

USDA-ARS

# Land Management and Water Conservation Research Unit

## Greetings!

Scientists in the Land Management and Water Conservation Research Unit (LMWCRU) are involved in a diversity of activities that support research in air, plant, soil, and water resources. In this issue of the LMWCRU update, we highlight activities of the unit during the past six months with a spotlight on water erosion research by one of our unit scientists. In the Pacific Northwest, water erosion continues to be an important environmental concern that affects the productivity of crops and the quality of our natural resources. More information about the LMWCRU can be found on our [website](#). We welcome comments about our research program that will enable us to better serve you.

## Field Day 2010

The LMWCRU hosted a field day at the Palouse Conservation Field Station (PCFS) on June 24, 2010.

Nearly 120 guests, including 40 international visitors, attended field day. Field day began with a tour of a direct-seed drill experiment near St. John and then a visit to a grower participating in the Direct-Seed Mentoring Program. The lunch program included presentations by **Brenton Sharratt**, Washington State University administration, USDA-NRCS personnel, and several international growers. In the afternoon, a tour of the PCFS highlighted crop, disease,

soil, and weed research in direct seed systems. **David Huggins** and **Ann Kennedy** gave presentations about crop and soil research in direct seed systems during the morning and/or afternoon tours.



Tour of a direct-seed drill experiment near St. John

## Spotlight on Research

**Don McCool**, agricultural engineer, is representing the Pacific Northwest in a national effort by the



Don McCool standing by a collector used to measure runoff.

USDA-NRCS and USDA-ARS to develop an environmental model that will provide conservation planning assistance to producers and land-owners. The model will be built from components of the Revised Universal Soil Loss Equation (RUSLE2), Water Erosion Prediction Project (WEPP), and Wind Erosion Prediction System (WEPS) to simultaneously assess wind and water erosion at the farm scale. To ensure adequate performance of the model in the Pacific Northwest, Don has collaborated with Washington State University to modify winter routines in WEPP to better estimate infiltration and runoff from soils that undergo freezing and thawing. Don is further investigating changes in the erodibility of soil when subject to cyclic freezing and thawing. This research ensures that conservation planning tools are designed for the climate/soil/topographic characteristics of the Pacific Northwest.



Measuring runoff from tillage plots at the PCFS.

## Upcoming Activities

**August 2010** **Brenton Sharratt** will attend the Pacific West Area Leadership Conference, Boise, ID; **Jeff Smith** will make a presentation to the International Society of Microbial Ecology, Seattle, WA.

**September 2010** **Ann Kennedy** will talk at the Palouse Empire Fair Farm Forum, Colfax, WA; **Don McCool** will attend the ARS Water Availability and Watershed Management Workshop, Chicago, IL; **Brenton Sharratt** will attend the Sustainable Aviation Fuels Northwest workshop, Spokane, WA.

**October 2010** **Ann Kennedy, Brenton Sharratt, Jeff Smith, and Frank Young** will make presentations to the American Society of Agronomy and Soil Science Society of America, Long Beach, CA; **Brenton Sharratt** will attend the Sustainable Aviation Fuels Northwest workshop, Portland, OR.

**November 2010** **Ann Kennedy and Brenton Sharratt** will make presentations at the Columbia Plateau Wind Erosion / Air Quality meeting; **Frank Young** will attend the Washington State Weed Conference, Yakima, WA.

**December 2010** **Ann Kennedy** will make a presentation at the STEEP meeting; **Jeff Smith** will make a presentation to the American Geophysical Union, San Francisco, CA.

**January 2011** **Frank Young** will participate in the Washington State Biofuel Project Tour.



## LMWCRU Scientists

**Brenton Sharratt,**  
Research Leader,  
Particulate Emissions

**David Huggins**  
Nutrient Cycling

**Ann Kennedy**  
Soil Quality

**Don McCool**  
Water Erosion

**Jeff Smith**  
Greenhouse Gas  
Emissions

**Frank Young**  
Cropping Systems

## Awards



**Larry McGrew**  
Pacific West Area  
Scientific Technician of the Year



**Jeff Smith**  
25 Years of  
Service



**Frank Young**  
Pacific West Area  
Outreach, Diversity, and  
Equal Opportunity Award

## LMWCRU News

### Visiting Scientists

Dr. Irene Unger from Westminster College, Fulton, MO, visited **Ann Kennedy** to learn about PLFA Techniques.

### Welcome to...

- Eric Zakarison who is collaborating with **Frank Young** on the canola project.
- Renee Schultheis who is collaborating with **Ann Kennedy** on the biocontrol project.
- Venkata Vaddella who is collaborating with **Brenton Sharratt** examining dust emissions from major Columbia Plateau soil types.

### Crop Insurance

Winter canola research data collected by **Frank Young** was used by USDA Risk Management Office to procure crop insurance for Douglas and Okanogan counties canola growers beginning in 2011.

### Invitations

**Ann Kennedy** was invited to present the following papers: "Soil Quality", Bureau of Land Management, Boise, ID; "Biological Control of Weeds using Soil Microorganisms", Bureau Of Land Management, Denver, CO; "Soil Quality and Biocontrol of Weeds", Douglas County Winter Meetings, Waterville, WA.

## Recent Publications

- Van Klaveren, R. W., and **D. K. McCool**. 2010. Freeze-thaw and water tension effects on soil detachment. SSSAJ: 74 (4):1327-1338
- Schillinger, W. F., R. I. Papendick, and **D. K. McCool**. 2010. Soil and water challenges for Pacific Northwest agriculture. Soil and Water Conservation Advances in the United States. SSSA Special Publication 60. T.M. Zobeck and W.F. Schillinger, editors. © 2010. SSSA, 677 S. Segoe Rd., Madison, WI 53711, USA.
- Williams, J.D., S. Dun, D.S. Robertson, J.Q. Wu, E.S. Brooks, D.C. Flanagan, and **D.K. McCool**. 2010. WEPP simulations of dryland cropping systems in small drainages of northeastern Oregon. Journal of Soil and Water Conservation. 65 (1): 22-33.
- TerAvest, D., **J.L. Smith**, L. Carpenter-Boggs, L. Hoagland, G. Granatstein and J.P. Reganold. 2010. Influence of ground cover management and compost application timing on N partitioning in organic apple trees. HortScience 45:637-642.

## Grants

**Frank Young** received a Washington Biofuels Project grant for improving stand establishment of winter canola in the low- to intermediate-rainfall zone of the PNW.

**David Huggins** received a grant from Solutions To Environmental and Economic Problems to address key knowledge gaps in soil carbon storage under dryland agriculture.



### Contact us at:

Land Management and Water Conservation Research Unit

P. O. Box 646421, Pullman, WA 99164-6421

Phone: 509-335-1552; Fax: 509-335-3842; E-mail: [Carla.DesVoigne@ars.usda.gov](mailto:Carla.DesVoigne@ars.usda.gov)

We're on the web! <http://ars.usda.gov/pwa/pullman/lmwcru>