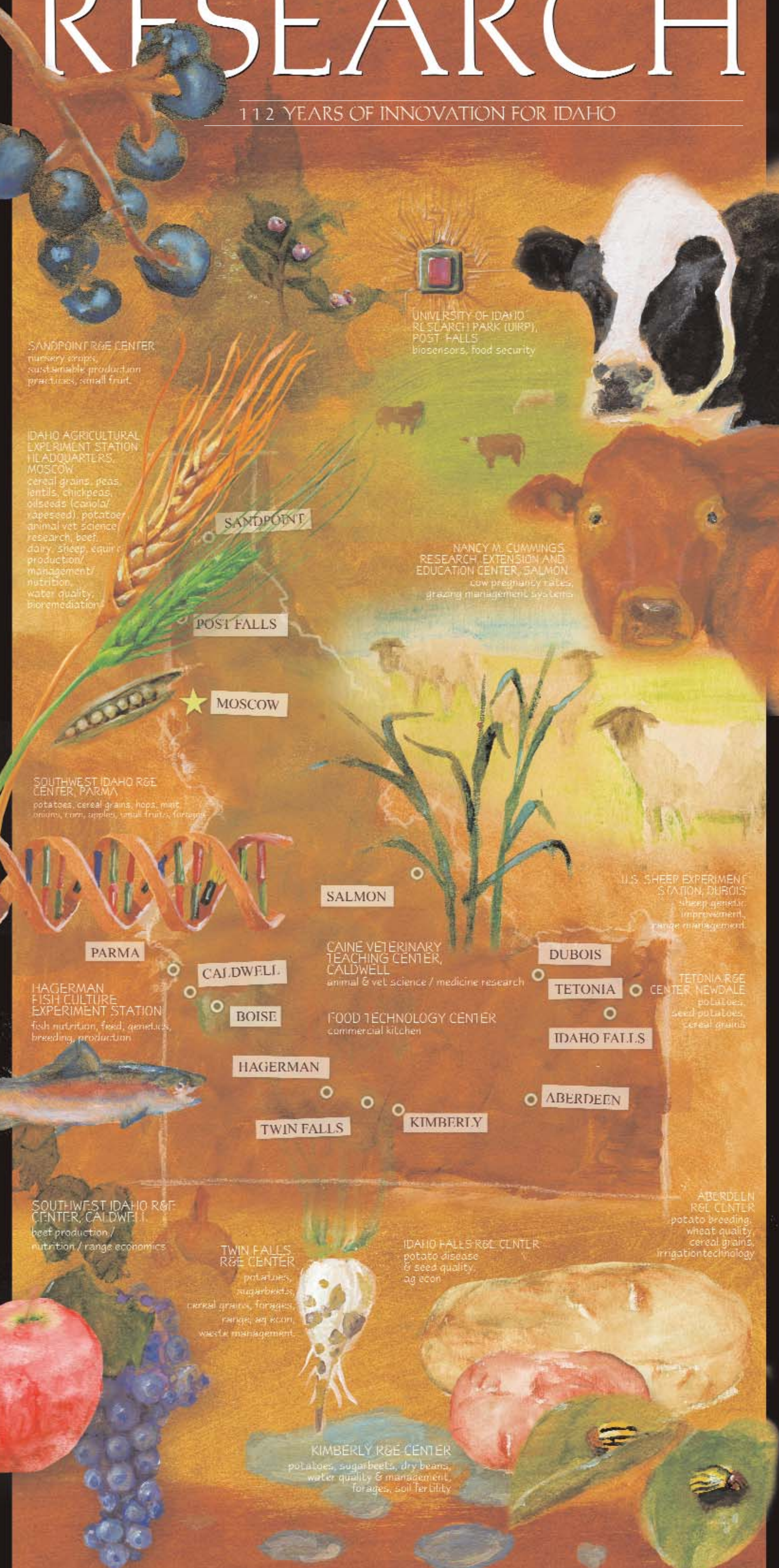


RESEARCH

112 YEARS OF INNOVATION FOR IDAHO



SANDPOINT R&E CENTER
nursery crops,
sustainable production
practices, small fruit

**UNIVERSITY OF IDAHO
RESEARCH PARK (UIRP),
POST FALLS**
biosensors, food security

**IDAHO AGRICULTURAL
EXPERIMENT STATION
HEADQUARTERS,
MOSCOW**
cereal grains, peas,
lentils, chickpeas,
oilseeds (canola/
rapeseed), potatoes,
animal vet science
research, beef,
dairy, sheep, equine
production/
management/
nutrition,
water quality,
bioremediation

SANDPOINT

**NANCY M. CUMMINGS
RESEARCH, EXTENSION AND
EDUCATION CENTER, SALMON**
cow pregnancy rates,
grazing management systems

POST FALLS

★ MOSCOW

**SOUTHWEST IDAHO R&E
CENTER, PARMA**
potatoes, cereal grains, hops, mint,
onions, corn, apples, small fruits, forages

SALMON

**U.S. SHEEP EXPERIMENT
STATION, DUBOIS**
sheep genetic
improvement,
range management

PARMA

**CAINE VETERINARY
TEACHING CENTER,
CALDWELL**
animal & vet science / medicine research

DUBOIS

**TETONIA R&E
CENTER, NEWDALE**
potatoes,
seed potatoes,
cereal grains

CALDWELL

TETONIA

**HAGERMAN
FISH CULTURE
EXPERIMENT STATION**
fish nutrition, feed, genetics,
breeding, production

FOOD TECHNOLOGY CENTER
commercial kitchen

IDAHO FALLS

BOISE

ABERDEEN

**SOUTHWEST IDAHO R&E
CENTER, CALDWELL**
beef production /
nutrition / range economics

HAGERMAN

KIMBERLY

TWIN FALLS

**ABERDEEN
R&E CENTER**
potato breeding,
wheat quality,
cereal grains,
irrigation technology

**TWIN FALLS
R&E CENTER**
potatoes,
sugarbeets,
cereal grains, forages,
range, ag econ,
waste management

IDAHO FALLS R&E CENTER
potato disease
& seed quality,
ag econ

KIMBERLY R&E CENTER
potatoes, sugarbeets, dry beans,
water quality & management,
forages, soil fertility

112 YEARS

Idaho Agricultural Experiment Station

OF INNOVATION THROUGH RESEARCH

IIdaho's oldest and largest research arm is the Idaho Agricultural Experiment Station (IAES), an integral part of the University of Idaho's College of Agricultural and Life Sciences (CALs), with the equivalent of 74 full-time employees and a budget of some \$30 million in annual funding.

From Sandpoint south to Caldwell, across fertile southern Idaho lands and northward into the mountains, a network of IAES research and extension (R&E) centers have devoted decades to solving agricultural, environmental, and even family nutrition and community problems. Embedded in communities close to important growing areas and in all of Idaho's key climates, they research problems affecting Idahoans every day, from field to table. Each equipped with experimental farms, greenhouses, and laboratories, R&E centers are home to an efficient and complex network of CALs and USDA scientists who collaborate with each other and with scientists from other UI colleges, plus local industries, growers, environmental groups, and federal agencies.

"I was amazed at how little I knew about what was going on at these centers until I visited them," said Greg Bohach, a 16-year UI research and teaching veteran and new IAES director. After succeeding Dick Heimsch, he ended a week-long introductory tour "very impressed with the variety and quality of work being done."

Older than the University of Idaho

When the UI first opened for classes on October 3, 1892, the experiment station had been in operation for seven months. Federal funds supported agricultural research in all land-grant universities, thanks to the 1887 Hatch Act. This model—combining field research and universities in efforts that collaborate with state and federal governments—is so successful it's been exported around the world.

Wheat that did well in the East did not grow well in Idaho. Pioneering Idaho farmers needed new varieties of wheat, oats, and other crops for Idaho's soils and climate. IAES scientists created these new varieties, along with answers for livestock diseases, poisonous range plants, nutritional deficiencies, invasions of grasshoppers and other pests, and irrigation problems. Before 1900, UI scientists had begun improving Idaho's potato.

IAES role in Idaho's agricultural success

Agriculture became Idaho's first billion dollar industry in 1973, and the success continues. Look at our most profitable crops

(Idaho State Department of Agriculture cash receipts—1997 to 2002): \$976 million for cattle and calves, \$917 million for dairy, \$706 million for potatoes. Contributing to that success is research at locations on our map (pp. 18 to 20). Profiles listed on pages 21-22 document only a fraction of their work.

Areas of research are changing

As Idaho and the nation's priorities evolve, so does IAES research. Gone is the completely local focus, with Aberdeen scientists working only on Aberdeen problems. "It's much more complex and interdisciplinary today," says Chuck Hatch, UI vice president of research. He sees ag scientists collaborating with "almost everyone. From development of biosensors to monitoring food safety, you'll see integration with engineering. Same with biofuels. If it's sociological or public policy issues, they work with law, natural resources, and letters and science folks."

Shifting, too, are areas of research. Veteran UI Ag Economist Jim Araji figures now the highest proportion of IAES scientists—39 percent—conduct research on production technology (growing food), down from 65 percent in 1980. Second at 22 percent is environmental research (eliminating pollution, finding biological controls for pests, insects, and weeds), up from less than 5 percent in 1980.

Other research categories are post-harvest technology (transportation, storage, processing), 15 percent; community and human resources (helping communities, families), 13 percent; and natural resources (water, range, soils), 11 percent.

Transferring research to the public—a job for UI Extension

Knowledge gained through agricultural research must get to the public before it can be of any use. Since 1910, UI Extension has fulfilled this critical role, transmitting research-generated knowledge throughout Idaho. Today its staff in 42 of Idaho's 44 counties are the first line of defense, aware when new local problems emerge.

Investing in Idaho's future

Funding for IAES research remains constant, says Heimsch, reviewing 10 years as director. The USDA contributes about \$2 million a year, the Idaho state government about \$15 million. Grants written by CALs scientists make up the remaining \$15 million.

"You don't have to look too hard to see it truly is an investment," Heimsch adds. "Our analysis shows for every dollar invested, \$34 is returned. We all enjoy these benefits."

"IT'S MUCH MORE COMPLEX AND INTERDISCIPLINARY TODAY. AG SCIENTISTS COLLABORATE WITH ALMOST EVERYONE."

—CHUCK HATCH, UI VICE PRESIDENT OF RESEARCH



IDAHO AGRICULTURAL EXPERIMENT STATION-1892 to 2004



UI CALS research and extension (R&E) center list is geographic—north to south, then east across Idaho and north again. Tours available with advance notice. Area code is 208.

SANDPOINT R&E CENTER-1912

2105 N. Boyer Ave., 83864 • 263-2323 • 78 acres • lab greenhouse • 1 faculty • 3 staff • www.ag.uidaho.edu/sandpoint/

Today Emphasis is on commercial specialty crops and sustainable production practices. Model production systems are created for bilberries and other berries. Premier in the world for taming huckleberries: commercial use expected within five years.

Contact Dan Barney, superintendent, dbarney@uidaho.edu

UI RESEARCH PARK, POST FALLS-1997

721 Lochsa, 83854 • 777-4700 • 100 acres • labs • 2 faculty, 14 staff • www.uirp.com

Today Jacklin Science and Technology Building houses eight companies, three university and two federal programs. UI CALS researchers in molecular biology and food sciences collaborate with electrical engineers in the Center for Micro-electronic and Biomolecular Research to develop biosensors for use in agricultural, food, and health industries.

Contacts Doug McQueen, director, dmcqueen@uidaho.edu; Larry Branen, CALS, 262-2010, lbranen@uidaho.edu

IDAHO AG EXPERIMENT STATION, MOSCOW-1892

In addition to main campus buildings, four R&E facilities are flagship field research stations whose findings have contributed significantly to sustainability of northern Idaho's dryland crops and livestock research. They include:

PARKER FARM, MOSCOW-1956

1025 Plant Science Road (2 miles east of Moscow on State 8), 885-3777 • 157 acres • 10 greenhouses • 3 staff

Today Foundation seed for 8 crops; research includes plant breeding, crop variety trials for wheat, barley, canola, mustard, rapeseed, pea, and lentils; also weed, disease, and insect control and biology studies, crop rotation, conservation tillage, organic farming.

Contact Roy Patten, supervisor, roy@uidaho.edu

KAMBITCH FARM, GENESEE-1993

2897 Highway 95 South • 232 acres • same staff as Parker Farm

Today The Kambitch family donated part of this land. Infrastructure planned as funds permit. Of equal importance to Parker Farm; similar research.

NORTH FARM, UI CAMPUS-1940s

Behind Palouse Shopping Mall • 553 acres • greenhouse • lab dairy and sheep barns • 4 faculty, 5 staff serve 200 students each semester • www.avs.uidaho.edu/

Today The UI Sheep and Dairy Research and Teaching Centers serve UI and Washington State University animal and veterinary science students.

Sheep Center Includes 120 breeding ewes and 6 rams—purebred Suffolk and Cheviots. Flock is enrolled in the Scrapie certification program. All breeding animals are genotyped. Research benefits some 2,500 Idaho and Washington sheep growers. Idaho flocks tend to graze public lands; Washington's are more farm grown. Research serves both audiences in sustainable practices. **Dairy** 110 milking cows (200 cows total) for studies of fiber digestion, fat metabolism, and reproduction efficiency.

Contacts Dave Casebolt (sheep), 885-3516, casebolt@uidaho.edu; Ed Wagner (dairy), 885-3526, ewagner@uidaho.edu; Dick Battaglia (AVS dept. head), 885-6345, dickb@uidaho.edu

WEST FARM, UI CAMPUS-1920

West of Perimeter Road • 307 acres • beef center, meats lab, equine center, farm operations center, meat processing lab, livestock pavilion, Holm Research Center

Today Animal and veterinary science and medicine staff research ways to improve beef and dairy cattle, horse, and sheep production.

Beef Center Herd includes steers for digestion trials on processing of low-quality forages and feed intake efficiency studies. Other cattle are used in production management classes and as animal models for purebred shows, sales.

Equines Most famous of recent UI research is the world's first successful cloning of an equine, resulting in the 2003 birth of 3 identical mule brothers at the Northwest Equine Reproduction Lab. Research also investigates hormonal status of mares.

Contacts Denny Falk (beef center), 885-6585, dfalk@uidaho.edu; Dirk Vanderwall (mule clones), 885-7414, dirkv@uidaho.edu; Ron Richard (meats lab), 885-6727, rriichard@uidaho.edu; Dick Battaglia (AVS dept. head), 885-6345, dickb@uidaho.edu

FOOD TECHNOLOGY CENTER, CALDWELL-2004

Caldwell Business Incubator, 1904 E. Chicago St., 83605 455-9650 • 7,000 sq. ft. food processing center • R&D lab 2 staff • www.ag.uidaho.edu/ftc/

Today Operates a commercial kitchen and food processing pilot plant; works on applied food research and development projects for individual growers, trade associations, commodity commissions, and private companies.

Contacts Drew Dalgetty, food processing supervisor, dalgetty@uidaho.edu; Jim Toomey, director, jtoomey@uidaho.edu

CAINE VET. TEACHING CENTER, CALDWELL-1977

1020 E. Homedale Rd., 83607 • 454-8657 • 40 acres • 6 labs large animal clinics • 5 scientists • 20 staff (some part time)

Today Provides Washington-Oregon-Idaho (WOI) vet students opportunities for hands-on experience in food animal production medicine. Up to 65 students spend 2- to 4-week rotations working with livestock producers and veterinarians on food animals. Focus is on production and population medicine (crowd dynamics with infectious, nutritional diseases).

Major research (1) Study of Johne's, a chronic incurable disease of ruminants that causes diarrhea and wasting—an increasing problem for big dairies; (2) Pasteurellaceae, bacteria associated with respiratory and reproductive diseases in wild and domestic animals; (3) Scrapie and other prion diseases (bovine spongiform encephalopathy, Creutzfeldt-Jakob disease, chronic wasting disease) research is part of a huge national cutting edge effort; (4) Diagnostic services and field investigations for food animal diseases.

Contacts Marie Bulgin, WOI coordinator, mbulgin@uidaho.edu; Dick Battaglia, WOI director, 885-6345, dickb@uidaho.edu; Linda DuBose, tours, ldubose@uidaho.edu

SOUTHWEST IDAHO R&E CENTER, PARMA-1925

29603 U of I Lane, one mile north of Parma, 83660 • 722-6701 200 acres • labs • 3 greenhouses • 8 faculty, 15 staff, 1 USDA scientist • www.ag.uidaho.edu/parma/

Today Research to improve Treasure Valley crops. Focus is on



U.S. SHEEP EXPERIMENT STATION, DUBOIS-1916

6 miles north of Dubois on I-15, 83423 374-5364 • 3 UI staff, 6 USDA scientists 71,000 acres federal land

Today The UI maintains a sheep herd for study by USDA scientists, to improve efficiency of lamb meat and wool production. Scientists have contributed significantly to knowledge of sheep reproductive physiology. Flock of 3,000 ewes and 380 rams, mainly Targhee and Rambouillet, focus on sheep genetic improvement for the western range. Research also is on range ecology and how sheep can play a positive role in fire management and control of noxious weeds. (Sheep can be trained to develop a preference for noxious weeds.) Research here ranks among the best in the U.S., elaborating basic ecology of sagebrush-grass rangelands.

Contact Greg Lewis, USDA, glewis@pw.ars.usda.gov; Quinn Jacobson, herd manager, qjake@uidaho.edu



HAGERMAN FISH CULTURE EXPERIMENT STATION-1996

3059 F. National Fish Hatchery Rd., 83332 • 837-9096 • 4 acres • labs hatcheries • 6 UI, 4 USDA scientists www.webs.uidaho.edu/aquaculture

Today In the heart of Idaho's aquaculture industry along the Snake River, UI scientists from various disciplines conduct research for sustainable aquaculture for both commercial and conservation sciences and technologies. A commercial-scale trout farm opened in 2001, and a new 13,600 sq. ft. admin/laboratory will open in 2005. Much complex rainbow trout research is underway.

Genetic analysis of stock structure of Yellowstone and west slope cutthroat trout led, in the case of Yellowstone cutthroat trout, to a decision NOT to list as endangered by U.S. Fish and Wildlife Service. This prevented massive changes to irrigation and other water uses throughout the eastern half of Idaho, upstream of Twin Falls. Such changes would have been devastating to Idaho agriculture and food processing.

Contact: Ron Hardy, director, rhardy@uidaho.edu

production, storage, and related problems of vegetables, forages, cereals, hops, mint, apples and other tree fruits, grapes, and seed crops: 90 acres for row crops; 25 acres for tree fruit and small fruit research. Other programs:

Plant Science emphasizes strategies to improve crop yields and quality, evaluates new niche fruits, promotes efficient water use, reduces post-harvest disorders, finds best practices for wine and table grapes. **Entomology** develops integrated pest management practices for hops, researches insect vectored viruses of small grains and potatoes, studies pollination systems for alfalfa and other crops. **Soil Science** identifies yield-limiting nutrients, evaluates green manure crops, and improves fertilizer use efficiency. **Plant Pathology** focuses on disease diagnosis and treatment, integrated management programs for nematodes in many crops.

Contact Mike Thornton, superintendent, miket@uidaho.edu

SOUTHWEST IDAHO R&E CENTER, CALDWELL-1906

16852 S. Tenth Ave. (4 miles south of I-84) 83607-8249 459-6365 • 280 acres • lab • staff of 9

Today Includes UI Extension District II director and staff. Dairy program emphasizes reproductive efficiency, milk quality, and risk management on Idaho dairy farms. **Range** economics programs offer expertise in livestock production, economics, and public land policy. **Computer** specialists support all off-campus R&E offices. **4-H** associate leads after-school programs, visual arts curricula development, and partners to reach under-served at-risk youth.

Contact Mike Thornton, superintendent, 722-6701, miket@uidaho.edu

TWIN FALLS R&E CENTER-1915

315 Falls Ave. Evergreen Bldg., 83301-1827 • 736-3600 20 leased acres • 4 labs • 12 faculty, 9 staff www.ag.uidaho.edu/twinfalls/

Today Research has helped southern and eastern Idaho become some of the most affluent and successful agricultural areas in the West. Located at College of Southern Idaho (CSI), this is also UI Extension District III headquarters. Most scientists here conduct their research at Kimberly. Premier efforts to solve dairy odor problems are ongoing. Research also focuses on improving other dairy, beef, and range practices.

Contact Don Morishita, 736-3616 or 423-6616, don@uidaho.edu

KIMBERLY R&E CENTER-1950

3793 North 3600 East, 83341 • 423-4691 • 180 acres • 3 labs 3 greenhouses (new 2,400 sq. ft) • 3 Kimberly, 6 Twin Falls faculty, 9 USDA scientists • 11 staff, 6 to 10 seasonal employees www.kimberly.uidaho.edu/

Today Research includes **Forage** evaluated for yield, quality and environmental impact; **Potato Storage** to control disease, evaluate products; **Soil Fertility** documents best management practices, organic and inorganic soil amendments; **Water** research seeks to improve surface and groundwater quality, irrigation scheduling, while improving crop yield; also supports groups managing the Snake River and its aquifer.

Foundation seed & bean breeding One of five U.S. public bean breeding programs since 1966 has developed varieties to help Idaho's dry bean industry thrive. The Foundation Seed Program—responsible for transfer of crop varieties from breeding programs to producers—collaborates with Aberdeen, Caldwell, Kimberly, Moscow, and Tetonía to renew at premium health about 120 varieties of wheat, barley, oats, beans, potatoes, peas, chickpeas, lentils, rapeseed, grasses, forbs, and forage legumes.

Disease, Insects, Weeds Diagnoses and manages insects

and diseases impacting cereal grains, beans, and other row crops, and makes sure proper pesticides are registered for Idaho.

Contact Don Morishita, superintendent, 736-3616 or 423-6616, don@uidaho.edu

ABERDEEN R&E CENTER-1911

1693 S. 2700 W., PO Box 870, 83210-0870 • 397-4181 464 acres • 13 labs • 10 greenhouses • 8 faculty, 32 staff, 13 USDA scientists, 27 USDA staff • www.uidaho.edu/aberdeem/

Today Known internationally, this center—in the heart of the U.S.'s major potato-producing region—serves both irrigated and dryland agriculture; improves cultural practices for all major area crops. Teams evaluate crop rotation effects on pest management, production.

Potato Breeding Part of the USDA's Tri-State Potato Breeding Program—along with Oregon and Washington State Universities—initiates 140,000 seedlings each year. Aim is to develop high-quality, disease-resistant varieties for fresh market and processing. From 1953 to 2004, 26 new potato varieties were released from here.

Small Grains Breeding In 1988 all USDA's National Small Grains Collection of Germplasm—dating to about 1897—moved here, a national treasure utilized worldwide for genetic research, breeding, and crop improvement. **Wheat Quality Lab** supports the wheat industry by completing a myriad of quality tests—including baking breads and cookies—that ensure grain sold from Idaho is the best. Testing provides critical support for variety development, new product development, and wheat export.

Contact Steve Love, superintendent, slove@uidaho.edu

IDAHO FALLS R&E CENTER-1917

1776 Science Center Dr., 83402 • 529-8376 • 4 acres (varies with grants) • 1 lab • 1 greenhouse • 5 scientists • 12 staff <http://extension.ag.uidaho.edu/district4/>

Today Scientists share space with UI Extension District IV staff. Focus is better management of small grains and potatoes. Research involves fertility and irrigation for potatoes, and best management practices to increase profitability. Scientists study ways to reduce risk of PVY potato virus.

Contacts Jeff Stark, division chair, plant science, jstark@uidaho.edu or Jim Schaffer, district director, 529-8376, schaffer@uidaho.edu

TETONIA R&E CENTER, NEWDALE-1917

8888 W. Highway 33, U of I, 83426 • 456-2879 • 585 acres 3 greenhouses • 6 staff

Today At 6,200 feet elevation, UI's high-altitude research site—because of its short growing season and relative isolation—is ideal for producing seed crops protected from insects and diseases that plague other areas. Priority is growing foundation seed grain and seed potatoes for sale to certified seed growers. Some 3,000 to 7,000 new lines of potatoes are tested each year. Seeds grown here: wheat (5 to 8 varieties), barley (5 to 6 varieties), oats (4 to 5 varieties), potatoes (10 to 15 varieties).

Contact Jim Whitmore, superintendent, whitmore@uidaho.edu

NANCY M. CUMMINGS RESEARCH, EXTENSION & EDUCATION CENTER, SALMON-2001

16 Hot Springs Road, Carmen, 83462 (just north of Salmon on U.S. 93) • 756-2749 • staff of 3 • 925 acres www.ag.uidaho.edu/nancycummings/

Today Acquired through a special lease/gift from the Auen Foundation of Palm Desert, CA., this scenic working ranch focuses on programs in cow-calf research, forage production, and pasture grazing management systems. A herd of 400 Angus-Herefords aids research to help cattle producers.