnesota Project (funded by the Sustainable Agriculture Research & Education program and a USDA Conservation Innovation Grant). However, the structure of Farm Bill incentives in Minnesota did not create consulting opportunities for whole farm planning. Because of lack of demand, the course was not offered in 2008.

Rapid Whole Farm Resource Assessment

Audience demand

Rather than training private sector consultants in the entire process of conservation planning, Tim Gieseke is promoting the idea of training the private sector to focus on rapid resource assessments that could be handed off to agency staff who would complete the planning process. Assessment activities fit well with the tasks consultants are already doing for their clients. They could be trained relatively quickly and could perform the assessments efficiently.

As with the full conservation planning course, resource assessment has the chicken-and-egg problem of simultaneously needing a market demand for the

skills and the skilled professionals to meet the demand. The purpose of offering the Rapid Whole Farm Resource Assessment (RWFRA) course was to explore the feasibility of using private consultants to do resource assessments and to pilot an associated training program.

Content and structure

Table 9: Indices used for Rapid Whole Farm Resource Assessment

- Crop Productivity Index
- Soil Conditioning Index
- Soil Tillage Intensity Rating
- Soil & Water Eligibility Tool
- Phosphorus Index
- WinPst 3.0
- Habitat Suitability Index
- Pasture Scoring
- MinnFarm/Feedlot Index

The RWFRA approach uses existing indices (Table 9) to create a scorecard of farm environmental impact. The course was divided into four sections: 1) approaches to assessing natural resources and potential applications of an index-based assessment; 2) review of assessment tools available to evaluate farms; 3) explanation of the indexes used in the RWFRA – where to get them and how to use them; and 4) how to use the RWFRA tool – choosing farms, evaluating results, addressing other resource concerns, and developing a plan.

For future trainings, more time should be spent explaining the assessment tools and how to use them correctly, and how to assess non-indexed features such as gullies. A field component should be mandatory – either through the land treatment course or a field trip specific to resource assessment. See “Resource Assessment Training Notes” for more details about the training and suggested revisions.

Course materials

Participants were given brief information sheets about each of the component indices, and a CD with all the indices.

Instructors

The course was taught by Tim Gieseke of Ag Resource Strategies.

Livestock Environmental Quality Assurance Technician Training

The Livestock Environmental Quality Assurance (LEQA) Technician Training was presented by Tim Gieseke of Ag Resource Strategies as part of the Livestock EQA Pilot Program funded by the Minnesota Department of Agriculture. The TSP Initiative provided partial support for this course to expand the opportunities for TSPs. More information about the LEQA program is at <http://www.agresourcestrategies.com/livestockeqapilotprogram>.

Audience demand

LEQA technicians must attend this training annually to be eligible to conduct LEQA assessments. The demand for LEQA assessments depends on the perceived value of the assessments and the availability of cost share dollars to support implementation of farm conservation plans and Environmental Action Plans.

Course materials

A thick binder of resources was provided to support each aspect of the assessment process.

Content and structure

The first day of this two-day course was for new technicians. The second day provided update material for both new and renewing technicians.

Instructors

The course was taught by Tim Gieseke of Ag Resource Strategies.

Other Courses

Introduction to Invasive Plants Management

An invasive plants course was presented October 28th-29th 2009 in Duluth in conjunction with the Minnesota Invasive Species Conference. The course was meant to be a comprehensive overview of the issues to help people interpret information from conference sessions and other resources. Classroom presentations on the first day of training overlapped with the last day of conference sessions; day two was a field trip to the Hartly Nature Center.

Audience demand

Invasive plants impact many types of conservation work, and thus is of interest to a wide range of conservationists. A few spend a large portion of their time on the issue; many deal with invasive plants only peripherally to their primary work.

About 50 people attended each of the individual sessions during day one, with a low of 33 attending the final 4:00 session on writing management plans. The field trip was attended by 29 people. Almost half of participants were from state and federal agencies. A third were from SWCDs or cities. About 20% of participants said they would not have attended the Conference if it weren't for the training, and about 20% said they would not have attended the training if it hadn't been part of the Conference.

We were not able to get Certified Crop Advisor CEUs for the course, but we did provide a certificate of completion.

Timing

Ideally, the training would have been held the day before the conference so as to not overlap with conference sessions and to prepare people for the conference. However, the conference began on Monday and we thought we would lose much of our target audience (local agency staff) if we held training on Sunday. One advantage of coordinating with the conference is that we had access to a large number of trainers who were already attending the conference and may not have been able to give a short presentation at an independent training session. The conference also gave participants opportunities for networking and resources that would not have been available otherwise. We intended to attract participants who would not have attended the conference because it was more advanced than they wanted. In the future, we could do a similar arrangement, or ***we could offer the classroom presentations remotely and do only the field trip in conjunction with the conference.***

Over time, invasive plants training should be held at various times of year to provide examples of the different species that dominate at one time or another. Another conference has not been scheduled, but the thought in October 2009 was to hold another in about 18 months.

Content and structure

The course was developed by convening representatives from several state agencies and by starting with the agenda of the invasive species course offered in Wisconsin. ***The final agenda was very good but covered too much in the time allotted.***

Instructors

Instructors came from the University of Minnesota, UM Extension, University of Wisconsin, Minnesota Department of Agriculture, Minnesota Department of



Course participants learn about challenges to managing woodland invasive species.

Transportation, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources, Minnesota Natural Resources Conservation Service, and the Board of Water and Soil Resources.

Participant feedback

The course covered too much information for the time allotted. ("So much information so little time. The talks were too short or they contained too much info for the time allocated. Perhaps fewer speakers with more in depth talks.") People especially wanted more time for control methods (especially herbicides and new methods), identification (including real specimens), and planning and data collection (wanted more examples and references). GPS/mapping and policy were other topic areas mentioned. People were also looking for more advanced information such as details about specific species and habitats. Other suggestions included providing more complete handouts of the presentations, and more hands-on activities.

Drainage Tile Smoke Demonstration

The "smoke demo" was not a course but an introduction to a training technique that can be used to explain drainage tile issues. Frank Gibbs (Ohio NRCS Soil Scientist) came to Southern Research and Outreach Center at Waseca to demonstrate his technique of injecting pressurized smoke into drainage tile lines and observing where smoke reaches the soil surface by following preferential flow routes made by cracks and earthworm burrows. The purpose of the event was to gather researchers and agency leadership to learn the technique, interpret the results, and discuss its potential as a research and education tool in Minnesota. The group expressed a need for more research to determine whether – and under what conditions – manure loss into tile lines is a concern. There was some interest in using the smoke technique for educational purposes.

A video of the event was created and distributed to each of the attending agencies. For further detail about the content of the demonstration and subsequent discussions, see "Tile Drainage Smoke Demonstration" on the "About" page of the <http://tsp.umn.edu> web site.



Frank Gibbs explains the equipment used to force smoke into tile lines. The bottom picture shows smoke emerging up through soil cracks.

Prescribed Burning for Grasslands

Audience demand

NRCS indicated a need for more contractors to do prescribed burns on conservation lands like CRP. We held interagency staff meetings (UM Extension, NRCS, DNR, BWSR) on prescribed burn trainings to determine how to proceed. There is no organization of private firms that do prescribed burns or even firms that do prairie restoration (apart from prairie seed producers), so we had no direct access to potential course participants. Therefore we contracted with The OAR Group LLC to conduct a market survey to determine if there was sufficient conservation need and potential participant demand to offer a prescribed burn series. The resulting study indicated that the need and demand existed, and that existing courses, offered primarily by public agencies, usually filled with public agency staff and did not leave significant openings for the private sector. We contracted with Ridgewater College, who had experience in delivering these courses in Southwest Minnesota, the grassland area, to conduct a three-course sequence. We assisted them with targeted publicity for private sector personnel. This course, being much longer and more expensive than others was not free to participants, but was heavily subsidized.

Course materials

Ridgewater College provided instructor materials and equipment, training site, and all student materials, conforming to standards of the National Wildfire Coordinating Group (NWCG).

Content and structure

S-130/L-180/S-190	Basic Wildland Fire	40 hours	12 participants
S-234	Ignition Operations	32 hours	16 participants
S-290	Interm. Fire Behavior	32 hours	14 participants

S-130/L-180/S-190 participants were all private sector
Ignitions Operations S-234: 10 private sector, 4 agency, 2 NGO
Intermediate Fire Behavior S-290 participants: 9 private sector, 3 agency, 2 NGO

Instructors

Ridgewater College provided NWCG certified instructors as follows:

S-130/L-180/S-190: Lead Instructor Bob Neumiller, seasonal DNR; Damien Schauer, seasonal US F&W.

S-234: Lead Instructor Chris Larson, US F&W Litchfield; Jared Culbertson Nature Conservancy; Gabriel Fetzek, Minneapolis Fire Dept. and seasonal DNR & US F&W; Dennis Peterson, Pheasants Forever Habitat Restoration.

S-290: Lead Instructor, Bill Clausen, US F&W: Jared Culbertson, Nature Conservancy; Shane Delaney, DNR Forestry; Byron Paulson, NOAA station, Princeton, MN.

Additional observations

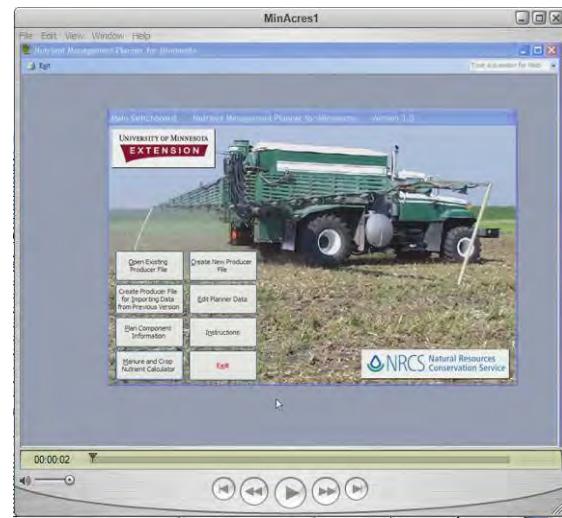
We discovered after the courses that Ridgewater College does not allow other organizations, including the UM, access to student lists. We provided in-session surveys to Ridgewater for the last two courses, but did not have them ready for the first course. Return rate was not high for S-290 nor when Ridgewater mailed them out for S-130. Access to student lists should be part of the contract.

These courses were expensive. If training budgets are tight, we can recommend ongoing interagency coordination of these courses, but not subsidizing them.

Nutrient Management Planner v. 3.0 Software Training

The Nutrient Management Planner software is used by TSPs and others to meet NRCS nutrient management planning guidelines and for farm management needs. We scheduled a webcast for June 17, 2009 to provide introductory demonstrations and to answer questions about the software. The motivation of this training was to create video modules that would be available on the internet, and to test the use of a webcast as a means of training for TSPs. Due to technical problems the webcast was cancelled.

However, the videos were made available online.



**NMP software training videos are available at
<http://wrc.umn.edu/randpe/agandwq/nmpsoftware>**

Introduction to Organic Farming Systems

The course was presented on June 23rd and June 25th, 2009 in Madison MN and Waseca MN. The objectives were to help agriculture and conservation professionals to understand the differences between organic and conventional agriculture with regard to conservation practices and federal conservation programs.

Audience demand

Thirty-eight people attended the two sessions of the course. Three-fourths were NRCS staff. The others were a mix of private sector ag professionals, local government units, and non-governmental organizations. Demand came from the new language in EQIP that includes funding for organic producers.

Content and structure

The training included the following topics: an introduction to the National Organic Program rules and processes, Q&A with farmers about organic practices, in particular, those related to conservation practices addressed by EQIP; information about the EQIP Organic Initiative Program; and finally a farm tour to demonstrate and discuss organic practices. ***In general the presentations were quite successful at meeting objectives except that there was not enough time given to discussing NRCS and EQIP policies.***

Instructors

The primary instructor, Jim Riddle, was a part time UM employee and has extensive experience in organic farming and policy. Other farmers and NRCS employees were also instructors. The pool of instructors for organic ag topics is well-developed but mostly separate from the pool of instructors for other conservation topics.

Conservation Applications of LiDAR Conference

An all-day conference was presented on June 4, 2009 in Rochester, MN. The purpose was to exchange information on soil and water conservation applications of LiDAR-derived high resolution digital elevation data among application developers and technical staff of local SWCD's, NRCS, Watershed Districts, and County Planners, as well as some state and federal staff who had or would receive the data in 2009.

Audience demand

A total of 120 participants and presenters attended the conference, which was higher than expected and indicates the need for more of these conferences as LiDAR data become available for the rest of the state. Audience interaction with speakers and each other was excellent.

Content and structure

Ten speakers addressed management and uses of LiDAR elevation data, including terrain analysis; pond design; locating potential water storage sites; streambank, bluff, and ravine erosion; soil survey; and data quality control. Subsequently, three short training videos were prepared on terrain analysis and posted along with the conference agenda and speaker presentations at <http://tsp.umn.edu/lidar>.

Instructors

The presenters included faculty of the University of Minnesota and staff of the Minnesota Department of Agriculture, USDA-NRCS (Iowa and North Dakota), USDA-ARS (Iowa), two engineering firms (Minnesota), and a consulting firm (Iowa).

Supplemental Files

ConservationTrainingCoordinationPlan.doc – The Interagency Conservation Training Coordination Plan

Follow-upSurveyResults.xls – Results from surveys mailed six months after courses.

EvaluationSummaries.xls – Results from evaluations collected from participants at the end of each course.

TSPTrainingCosts.xls -- Detailed accounting of all course expenses.

Course materials for the most recent version of each course including

- Agendas with instructors names (Agendas are also available at tsp.umn.edu, in the “About” section)
- Course handouts
- PowerPoint presentations and presentation notes
- Evaluation forms and results