

Grangeville

Research and Extension Center
Nineteen Years 1966-85

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University of Idaho

College of Agriculture

Cooperative Extension System Agricultural Experiment Station

Cover Photo

Infrared aerial view of Austrian winter pea research on the Grangeville R&E Center with top being north-northeast. Visible on the westerly edge at the tip of the triangle, in this June 1973 photo, is a breeder seed increase of 'Fenn,' the first commercial Austrian winter pea variety other than the old 'common' type. Fenn was developed from work at this site. Also visible, progressing in an easterly direction toward the grass waterway (Grangeville) are variety trials, fungicide trials, forage trials (light colored square area), fertilizer trials west of the forage trial, rowspacing trials south of the fertilizer trials, growth regulator trials (trial with widest distance between plots and adjacent to the waterway), and date of seeding trials in the upper right portion of the research area, adjacent to the grass waterway. Trials such as these provided research information for winter pea production practices and seed of new variety releases for 19 years. (Photo by Roscoe Watson, former UI plant pathologist.)

Grangeville Research and Extension Center Nineteen Years, 1966-85

Glen A. Murray

In 1892, 40 acres in Grangeville, Idaho, became one of the University of Idaho's first off-campus stations for agricultural research and Extension activities. Fields were cleared, a house built, and a well dug. The site closed just 3 years later due to a U.S. Office of Experiment Station ruling that Hatch Act funds be reserved for the main experiment station at Moscow. By 1966 the Hatch Act ruling had been overturned, and a second, more enduring Grangeville station became the focus for research and Extension activities.

Located 4 miles west of Grangeville on Highway 95, this 11-acre parcel provided useful crop production information through research and Extension activities on winter peas, winter wheat, spring wheat, and alternative crops. The crop information benefitted growers and field representatives of agricultural companies in Lewis and Idaho counties as well as in other areas of northern Idaho and eastern Washington.

The Grangeville Research and Extension Center was begun by the efforts of former Idaho County Extension Agricultural Agent Ed Mink, Plant and Soil Science Department Head Art Finley, and plant science researchers. On July 14, 1966, the University of Idaho (UI) and the Idaho Pea and Lentil Commission, administered by Executive Secretary Harold Blain, signed a memorandum of agreement providing the center with \$5,000 per year for 3 years. These funds — the first to come from pea and lentil grower assessments — provided the initial support for research and Extension activities on seeding practices and diseases of Austrian winter peas. The commission also paid the center's land rental for its first 3 years. Funds from Idaho Agricultural Experiment Station and Cooperative Extension Service budgets, research grants from the Idaho Wheat Commission, in-kind support from

many local businesses and growers, and continued support from the Idaho Pea and Lentil Commission provided the center's operational support through the harvest of 1985.

Agronomic and climatic conditions

Soil type, slope, and drainage were similar to those in most farming areas of the Camas Prairie. A Chicane silt loam (fine, montmorillonitic mesic Xeric Argialbolls) and Shebang silt loam (fine, montmorillonitic mesic Xeric Argialbolls) with less than 12 percent slope were the major soil types. These soils drain slowly but are very productive.

Average winter wheat, spring barley, and winter pea yields ranged from 56 to 84 bushels per acre, 48 to 66 bushels per acre, and 1,000 to 1,700 pounds per acre, respectively, during the center's 19 years. Growing season length (temperatures above 28°F) was 131 days in 8 of 10 years. Average precipitation was 23.6 inches, with half falling from April through August. Because the center's soils, topography, and climate were similar to those in many other farming areas of the Camas Prairie, research results could be more directly applied to commercial farms of the region than results from Moscow or other locations.

Austrian winter peas were introduced into the Camas Prairie region in 1931 and produced on 25,000 to 50,000 acres annually until the late 1980s. During World War II, nitrates were diverted to munitions manufacturing, which greatly increased the demand throughout the United States for Austrian winter peas as a green manure crop. In the 1970s Clearwater, Idaho, Lewis, and Nez Perce counties produced more than 90 percent of the U.S. supply of Austrian winter peas.

Name

Variouly called the "Grangeville Experimental Farm," the "Mink Farm," the "Austrian Winter Pea Research Farm," and other names, "Grangeville Research and Extension Center" was proposed by Mink. Later the name "Research and Extension Center" was adopted for use by all College of Agriculture off-campus experiment stations.

Whether the Grangeville center's name served as a model or not, it accurately depicted the fine cooperative effort between research and Extension faculty at this location. Nearly 50 research and Extension scientists from the UI and USDA Agricultural Research Service (ARS, Pullman and Prosser, Washington), their technicians, and their graduate students worked on solutions to basic and applied agricultural problems (see table, page 9).

Research

Austrian winter peas

The Grangeville R&E Center was best known for work on Austrian winter peas. Before the center's establishment, no certified varieties of Austrian winter peas existed. Breeding efforts begun by UI plant breeder Al Slinkard resulted in the release of Fenn, the first certified variety of winter pea. Later work by UI plant breeders Arden Campbell and Dick Auld resulted in the releases of Melrose and Glacier, respectively. At the same time, UI agronomist Glen Murray established seeding dates, seeding rates, and residue management practices.

In the early 1970s, the pea leaf weevil became a devastating pest of both spring and winter peas. Winter peas are especially susceptible to this leaf-feeding insect because the previous winter's damage and cool spring temperatures slow their early spring growth. Heavy pea leaf weevil infestations at Grangeville often resulted in crop failure.

UI entomologist Larry O'Keeffe's work at this and other northern Idaho locations identified chemical control measures for this insect. His work on insect behavior, coupled with planting date work by Murray, identified early seeding as an important practice for reducing pea leaf weevil damage.

Diseases grew increasingly important from 1970 to 1985. UI plant pathologist Harry Fenwick found through surveys that *Ascochyta*, *Fusarium*, and *Sclerotinia* were the most important diseases. USDA-ARS plant pathologist John Kraft (at Prosser) later confirmed the presence of *Aphanomyces*, a disease partially responsible for the loss of pea industries in the eastern and midwestern United States. These researchers identified rotations, disease-free seed, and early planting dates as the only cost-effective measures for disease reduction, although no measure was very effective for *Aphanomyces* control.

UI weed scientist Clarence Seely began the weed control work on winter peas and cereals by identifying several potential herbicides. His work was continued by UI weed scientists Gary Lee, Donn Thill, and Bob Callihan.

Cereal variety testing

As soon as the center opened, Murray began testing spring barleys, soft white winter wheats, hard red winter wheats, and triticales. UI research associate David Wattenbarger, USDA-ARS wheat breeder Clarence "Pete" Peterson, and UI Extension agronomists Dick Ohms and Ken Kephart continued this work from the early 1970s through 1985. High yields, high test weights, and resistance to lodging, stripe rust, and foot rot were important attributes of varieties recommended from these trials.

Other cereal work included no tillage studies by UI agricultural engineers Ed Dowding and Charles Peterson. Tissue testing for nitrogen fertilizer recommendations was conducted by Bryant Gardner, a scientist on leave from the University of Arizona.

Alternative crops

Mink and Murray tested the first alternative crops — seed potatoes and Adzuki beans. Later, from 1976 through 1985, Auld led alternative crop adaptation studies for sunflower, safflower, winter rapeseed, common beans, faba beans, chickpeas (garbanzo beans), and buckwheat. At the same time Murray developed management practices for these crops, especially winter rapeseed and sunflower.

Of these alternative crops only rapeseed met the requirements for grower acceptance. The other crops were less useful, either because growers did not have the expensive equipment to plant or harvest them, because markets were poor, or because they had poor climatic adaptation.

UI crop physiologist Jack Ridley and Cenex agronomists Ben Studer and Jim Benson conducted forage trials with alfalfa and sainfoin, a nonbloating legume. They determined crop adaptation and forage yield potentials.

Extension and teaching

More than 100 production-oriented and scientific publications (see selected reference list on page 8) were produced as a result of work at this center. Participating research and Extension scientists also held grower meetings and workshops; gave scientific presentations at regional, national, and international meetings; supervised graduate students; and trained research and Extension workers based on activities at this site.

The center hosted 19 field days. The first, on July 26, 1967, drew five participants: Mink, Slinkard, Murray, and two growers. Attendance at field days grew as research

and Extension efforts escalated and by the early 1970s ranged from 75 to 100 participants.

In 1974, field day attendance reached a maximum of 150 people. They had come to hear solutions to production problems including control of the pea leaf weevil, control of pea diseases, wheat variety selection, and weed control. Alternative crop work contributed to a large attendance in 1976. Continued work on winter peas and wheat — and a reputation for providing useful information — contributed to high levels of grower and industry participation for nearly two decades.

Cooperative efforts among plant breeders, agronomists, physiologists, growers, field representatives, Extension agents, and specialists achieved a multitiered approach to solving production problems. The end result was integrated production information ready for growers to use (see list of selected publications on page 8). Many of the production guidelines developed at the center are still in use today.

Local support

Perhaps the most fundamental yet overlooked activities needed to ensure continued success of off-campus field research and Extension efforts are local leadership and support by local cooperators. Ed Mink and his wife, Joann, provided most of that support.

Ed Mink did most of the large-scale field operations such as ground preparation, fertilization, weed control, and planting of rotational crops to keep land uniform between experiments, much of it on his own time. Local farmers, especially the Green brothers, from whom this land was leased, often helped. Since wet and cool weather continually hampered spring farming operations in the Grangeville area, this timely effort provided the precision for successful planting. Without it, research and Extension activities would have been severely reduced.

Joann Mink provided countless hours of hand weeding, especially before field days, giving the center a clean, professional appearance. Her post-field day refreshments for research and Extension scientists who participated in the field day program encouraged repeat and new participation each year. She also provided timely weather reports that allowed researchers to cancel travel to this off-campus location when weather prevented “hanging out the wash.”

The Mink children (Marjorie, Robert, Barbara, and Marla) assisted with weeding, field day activities, and general farming operations.

Local businesses, including Union Warehouse and Supply, Stegner Grain and Seed, Brown Motor Company, and McGregor's Fertilizer Company, donated seed, fertilizer, equipment, and other supplies. In a creative arrangement organized by Ed Mink, proceeds from the sale of rotational crop seed purchased other services and supplies.

Closure

With the retirements of several production-oriented scientists and especially of Ed Mink, the shifts in research activities of several key scientists to new agricultural needs, and the expiration of the land rental agreement, the Grangeville R&E Center closed with the harvest of the 1985 crop. Now the former 11-acre “Mink Farm” blends into the normal crop rotations of the Roy Green, Jr., farming operation.

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The author — Glen A. Murray, agronomist and crop physiologist, Department of Plant, Soil, and Entomological Sciences, Moscow.



PRODUCT OF USA

This publication is dedicated to former Idaho County Extension agricultural agent Ed Mink, his wife Joann, and children Bob, Marjorie, Barbara, and Marla. It also recognizes 19 years of generous support to the Grangeville Research and Extension Center from the Idaho Pea and Lentil Commission.

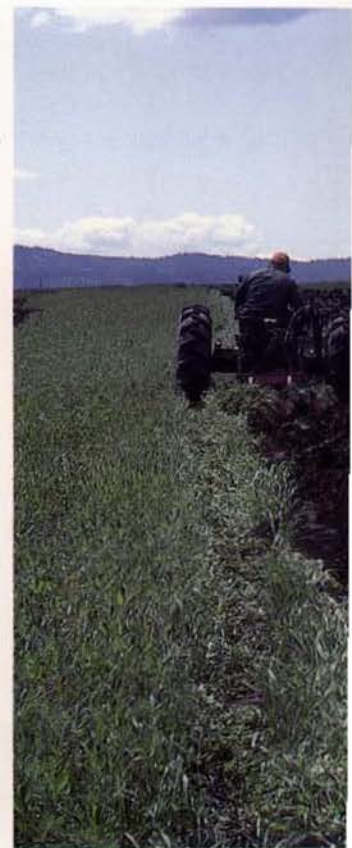


Ed Mink examines the flowering and growth of Austrian winter peas, a legume grown in rotation with winter wheat on the Camas Prairie in this 1978 photo. Peas are raised for seed or plowed green. Plowed green, a typical crop returns to the soil 75 to 100 pounds of nitrogen per acre.



Growers and Extension agents and field representatives of fertilizer, seed, and current research results.

Rapeseed was well adapted to the Camas Prairie and many other areas of northern Idaho. Seeds produce industrial and edible oils.



Ed Mink plows Austrian winter pea crop to provide nitrogen, organic matter for the cereal experim



In this 1973 photo are Joann Mink (center) and the Mink children (left to right) Bob, Marjorie, Maria, and Barbara. They lent their hands for chores at the center.



side companies attended field days like this one in July 1977 to obtain



A Hege plot combine purchased by the Idaho Pea and Lentil Commission increased research activity by harvesting faster and more efficiently than the old hand methods. Glen Murray, agronomist and crop physiologist, and Don Vannoy, scientific aide, harvest winter peas in 1972.



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to follow.



Sunflowers, grown in 1979 tests plots, proved to be poorly adapted to both the Camas Prairie climate and the growers' production requirements.



Austrian winter pea variety trials compared yield potentials and disease resistances of new lines and commercial varieties. Fenn, Melrose, and Glacier winter peas were developed and tested in trials like these.



Results from Austrian winter pea, wheat, and forage research plots led to new disease-resistant crop varieties and improved production practices.

Selected publications — Grangeville Research and Extension Center

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Participants and activities at the Grangeville Research and Extension Center, 1966 to 1985.

Participant	Title	Activity
Bob Allen	Plant Geneticist and Research Leader, USDA Agricultural Research Service, Pullman	Opening remarks at field day
Dick L. Auld	Associate Professor, Plant Breeding and Genetics	Austrian winter pea variety development, alternative crop research leader
Jim A. Benson	Agronomist, Cenex	Alfalfa variety testing
Robert E. Black	District Extension Supervisor, University of Idaho Cooperative Extension Service	Opening remarks at field day
Harold Blain	Executive Secretary, Idaho Pea and Lentil Commission	Founder and opening remarks at field day
Lee A. Bulla, Jr.	Associate Dean, College of Agriculture, Director, Idaho Agricultural Experiment Station	Opening remarks at field day
Robert H. Callihan	Associate Professor, Agronomy (Weed Science)	Weed control in cereals
Lucas Calpouzos	Department Head, Plant and Soil Science	Opening remarks at field day
Arden R. Campbell	Assistant Professor of Plant Sciences, Assistant Plant Geneticist	Austrian winter pea variety development
C. Seymour Card	Assistant Director, Idaho Agricultural Experiment Station	Opening remarks at field day
Edwin A. Dowding	Associate Professor of Agricultural Engineering	No-till wheat studies
Ronald D. Ensign	Assistant Director, Idaho Agricultural Experiment Station	Opening remarks at field day
Harry S. Fenwick	Professor of Plant Pathology	Austrian winter pea diseases
Arthur M. Finley	Department Head, Plant and Soil Science	Founder and opening remarks at field day
Bryant Gardner	Research Soil Scientist on sabbatical from University of Arizona, Yuma, Arizona	Tissue testing wheat fertilization
James L. Graves	Director, University of Idaho Cooperative Extension Service	Opening remarks at field day
Harold R. Guenther	Director, University of Idaho Cooperative Extension Service	Opening remarks at field day
Kenneth D. Kephart	Assistant Extension Professor, Crop Science	Spring barley varieties and seeding rates
John M. Kraft	Supervisory Research Plant Pathologist, USDA Agricultural Research Service	Austrian winter pea and spring pea diseases
James E. Kraus	Director, Idaho Agricultural Experiment Station Dean, College of Agriculture	Opening remarks at field day
Gary A. Lee	Department Head, Professor of Weed Science, Plant, Soil, and Entomological Sciences	Opening remarks and wild oat control in cereals, peas, and rapeseed
Raymond J. Miller	Director, Idaho Agricultural Experiment Station Dean, College of Agriculture	Opening remarks at field day
Edward F. Mink	Associate Extension Professor and Idaho County Extension Agricultural Agent	Founder and responsible for overall farming operations, field day support, research assistance, research ideas
Joann Mink	Wife of Edward Mink	Professional plot maintenance, local weather reports, post-field day hostess

(cont'd on page 10)

Participants and activities at the Grangeville Research and Extension Center, 1966 to 1985.

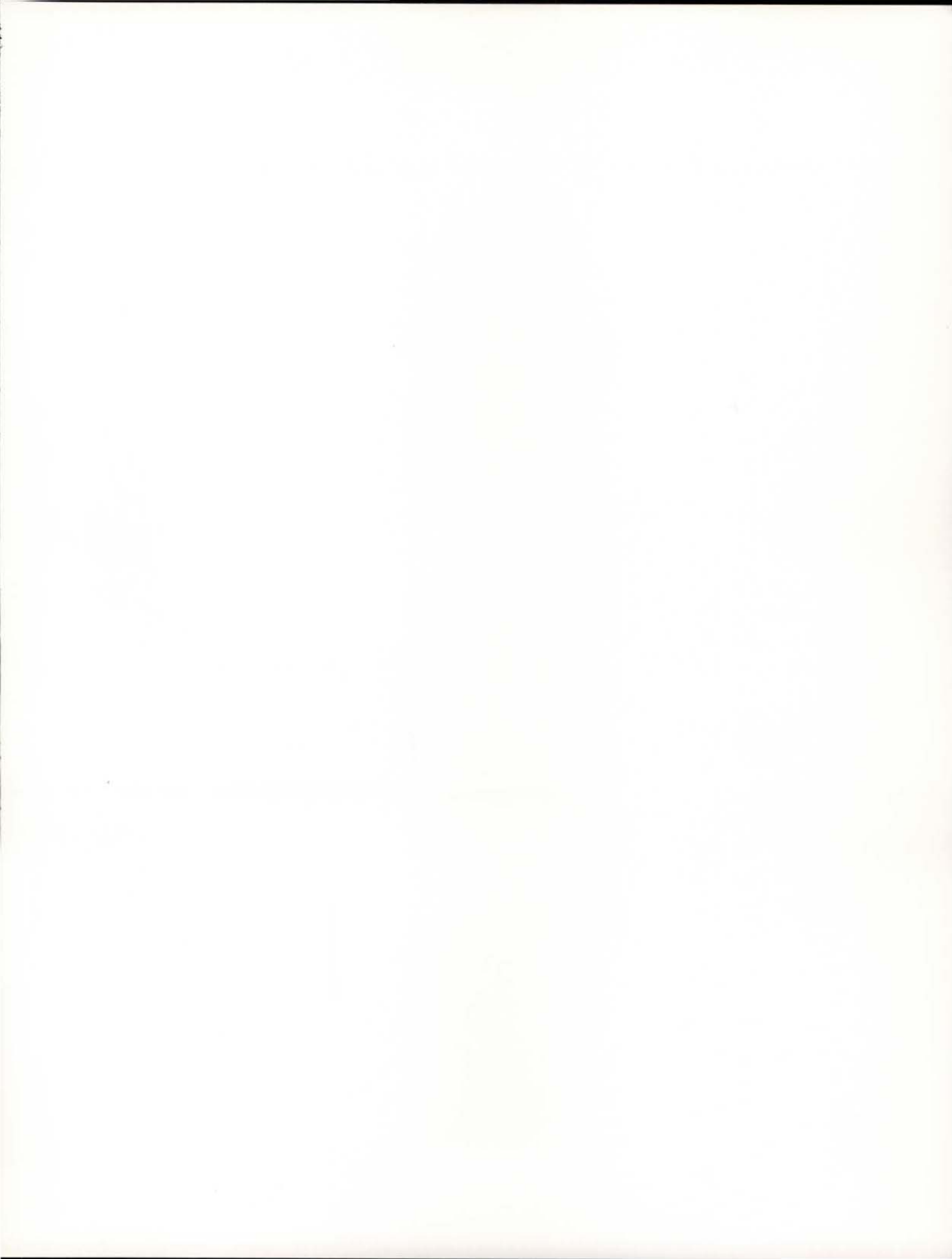
Participant	Title	Activity
Fred J. Muehlbauer	Research Geneticist, USDA Agricultural Research Service	Lentil and spring pea variety testing
Autis M. Mullins	Dean, College of Agriculture	Opening remarks at field day
Glen A. Murray	Professor of Plant Science, Agronomist, and Crop Physiologist	Austrian winter pea research, cereal variety testing, alternative crop production practices, forages, general organization of the experimental site
Richard E. Ohms	Extension Professor, Extension Crop Management Specialist	Cereal variety testing
Lawrence E. O'Keeffe	Professor of Entomology and Assistant Chair, Department of Plant, Soil, and Entomological Sciences	Pea leaf weevil and general insect control and biology; opening remarks at field day
Charles L. Peterson	Professor of Agricultural Engineering	No-till wheat studies
Clarence J. Peterson	Research Agronomist, USDA Agricultural Research Service	Cereal variety testing
Peggy J. Pletcher	District Extension Director, University of Idaho Cooperative Extension Service	Opening remarks at field day
Jack R. Ridley	Assistant Professor of Plant Science, Assistant Crops Physiologist	Alfalfa variety testing
Clarence I. Seely	Professor of Agronomy	Austrian winter pea and cereals weed control
Alfred E. Slinkard	Associate Professor and Associate Agronomist	Austrian winter pea variety development
Ben W. Studer	Regional Manager and Agronomist, Cenex	Alfalfa variety testing
Donald C. Thill	Associate Professor of Weed Science	Wild oat and broadleaf control in winter wheat
Maurice V. Wiese	Professor of Plant Pathology	Pea disease control and opening remarks at field day
Carol O. Youngstrom	Associate Director, University of Idaho Cooperative Extension Service	Administration

Graduate students and technical support

James L. Barta,¹ Bill L. Bettis,¹ Robert L. Bowden, Michael J. Dial,¹ Jim M. Crane,¹ John E. Crock, Lynn A. Field, Jack V. Handy,¹ Kyle N. Hawley, Mary K. Heikkinen,¹ H. Kenneth Heneise, Jr.,¹ Debra L. Hillstrand,¹ Karen A. Loeffelman, Glen A. Mundt, Bradley G. Schaat,¹ Dennis J. Schotzko, Wayne J. Schumacher, Raymond V. Strolberg, Jerry B. Swensen, Isidoro C. Trevino,¹ Donald J. Vannoy, David W. Wattenbarger, Rebecca A. White.¹

Note: Titles are the ones participants held while conducting work at the center. All participants not otherwise identified were affiliated with the University of Idaho.

¹Graduate students. Many later became technical support persons on continuing projects.





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