Objective 8: Awareness and Understanding by Rural and Urban Populations

Title: Grower Technology Access and Adaptation for Profitable Farming Systems That Control Wind Erosion

Personnel: Principal Investigator: Roger Veseth, WSU/UI Extension Conservation Tillage Specialist, Moscow; Cooperators: Bill Schillinger, WSU dryland research agronomist, Ritzville; Don Wysocki, OSU Extension soil scientist, Pendleton, OR; Russ Karow, OSU Extension agronomist, Corvallis, OR; Stephen Guy, UI Extension crop management specialist, Moscow, Dennis Tonks, WSU Extension dryland cropping systems specialist, Davenport; Aaron Esser, WSU on-farm testing project associate, Ritzville; Frank Young, USDA-ARS research agronomist, Pullman; and other research and extension personnel, Conservation District and USDA-NRCS staff and Ag support personnel involved in management practices for wind erosion control.

Abstract of Accomplishments
A variety of technology transfer programs and products have been included in this STEEP project in 2002. Three issues of the PNW STEEP Extension Conservation Tillage Update newsletters were completed in February, May, and November 2002. Three PNW Conservation Tillage Handbook Series publication (distributed through the Update newsletter issues) were added to the Handbook. Other publications included: 4 journal papers; 8 abstracts; 36 university research and extension publications; and 21 Ag media articles. Team members gave more than 52 presentations on new technologies from STEEP and related programs at grower meetings to a total audience of over 3500. Team members also organized and promoted more than 14 field days and tours in the region highlighting STEEP and related technologies on direct seeding and/or more intensive cropping and crop options with a total attendance of more than 1730. The project Web site “PNW STEEP Conservation Tillage Systems Technology Source” (http://pnwsteep.wsu.edu) was updating with the new Handbook Series publications and Update issues, the 2001 STEEP Annual Report, 2002 NW Direct Seed Conference Proceedings, 2003 Conference information, and numerous other resources. The PNW Direct Seed E-mail List Server grew from an initial network of 230 Ag support personnel and growers in early 2000 to over 470 in November 2002, with more than 80 messages posted this year. The January 16-18, 2002 Northwest Direct Seed Cropping Systems Conference was held in conjunction with the Spokane Ag Expo and attended by over 860 growers and Ag support personnel. It featured 24 speakers, including 10 growers, from Idaho, Oregon, Washington,
and the Canadian Provinces of Alberta and Saskatchewan. A detailed Proceeding was distributed at the Conference and added to the Web site. The 2003 Northwest Direct Seed Cropping Systems Conference and Trade Show has been developed for January 8-10 in Pasco, WA, with the Jan. 7-8 PNW STEEP Research Review as a special pre-conference feature. It will feature 28 speakers, including 6 growers, from Idaho, Oregon, Washington, South Dakota and New Zealand.

**Objective**
Develop educational materials and programs on conservation tillage systems and cropping practices to control wind erosion --- in conjunction with project researchers, other PNW researchers, Extension specialists and agents, NRCS and conservation districts.

**Methods and Materials**
Technology transfer efforts in 2002 included:
1) PNW Extension Conservation Tillage Update
2) PNW Conservation Tillage Handbook Series
3) Internet Web site -- PNW Conservation Tillage Systems Technology Source (http://pnwsteep.wsu.edu)
4) PNW Direct Seed Systems E-mail List Server
5) NW Direct Seed Cropping Systems Conferences
6) Field Days and Tours on Conservation Tillage Systems

**Results and Discussion**
Specialists on the PNW Extension Cropping Systems Team worked with Columbia Plateau Wind Erosion / Air Quality Project, STEEP and related program researchers, other extension specialist and educators, and Ag support personnel to summarize new “state-of-the-art” conservation tillage management technologies from an integrated cropping systems approach. The following is a description of the project accomplishments by technology transfer methods during this project period:

1) **PNW STEEP Extension Conservation Tillage Update** -- This newsletter continues to be an effective PNW technology transfer tool. A total of three issues were published in 2002 -- February, May and November 2002. The February 2002 issue included a special promotion on the availability of the 2000 NW Direct Seed Cropping Systems Conference Proceedings, a description of the new STEEP projects funded in 2002, an article on the WSU Extension publications on grower experiences with alternative crops in eastern Washington, a new PNW Conservation Tillage Handbook Series on economics of conservation tillage in a wheat-fallow rotation, updated list of Web site resource links on cropping systems technologies, an announcement on the new PNW Extension publication on retooling agriculture – a report on direct seed cropping systems research in the PNW, and highlights of upcoming 2002 coming events. The May issue included two new PNW Conservation Tillage Handbook Series on expanding Internet / e-mail access to PNW direct seed systems technology and the occurrence of Rhizoctonia root rot in direct seed systems in a low precipitation zone, an updated table of contents for the PNW Conservation Tillage Handbook, and a detailed description of upcoming 2002-03 field days, tours related to conservation tillage systems. The November 2002 issue included brochures for the Dec. 5-6, 2002 Annual Research Review of the Columbia Plateau Wind Erosion / Air Quality Project, the Jan. 7-8, 2003 STEEP Annual Research Review, and
Jan. 8-10 NW Direct Seed Cropping Systems Conference and Trade Show. It also included an article on the opportunity for grower-to-grower learning at the 2003 NW Direct Seed Conference; a description and order form for the new video from the June 2002 Direct Seed Drill Demonstration featuring 11 drills near Genesee, ID; and a preliminary listing of 2003 field days, tours and other coming events related to conservation tillage systems.

The current Update mailing list is over 2,850, including PNW producers (about 1,960), county extension agents, conservation districts, NRCS staff, and Ag service industry, Ag media and other support personnel. The Update provides a conservation tillage systems information resource for local and regional newsletters and education programs, and for the media.

2) PNW Conservation Tillage Handbook Series -- Three new PNW Handbook Series were distributed through the February 2002 and May 2002 issues of the PNW Conservation Tillage Update newsletter for addition to the Handbook, and were added to the Internet version of the Handbook on our PNW Web site (http://pnwsteep.wsu.edu). The Series titles and authors are listed at the end of this report. Printed copies in the Update are 3-hole punched and ready for insertion into the large 3-ring binder Handbook. Since the Handbook was published in 1990, 53 new Series publications have been completed. The Handbook now contains 152 Handbook Series publications and is a major reference on conservation tillage systems technologies in the Northwest.

3) Web Site - PNW STEEP Conservation Tillage Systems Technology Source (http://pnwsteep.wsu.edu) -- The Internet and E-mail are rapidly becoming a major communications and technology access tools for PNW Ag support personnel and growers. Most all offices of cooperative extension, conservation districts, NRCS, Ag service industries, and an increasing number of growers in the Pacific Northwest have Internet / E-mail access. A 2001 USDA National Agricultural Statistics Service study showed that an average of 58% of PNW growers have Internet access, up dramatically from 18% in 1997 and 40% in 1999. Idaho leads the nation with 62%. Along with the growth in Internet and E-mail use, Northwest growers are increasingly moving towards direct seeding and more intensive cropping systems to improve productions efficiency and profitability, cropland productivity, and environmental protection. The PNW STEEP Web site and new PNW Direct Seed E-mail/Web List Server (see # 4 below) are helping meet this expanding PNW demand for computer technology access and an improved communications network on direct seed cropping systems.

The STEEP Web site currently averages over 200 hits per day and provides access to conservation tillage systems technology developed through STEEP and related NW research programs. The entire PNW Conservation Tillage Handbook Series is now on the Web site, including the four new Handbook Series distributed in the December 2001, February 2002 and May 2002 Update issues.

There is a Web site page for the NW Direct Seed Cropping Systems Conferences (see Conferences #5 below) where you can select the 1998 through 2003 Conferences. The Conference page has a direct access Web site URL (http://pnwsteep.wsu.edu/directseed) that is utilized in publicizing the Conferences and providing access later to the proceedings and Conference video information. In advance of the Conferences, the Conference pages include: Conference overview; preliminary agenda; Conference brochure; sponsorship prospectus; Conference registration; poster exhibition registration; hotel registration and a link to the Spokane Ag Expo Web site. Templates have also been created to permit online completion, printing and mailing / faxing, the Conference sponsorship prospectus, Conference registration and poster exhibition registration.
Other new features on this Web site include: a new page on the Columbia Plateau Wind Erosion / Air Quality Project, with the 78-page, full-color project publication titled “Farming With the Wind” added to the Web page as a PDF file (to view and print in print form); color photo additions with the STEEP logo; logos of UI, OSU and WSU at the top of the Web index pages; and navigation enhancements for the PNW Direct Seed List Server (see #4 below) Web page. A calendar of events on direct seed systems is continually updated with applicable events in the Northwest and North American.

4) PNW Direct Seed E-mail / Internet List Server -- This List Server offers an exciting communications link on new information resources, events, research results, technology innovations and experiences from the dryland production regions of the Inland Northwest. It also helps provide access to direct seed systems technology that may be adapted to Northwest production conditions from other regions and countries. Messages are received by e-mail and are also stored on the List Server Web site for later reference, and for access by those added to the List Server over time.

The initial address list in early 2000 included about 230 university and USDA-ARS researchers, extension specialists, county/area Ag extension educators, conservation districts, USDA-NRCS staff, PNW grower organizations, Ag industries representatives and growers from across the dryland cropping areas of the Inland Northwest. From this initial base network, the List Server has expanded with interested growers and other Ag support personnel across the region. The List Server grew to 310 by November 2000, 400 by November 2001 and currently is over 470. More than 60 messages have been posted on the List Server in the past year. Publicity efforts will continue on the availability of this new technology access and communications tool.

The List Server Web site can be accessed for subscription and viewing of messages through the PNW STEEP Web site (http://pnwsteep.wsu.edu). Subscription requests can also be sent to Team members. All interested growers and Ag support personnel are encouraged to participate in the List Server. The goal is to help develop a stronger communication network and partnership among growers, researchers, Ag-support groups and agencies, and Ag industry to accelerate the development and grower adaptation of direct seed systems in the region.

5) Northwest Direct Seed Cropping Systems Conferences -- The fifth annual Conference was held on January 16-18, 2002 in Spokane, WA. It was attended by 860 growers and Ag support personnel. Veseth worked with the Spokane Chamber of Commerce Ag Bureau to coordinate the Conference organization and publicity in conjunction with to the Jan. 15-17 Spokane Ag Expo -- the largest Inland Northwest Ag Show with over 300 exhibits -- and PNW Farm Forum and seminar series in adjoining facilities. Conference registration included entrance into the Ag Expo and Farm Forum. In exchange, Ag Expo received contacts for prospective exhibitors from previous Conference Trade Shows.

The Conference was organized as a service to Northwest growers by two groups: 1) the PNW STEEP program through the STEEP Extension Team and 2) the PNW Direct Seed Association. It was co-sponsored by 12 Ag companies and agencies, and developed and promoted in cooperation with 12 PNW grower organizations and Ag support groups.

The program featured 24 speakers, including 10 growers, from Idaho, Oregon, Washington, and the Canadian Provinces of Alberta and Saskatchewan. A Direct Seed Poster Exhibition also featured 32 posters. Some major program areas focused on management strategies for direct seed cropping systems include: changes in nutrient cycling and fertility
management over time; managing for improved soil biology and direct seed benefits to soil health; redesigning crop rotations; and Brassica crop selection and management.

Panel sessions provided in-depth discussions on several topics including: impacts and management of soil acidity, the make-up and management of key soilborne crop pathogens; field record systems, mapping strategies and the integration of financial and physical farm data; strategies for managing heavy wheat residue, and intensifying rotations in the low and intermediate rainfall zones.

Publicity efforts were conducted in cooperation with the main PNW grower organizations in the Inland Northwest dryland cropping region to get Conference brochures to NW growers and Ag support personnel. These included: ID Grain Producers Association, OR Wheat Growers League, WA Assoc. of Wheat Growers, ID Assoc. of Soil and Water Conservation Districts, OR Assoc. of Conservation Districts, WA Assoc. of Conservation Districts, and USA Dry Pea and Lentil Council. Collaborative publicity efforts were also arranged to provide brochures or the Conference articles and the Website URL to NW Ag service industry field staff through many of the major Ag service companies and Ag industry organizations, including the Far West Agri-Business Association.

The Conference Website was kept up to date with the latest program and Conference information. It included also on-line registration for Conference co-sponsorships, Conference pre-registration and poster exhibition registration.

Planning the 2003 Northwest Direct Seed Cropping Systems Conference and Trade Show -- The sixth annual Conference and new Trade Show will be held on January 8-10, 2003 at the WestCoast Hotel in Pasco, WA. The Conference registration will include entrance into the Jan. 7-8 PNW STEEP Annual Research Review at the same location. The STEEP Review is being developed as a pre-conference feature to encourage growers and Ag support personnel attendance and their input on the research program. The Direct Seed Trade Show is the first commercial trade show with the Conference since 2000 and will feature over 30 commercial exhibits.

The Conference is again being organized as a service to Northwest growers by two groups: 1) the PNW STEEP program through the STEEP Extension Team and 2) the PNW Direct Seed Association. The Conference will be co-sponsored by a number of Ag support companies and agencies, and developed in cooperation with 12 PNW grower organizations and Ag support.

The program will feature 28 speakers, including 6 growers, from Idaho, Oregon, Washington, South Dakota and New Zealand. A Direct Seed Poster Exhibition will also highlight research and educational projects in the region. Conference presentations will provide the latest in direct seed systems research results, equipment and management innovations, and experiences. Topic areas include: high versus low disturbance openers, weed control, stacked rotations and other pest management strategies, transition economics, marketing strategies, residue management options, managing soil carbon and productivity, and grower experiences. Activities and accomplishments of PNDSA in 2002 will also be highlighted. At least 10 industry representatives will present new commercial innovations in direct seed drills and openers for seed and fertilizer placement, residue management and hillside stability.

Publicity efforts will be conducted in cooperation with the main PNW grower organizations in the Inland Northwest dryland cropping region to get Conference brochures to NW growers and Ag support personnel. Direct brochure mailings are planned through ID
Grain Producers Association, OR Wheat Growers League, and WA Assoc. of Wheat Growers. Collaborative publicity efforts with the brochures and/or Conference articles and the Website URL are also underway with the ID Assoc. of Soil and Water Conservation Districts, OR Assoc. of Conservation Districts, WA Assoc. of Conservation Districts, USA Dry Pea and Lentil Council, and NW Ag service companies and organizations, including the Far West Agri-Business Association.

The Conference Website (http://pnwsteep.wsu.edu/directseed) is being kept up to date with the latest program and Conference information. It includes a Conference overview, STEEP Review program, updated agenda, speaker pictures and biographical summaries, Conference brochure, sponsorship and trade show prospectus, sponsor and exhibitor listings, poster exhibition, hotel reservations, and Conference pre-registration.

6) Conservation Tillage Field Days and Tours -- The Team compiled descriptions of 38 field days, tours and other events in 2002-03 highlighting new cropping systems technologies for direct seeding in the Inland Northwest and applicable areas of the Northern Great Plains and Canadian Prairie Provinces. The listing was distributed in May 2002 through mailings to Extension Ag Educators, Conservation Districts, USDA-NRCS offices, the main Ag service companies and fieldmen. The event descriptions were also included in the May issue of the PNW Extension Conservation Tillage Update newsletter (included in registration materials at a number of the field days below), put on the PNW Conservation Tillage Systems Information Source Web site, sent on the PNW Direct Seed E-mail List Server.

Many of the Team members were involved in organizing field days, tours and trials that featured conservation tillage and/or more intensive cropping systems and crop options. These events included:

May 22 -- Western Whitman County Research Tour beginning at Lacrosse, WA – organized with assistance from Burns (90 attended)
May 29 -- Field Day at the OSU Hyslop Farm near Corvallis, OR - organized by Karow and Bill Young (120 attended)
June 4 -- Field Day at WSU / USDA-ARS / OSU Ralston Project on Integrating BMPs and Genetics to Improve No-Till Spring Cropping Systems in the NW Crop-Fallow Region – organized by Veseth (110 attended)
June 6 -- Field Tour of WSU Horse Heaven Hills research - organized by Schillinger (40 attended)
June 11 -- Field Day at OSU Columbia Basin Agricultural Research Center at Pendleton - organized with assistance from Wysocki (260 attended)
June 12 -- Field Day at OSU Columbia Basin Agricultural Research Center at Moro - organized with assistance from Wysocki (100 attended)
June 12 -- ClearWater Direct Seeders (grower group in eastern WA and northern ID) field – organized by David Barton, UI Latah Co. Extension, with assistance from Veseth (45 attended)
June 13 -- Field Day at WSU Dryland Research Station at Lind - organized by Schillinger (170 attended)
June 25 -- Direct Seed Drill Demonstration near Genesee, ID – organized by Latah and Nez Perce Conservation Districts with assistance from and videotape production by Veseth (280 attended)
June 25-26 -- Quality of Life Direct Seed Cropping Tour (eastern WA and northern ID) for representatives of environmental groups and agencies - organized through
the Pacific Northwest Direct Seed Association with assistance from Veseth and Wysocki (45 attended)
June 26 -- Field Day at the WSU Wilke Farm near Davenport – organized by Tonks (80 attended)
June 27 -- Direct Seed Research Field Day at the USDA-ARS / WSU Palouse Conservation Field Station near Pullman - organized by Veseth (140 attended)
July 2 -- Field Day on UI Canola, Rapeseed and Mustard Research Program - organized by Jack Brown, UI Brassica Breeder, with assistance from Guy (120 attended)
July 11 -- Field Day at WSU Spillman Agronomy Farm near Pullman – organized by Burns (200 attended)

Publications and Presentations (on conservation tillage systems technologies)

Refereed Journal Articles

Conference Proceedings

Published Abstracts

Experiment Station Research and Extension Reports


Popular Publications


Veseth, R.J. 2002. 10 growers to share direct seed experiences. The Growers’ Guide. Colfax, WA.

**Oral Presentations**

Veseth, R.J. Nov. 21, 2002. What’s driving the growth in direct seed systems and how to start the transition. Yakima and Klickitat wheat grower association annual meeting, Bickleton, WA – 55 attended.