

## INTRODUCTION

Staffs of the Columbia Basin Agricultural Research Center (CBARC-Oregon State University, Pendleton and Sherman Stations) and the Columbia Plateau Conservation Research Center (USDA-Agricultural Research Service, Pendleton) are proud to present results of their research. This bulletin contains a representative sample of the work in progress at these Centers. A collection of bulletins over a 3-year period will give a more complete assessment of the productivity and applicability of research and education. Changes in staffing, programming, and facilities at these Centers during the past year are summarized below.

### PROMOTIONS AND AWARDS

There were no promotions or awards for Oregon State University staff during the reporting period. However, one of the cooperative OSU/USDA public relations programs at the research center received special recognition during 1999. Our entry of a float with an agricultural research theme into the Dress-Up Parade prior to the Pendleton Round-Up was awarded First Place in the Commercial Division and the East Oregonian Sweepstakes Award for the top prize across divisions.

Within the USDA staff, Dr. Steve Albrecht received certificates of merit and cash awards for outstanding leadership at the CPCRC during the Research Leader's absence and for sustained scientific productivity and superior collaborative work with other scientists. Dr. Dale Wilkins received a certificate of merit and cash award for extraordinary commitment in serving as Acting Research Leader for the ARS, U.S.

Sheep Experiment Station, Dubois, ID.

Certificates of merit and cash awards were given to Chris Roager for excellent safety committee leadership, keeping outstanding safety records, and providing a remarkable staff safety training program; and to Daryl Haasch, Amy Baker, and Dr. Steve Albrecht for contributions on the Research Center's Safety Committee that provided an outstanding safety program resulting in no work related accidents in 1999.

Certificates of merit and cash awards were given to Judy Elliott for leadership in developing an Agricultural Research Center float that was awarded first place and received the East Oregonian Sweepstakes award at the Pendleton Dress-Up Parade; and to Bob Correa and Tami Johlke for planning and constructing this float. Kevin Collins received a certificate of merit and cash award for outstanding performance.

### STAFF CHANGES

Several staff transitions occurred among OSU programs during the past year (1999-2000). Dr. Richard Smiley requested a change from the administrative/research appointment he has held since 1985 to a new division of responsibilities for research and extension. The intent is to amplify the intensity of plant pathology research and extension in eastern Oregon. A search is in progress to appoint a new Superintendent.

Dr. Dara Melanson joined OSU as an Assistant Professor (Senior Research). Dr. Melanson is a molecular plant pathologist and was previously a Senior Research Scientist

and Supervisor of the Molecular Plant Pathology and Tissue Culture Laboratory with the South Australian Research and Development Institute, Adelaide, South Australia. Her expertise includes development of molecular probes for identifying and quantifying pathogens in plants and soils. Dr. Melanson is a native of New Brunswick, Canada and earned a Ph.D. degree in Botany (Plant Biochemistry) at the University of Edinburgh, Scotland before entering a career in research in Australia.

Dr. Bill Payne resigned as OSU Assistant Professor of Cropping Systems Agronomy. A search for a successor is currently in progress. Dr. Payne accepted the position of Associate Professor of Crop Stress Physiology at Texas A&M University Agricultural Research Center, Amarillo. He was at Pendleton for 3 years, where he conducted research on water use efficiency for wheat and rotation crops, and introduction and development of economical rotation crops for land traditionally planted to winter wheat in rotation with summer fallow.

Mrs. Sandra Ott rejoined the staff as Faculty Research Assistant in the dryland systems agronomy program directed by Dr. Don Wysocki. Mrs. Ott previously worked in this program, but she left for a promotional opportunity upon completion of a B.S. degree in Crop and Soil Sciences at Eastern Oregon University. She worked for the past 2 years as Production Manager for research, development and production of native plant species for the Native Plant Nursery at the Confederated Tribes of the Umatilla Indian Reservation.

Dr. GuangLong Feng completed a Research Scholar Program in the cropping systems research directed by Dr. Payne. Dr. Feng's research on plant-water relations aided

in the cropping systems research at Pendleton. He left to pursue additional training at the University of California at Riverside before returning to his position as Associate Professor at the Yucheng Comprehensive Experimental Station in Beijing, People's Republic of China.

Ms. Kelli Camara completed a M.S. degree in Agronomy and Soil Science at OSU under the direction of Dr. Payne. Her thesis examined the interaction of tillage systems, nitrogen rate, soil depth, and rainfall on winter wheat yield in long-term plots at the Columbia Basin Agricultural Research Center-Pendleton. Ms. Camara departed OSU for employment in New York City.

Temporary employees in OSU programs during the reporting period included: Tim Alderman, Alec Bailey, Erin Bailey, Charlene Clemmens, Brian Currin, Joel Currin, Jennifer Davis, Shannon Duff, Mark Easley, Sandra Easley, Jared Frank, Shawn Hachquet, Andrea Haley, Jennifer Haley, Ron Haley, Sarah Hall, Matthew Hartzheim, Gretchen Heidt, Bryce Herinckx, James Holsapple, John Holsapple, Jodi Justus, Brandon Kellogg, Corrine Killgore, Nicholas Lasher, Matthew Millar, Scott Montgomery, Leah Moon, Olga Moreno-Urquiza, Shawn Pace, Tim Pearson, Justin Richards, Arran Robertson, Nicholas Sirovatka, David Sullivan, Sascha Usenko, Andrea Wilson, Byron Wysocki and Jacquelyn Zollner.

There were several additions and changes to USDA staff during the past year (1999-2000). In June 1999, Dr. Stewart Wuest was selected to fill the Soil Scientist position left vacant by Paul Rasmussen's retirement in January of 1999. Robert Correa, engineering technician, was promoted. Stephen Osborn resigned the physical science technician position in April 1999; Scott Oviatt filled this

position in October 1999. Dave Robertson was employed on a 180-day appointment to fill the hydrologic technician position vacated by Joy Matthews in July 1999. David Smith worked on a microbiological project as an USDA-ARS summer intern. Erin Hansell-Heideman conducted research on soil quality in a Teacher Research Fellowship Program Cooperative with Umatilla-Morrow Education District. Angela Sallee was selected as a research apprentice in a program co-sponsored by ARS and Umatilla-Morrow Education District in June 1999. Kevin Collins, Kate Holsapple, Staci Loiland, Kim Miller, Terry Starr, Sam Womack, and Byron Wysocki worked as temporary employees during the summer and school vacations. Christina Skirvin and Jamie White served as part-time biological science aids in Pendleton High School's "Student to Careers" program.

### **NEW PROJECTS**

The plant pathology program led by Dr. Richard Smiley developed further links with wheat breeding programs in Oregon and Washington during the reporting period. Cooperative germplasm screening projects were established with the OSU winter wheat breeding program led by Dr. Jim Peterson and the OSU molecular plant genetics program led by Dr. Oscar Riera-Lizarazu. Links also were strengthened with Dr. Kim Kidwell's spring wheat breeding program at WSU through participation in committee leadership for a Ph.D. thesis conducted by Ms. Jaya Smith. During the reporting period, Drs. Smiley and Melanson also amplified the level of collaboration and interaction with plant pathologists with the USDA-ARS and University of Idaho at Pullman and Kimberly, respectively.

The weed science program led by Dr. Daniel Ball has been working cooperatively

on a M.S. thesis project conducted by Darrin Walenta, a former Faculty Research Assistant in Dr. Ball's program. The thesis at WSU is directed by Dr. Joe Yenish and is entitled "Seed production by spring germinating jointed goatgrass and yield loss of spring seeded wheat." Field trials for this project were conducted at Pullman, Pendleton, and Helix. The weed science program at Pendleton also cooperated on a M.S. thesis project conducted by Curtis Rainbolt, under the direction of Dr. Donn Thill of University of Idaho, entitled "Rotational crop response to BAY MKH 6561." Field trials for this study were conducted at Moscow, Wilcox (WA), and Pendleton.

Dr. Mark Siemens, Dr. Dale Wilkins, and Dr. Stewart Wuest initiated a project to develop a strategy for managing residue that would provide adequate drill performance in heavy residue conditions. Systems investigated included various combinations of three types of combines, various seedbed preparation methods, and drills equipped with different seeder attachments.

### **FACILITIES AND EQUIPMENT**

Emphasis continued for improvement of OSU facilities and equipment. A nearly-automatic water treatment facility (ion-exchange and ultraviolet radiation treatments) was installed to correct high nitrate concentrations and coliform bacteria contamination in the OSU water supply at Pendleton. Other improvements in the water supply system included separation of supplies for irrigation and domestic uses. A new roof was installed on the barn at Pendleton.

New equipment replacements or additions for the OSU program included a Case IH MX135 tractor (a gift from the Sherman Station Endowment Fund), a Fabro

custom-designed drill (a gift of the Oregon Wheat Commission, Sherman Station Endowment Fund, OSU Department of Crop and Soil Science, and Monsanto Corp), a Davis Gro-Weather Automated Weather Station, a McGregor Field Sprayer, a forklift attachment for a Duetz-Allis loader, a Clark GPX25E forklift, a JD 1550 no-till drill, a computer for the main office, a pickup, and laboratory equipment including an ultra-low temperature freezer and balance.

Additional landscaping improvements also were made at Pendleton.

At the ARS facility, a new roof was installed on the solar drying room because of wind damage it received during a February storm. The soil-processing lab, oven drying room, plant processing lab, and restroom in the annex were air-conditioned, new cabinets and a central vacuum system were installed, and the dust removal system was upgraded. An uninterruptable power source and network upgrade were purchased for the computer system. A low-disturbance high residue fertilizer applicator was built for plot research. Chemical analysis capabilities were enhanced with the addition of a total organic carbon analyzer to study soil organic carbon and a portable microprocessor-controlled infrared gas analyzer that measures either carbon dioxide efflux from the soil or crop photosynthesis. A new mid-sized sedan replaced the 1991 Corsica.

### **TRAINING**

OSU staff continued to maintain training requirements for pesticide application licenses, first aid, and cardio-pulmonary resuscitation. Gloria Eidam traveled to Corvallis for training with the OSU Human Resources system, Judy Elliott and Sandra Ott received additional training in computer

technology, Paul Thorgersen was trained in safety and regulations for public water systems, and Dick Smiley participated in workshops to improve skills for writing grants and developing newsletters. Dan Ball completed a week-long Herbicide Action course at Purdue University in West Lafayette, Indiana.

All USDA staff licensed to apply pesticides completed recertification training. All staff received updates on cardio-pulmonary resuscitation, first aid, ethics, sexual harassment prevention, and civil rights training.

Dr. Mark Siemens completed a 3-day course on "Applied Statistics." Dr. Steve Albrecht attended a course on Nuclear Gauge training. Bob Correa attended a week-long seminar on "Crane Safety for the New Millennium." Amy Baker completed a 3-day course on "Lab Safety and Health Training." Dr. Dale Wilkins attended a workshop on modeling populations systems.

Pat Frank attended a 1-day seminar on "Microsoft Excel" and Judy Elliot attended a 1-day training course on "Microsoft Access." Tami Johlke completed a 1-day course on "Microsoft Office."

### **VISITORS**

The Center hosted several special events, including an OSU Cereal Research Review; NRCS Research Review; OSU administrator's participation in the Pendleton Roundup; temporary employee orientation; Umatilla County Smoke Management Task Force hearing; STEEP's Technical, Grower, and Administrative Coordinating Committees; and numerous research and planning meetings.

Visitors hosted by the staff at the center included:

- Dick Amerman, Scientific Plan Advisor, USDA-National Program Staff, Beltsville, MD
- Lorraine Thaden, Personnel Management Specialist, USDA-ARS-HRD, Beltsville, MD
- Jan Overton, Administrative Officer, USDA, St. Paul, MN
- Lyla Houglum, Dean, Extended Education, OSU, Corvallis, OR
- Jim Zuiches, Dean, CAHE, WSU, Pullman, WA
- Gary Young, Novartis
- Ron Richards, Post, OR
- John Kelly, US West Communications, Pendleton, OR
- Brian Luongo and Jeff Bican, Masonite, Pilot Rock, OR
- Steve Huntington, Huntington-Price, Walla Walla, WA
- Larry Lofton, Area Administrative Officer, USDA-ARS-PWA, Albany, CA
- Kim Hummer, Curator, ARS National Clonal Germplasm Repository, Corvallis, OR
- Mike Zahn, M.D. Zahn, Inc, Lisle, IL
- Penny Diebel, Agricultural Economist, OSU Ag Program, La Grande, OR
- Ashok Alva, Research Leader, USDA-ARS, Prosser, WA
- John Teasdale, USDA-ARS, Beltsville, MD
- Verna Teasdale, Bowie, MD
- Helen Porter and Charlie Wright, Kennewick, WA
- Alvin Humphrey, Area Safety and Health Manager, USDA-ARS, Albany, CA
- Mike Leahy, Safety and Occupational Health Specialist, USDA-ARS, Corvallis, OR
- Martha Steinbock, Technology Transfer Coordinator and Thanda Wai, Patent Advisor, USDA-ARS-PWA, Albany, CA
- Peter Miller, Portland, OR
- Louie Dick, Cayuse, OR
- Kim Campbell, USDA-ARS, Pullman, WA

- Bill Crabtree, Western Australia
- Ken Sapsford and John Bennett, Biggar, Saskatchewan, Canada
- Tim Melville, Ed Jones and Brian Johnson, Enterprise, OR
- James Schillinger, USDA-NRCS, Caldwell, ID
- Bob Sandlund, USDA-NRCS, Guille, ID
- Linda Baugh, Orofino, ID
- Andy Hammond, Associate Area Director, USDA-ARS, Albany, CA
- Jim Schmollinger, Soil Conservationist, NRCS, Caldwell, ID
- Jeri Berc, Special Assistant to the Deputy Chief for Soil Survey and Resource Assessment, NRCS, Washington, D.C.
- Stephen Caruana, Agronomic Analytics, Eugene, OR
- Mike Blanchette, USDA-ARS Environmental Protection Specialist, Beltsville, MD
- Mike Burke, Associate Dean, OSU College of Agricultural Science, Corvallis, OR

## SEMINARS

The 1999 OSU/USDA Seminar Series at the Center was coordinated by Steve Albrecht. Seminars included the following speakers and subjects:

- *Long-Term Farming Systems Research Trials*; Mr. Larry Coppock, Consulting Agronomist, Adams, OR; 6 April.
- *Inheritance of Resistance to Eyespot in Wheat and Wheat Relatives*; Mr. Scott McDonald, Faculty Research Assistant, OSU; Columbia Basin Agricultural Research Center, Pendleton, OR; 13 April.
- *The Influence of Pre-Adoption Expectations and Community Norms in the Adoption of Water Conserving Technologies: The Case of Drip Irrigation in Florida*; Dr. Frank Casey, Northwest Economic Associates, Vancouver, WA; 14 July.

- *Earthworm Populations Under Eight Semi-Arid Cropping Systems*; Dr. Stewart Wuest, Soil Scientist, USDA-ARS, Pendleton, OR; 12 October.
- *An Economic Analysis of the Role of Risk and Production Costs in Whole-farm Enterprise Selection*; Dr. Amos I. Bechtel, Louisiana State University, Baton Rouge, LA; 21 October.
- *Environmental Challenges for Agriculture*; Ms. Sandy Halstead, FQPA specialist, US EPA Region 10, Prosser, WA; 26 October.
- *A Survey of OWGL Issues*; Mr. Daren Coppock, Executive Vice President, Oregon Wheat League, Pendleton, OR; 9 November.
- *Grass Seed Production in Umatilla and Morrow Counties*; Dr. Jeffrey P. McMorran, OSU Extension Service, Umatilla and Morrow Counties, Hermiston, OR; 15 November.
- *Downy Brome Population Responses to Dryland Cropping Practices: Implication for Management*; Dr. Dan Ball, Weed Scientist, OSU, Columbia Basin Agricultural Research Center, Pendleton, OR; 22 November.
- *Introduction to Indian Culture*; Mr. Louie Dick, Jr., member of the Confederated Tribes of the Umatilla Indian Reservation, Cayuse, OR; 24 November.
- *Irrigated Canola Insecticide Trials*; Ms. Mary Corp, Cereal Crop Agent, Oregon Extension Service, Pendleton, OR; 7 December.
- *Demonstration of Two Soil Moisture Probes: The Diviner 2000 and the EnviroSCAN*; John Monagle of the Simplot Corporation, Umatilla, OR; 1 February.

### **LIAISON COMMITTEES**

The Pendleton and Sherman Station Liaison Committees have region-wide representation and provide guidance in

decisions on staffing, programming, and facilities and equipment improvement at the Stations. Membership is by appointment by the Director of the Oregon Agricultural Experiment Station and, at Pendleton, by the Director of the Pacific West Area, USDA-ARS. These committees provide a primary communication link between growers and industry and the research staff and their parent institutions. The Committee Chairs and OSU and USDA administrators encourage and welcome your concerns and suggestions for improvements needed in any aspect of the research centers or their staffs.

The Pendleton Station Liaison Committee is coordinated by Chairman Kay Simpson (Pendleton: 541-276-3507). The Sherman Station Liaison Committee is coordinated by Chairman Ernie Moore (Moro: 503-565-3635).

### **EXPRESSIONS OF APPRECIATION**

The staff wishes to express its appreciation to individuals, associations, and corporations who have given special assistance for the operation of experimental plots on or associated with the Center during 1999-2000. The Oregon Wheat Commission continued to provide the critical support upon which the Center's OSU projects are founded. Thanks also are given to those who donated additional equipment, funds, labor, and/or supplies (*Charlie Betts Ranch, Richard Lieuallen, Leroy and Cathie Martin, Arlene Strong, AgrEvo, American Cyanamid Co., BASF Corp., Bayer Corp., E. I. du Pont de Nemours & Co., FMC Corp., Monsanto Co., Novartis Crop Protection, Pendleton Grain Growers, Rhone Poulenc, Umatilla-Morrow Community Corrections Work-Release Program, & Zeneca Ag Products, Haus Barhyte Co., Rod Anderson Construction, & Marsh Aviation Co./Denton Aircraft*) or

loaned equipment, services, or facilities (*Oregon Department. of Transportation*).

We express our appreciation and thanks to those who donated labor, supplies, equipment, or funding for the Pendleton Station Field Day (*AgrEvo, Agri-Check, American Cyanamid Co., Bank of the West, Bayer Corp., Columbia River Bank, E. I. du Pont de Nemours & Co., Farm Credit Service, FMC Corp., Gustafson, Huntington-Price, Inland Chemical Service, Inland Empire Bank, Kuo Testing Labs, Monsanto Co., Novartis Crop Protection, Novartis Seed Treatment, Pendleton Bus Co., Pendleton Flour Mills, Pendleton Grain Growers, Pendleton Main Street Cowboys, Rhone Poulenc Sedagri, Smith Frozen Foods, The McGregor Co., Walla Walla Farmers Coop., Western Farm Service, Western States Equipment, Wheatland Insurance, Wilbur-Ellis, and Zeneca Ag Products*).

We also appreciate and thank donors who provided buses, meals, and other services for the Sherman Station Field Day at Moro (*Ag West Supply, Cargill, Cascade Ranchers, Columbia River Bank, Farm Credit Services, Gustafson, Klamath 1st Federal, Mid-Columbia Bus Co., Mid-Columbia Producers, Monsanto Co., Morrow County Grain Growers, Novartis Crop Protection, Richelderfer Air Service, Safeway, Sherman Aviation, Sherman High School, Unified Sewerage Agency, Wasco Electric Coop, Western Tillage Equipment, and Wilbur-Ellis*).

Cooperative research plots at the Center were operated by OSU scientists

Richard Smiley  
Superintendent  
OSU-CBARC

Richard Dick, Patrick Hayes, Chris Mundt, Russ Karow, and Jim Peterson, and by WSU, UI, and ARS-Pullman scientists Joe Yenish, Frank Young, Don Thill, Rollie Line, and Kim Campbell. Additionally, we are very thankful for the ever-present assistance from the Extension Service personnel in all counties of the region, and especially from the following counties: Umatilla (Mary Corp, Tom Darnell, and Jeff McMorrان), Union/Baker/Wallowa (Gordon Cook), Morrow (Kathryn Kettel), Sherman (Sandy Macnab), Wasco (Brian Tuck), and Gilliam (Jordan Maley) counties in Oregon; and Columbia (Roland Schirman), Adams/Lincoln (Bill Schillinger), Walla Walla (Walt Gary), and Whitman (John Burns) counties in Washington.

We wish to express special thanks to the 29 farmers who allowed us to work on their property during the past year (see separate listing). They have performed field operations, loaned equipment, donated chemicals, forfeited yield, and adjusted their practices to accommodate our experiments. The locations of these off-station plot sites are shown on the map that follows.

We truly appreciate the support and encouragement of growers, organizations, and businesses with a mission common to ours: to serve in the best manner possible the crop production and resource conservation needs of our region. We welcome your suggestions on how we may continue to improve on our endeavors towards reaching this goal.

Dale Wilkins  
Research Leader  
USDA-ARS-CPCRC