



COLLEGE OF AGRICULTURE

AG NEWS

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Dear Friends and Colleagues,

Finally we have received some moisture. It was nice to have seen lots of green grass and full rivers in recent travels across the state. The drought seems to have been alleviated in some areas, but in other parts of Wyoming, such as the Southwest, it persists.

The College of Agriculture's advisory board met in May at the Natrona County Cooperative Extension Service office. In order to ensure that we continue to hear from various members of our constituency, we devoted this meeting to listening. We heard about the many challenges that you are facing, such as the impacts of drought on agriculture and natural resources, the opportunity offered by our rains, and concerns about the future of agriculture. In addition we engaged in a discussion about how the college can meet the challenge of declining numbers of high school graduates as we strive to improve our enrollment numbers. Although all present agreed that the college has excellent degree options that prepare students for life as well as careers, the discussion focused on how we can project that message when recruiting. The group identified a need to better market the diversity of programs in the college. In turn, we discussed novel options that students might find to help finance their educations. The advisory board members also renewed their commitment to helping the college identify and secure private support for some of our outstanding programs.

The University of Wyoming is engaged in writing its next five-year academic plan, and the College of Agriculture is now involved in developing its part of that vision. Individual departments and programs are putting their goals on our Web site, and the college hopes to have a draft plan on the site by September 1, 2003. It is being organized with our three-part mission of learning (teaching), engagement (service), and discovery (research) in mind. The development of our plan is following a blueprint based on the information we gained a year ago in a series of town meetings. Please read our draft and later this fall watch for the university-wide draft plan. As Emerson so aptly put in this issue's quotation, "Every reform was once a private opinion." Your voice does count here.

The fall brings our annual Agriculture Appreciation Weekend. This year we are honoring alums Mary Gullikson and Tom Whitson for their outstanding careers. Mary has given extraordinary service to her local community and still manages to find time to serve UW in many ways. Tom has developed an international reputation for his expertise on weeds and has helped countless Wyoming residents deal with weed problems. In addition, we are thanking Andrew and Connie Vanvig for their outstanding support. The former head of the Department of Agricultural and Applied Economics, Andrew has established a wonderful scholarship for students interested in that field and has initiated other programs to benefit the college. We are also honoring Mountain West Farm Bureau Mutual Insurance Company for its outstanding support and partnership.

I hope you have a great fall, and please stay in touch with your college.

Dean Frank Galey
College of Agriculture

"Every reform
was once a
private opinion."

Ralph Waldo Emerson

UNIVERSITY
OF WYOMING

Researcher on the brink of

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

A University of Wyoming researcher has determined that there are four different types of asthma as opposed to just one general kind as has been assumed in the past.

Now he is on the brink of developing and marketing a diagnostic tool that can safely, efficiently, and economically let asthmatics know the specific nature of their allergic respiratory disorders so that they can be treated with medication

geared to their individual needs.

Associate Professor Shane Broughton of the College of Agriculture's Department of Family and Consumer Sciences has poured most of his research efforts in the past 10 years into the study of asthma, a disease which afflicts one in 13 children in the U.S. and which has doubled worldwide in the last 15 years.

He quietly published an article in 1997 indicating that there were at least two types of asthmatics – those who benefited from Omega-3 fatty acid injections and those who did not.

"Nobody did anything as a follow-up to my research," Broughton says, noting that the medical community continued to lump asthma victims together without differentiation and without studying individual data. He made it his goal to find out why there were differences in forms of asthma.

With the financial and moral support of the college and of university research administrators, Broughton tested a battery of compounds and determined that there are four subtypes of asthma, with the most common kind (leukotriene based) afflicting about 40 percent of sufferers and the least common kind hitting 10 percent.

"My research is really the only research that has demonstrated there are four types," he says. "I work on an island." Both cell culture studies and the testing of the body fluids of asthmatics have confirmed Broughton's findings, which he is hoping to publish soon.

Meanwhile he is forming Broughton Enterprise through the federal Small Business Innovation Research/Technology Transfer funding program and with a California company to develop and market test strips that can be used to pinpoint a patient's specific type of asthma.

"Right now clinicians just tell people they have

asthma and give them the popular drugs that only work for about 40 percent of the cases." As a result, he points out, asthmatics end up paying for medication that does not help them.

"Everybody's insurance costs go up oftentimes for ineffective treatment. This drives up the overall cost of health care," Broughton notes. "If we can gear treatment specifically for a particular problem, hopefully it will bring down that cost."

The one treatment that does work for all asthmatics, he says, is steroids. "However, there are a lot of adverse side effects, so you can't leave everybody on steroids for a long time. By applying specific methods of treatment, perhaps nobody will have to use steroids."

With cases of asthma increasing at a rate of 5 percent annually and with 10 million people in the U.S. and another 100 million screened globally each year for asthma, Broughton's test strips could prove to be a financial windfall.

"If they do work and



asthma breakthroughs

we can get this thing developed, it could be a huge coup for me, the university, and everyone else,” Broughton says. A patent on his diagnostic tool is still pending, but the researcher says several companies have expressed interest in working with him. “It has the potential to be a monstrous market.” Physicians are watching his progress with interest, he says.

If he is successful in securing small business funds, he will be able to hire an administrative assistant to oversee the project. “I would much prefer to do my teaching and be doing the research. That’s where I think I am most effective,” he says. “I am not a businessman although I am learning how to be one.”

Currently one graduate student is assisting Broughton with the project, and the associate professor would like to have more helpers. He is now remodeling a laboratory in the department to allow more research space.

“We need to figure out how to treat asthma more effectively and how to pre-



Nutrition and food science graduate student John Driskill of Buffalo, left, and Associate Professor Shane Broughton conduct leukotriene analysis using a computer and a high-performance liquid chromatograph. The two have been collaborating for three years on Broughton’s asthma research.

vent it from occurring,” he says. Some evidence points to passive smoking, diesel exhaust, diet, and occupational substances as possibly contributing to the increase of the disease.

Broughton thinks that one of the most important aspects of his research is the fact that “it has demon-

strated that diseases that we know about may have a multiplicity of problems. Heretofore people have never really thought of some diseases as having separate kinds. Hopefully they will think differently from this time forward.”

College leading campus effort to

by Vicki Hamende,
Senior Editor

*Office of Communications
and Technology*

Balancing the need to meet the mandates of the Bioterrorism Preparedness Act of 2002 without crippling research and professional service endeavors at the University of Wyoming is the task facing Professor Merl Raisbeck of the College of Agriculture's Department of Veterinary Sciences.

Raisbeck has been working for a year and meeting with officials in Washington, D.C., to help the campus satisfy government safety directives implemented in the aftermath of 9/11.

"A miasma of indecision" is how he describes the current flurry of federal activity aimed at enforcing the quickly assembled act and its accompanying Agricultural Bioterrorism Protection Act.

At UW, however, "things are under control," according to Raisbeck. "There never was any real hazard here. Every pathogenic organism we deal with on campus comes

naturally from somewhere in the state," he explains. This includes the agents that cause brucellosis, plague, and rabbit fever. "Research will not be restricted, just regulated a bit more."

Raisbeck points out that most of what the university is going to have to do to comply involves completing paperwork and security measures as opposed to implementing safety procedures. "The basic safety procedures we've had in place for the last 10 to 15 years are more than adequate to meet the new regulations," he says. "The fact that we're busy meeting new paperwork guidelines does not imply that everything we've done in the past was somehow a threat to the community."

The new law requires that universities and other entities that deal with infectious agents or toxins deemed a threat to human, animal, or plant health register these materials with the U.S. Department of Agriculture. Facilities housing such agents and toxins must also register, establish stringent security measures, and pass federal inspection.

Because it operates the Wyoming State Veterinary Laboratory (WSVL), the Department of Veterinary Sciences is the unit most impacted at UW by the new requirements. Other biological science programs like molecular biology, microbiology, and chemistry that work with selected materials in their facilities are also affected. Capital improvements and other physical security requirements necessary to bring such labs into full compliance must be completed by September 12.

State and federal funds are being sought to help defray the \$50,000 to \$150,000 that will be needed to meet the minimum security requirements for updating the WSVL. "We can't do our job without students and clients in the building. We can't turn it into Fort Knox," Raisbeck says. Instead he supports the idea of rethinking procedures and making practical as opposed to "knee-jerk-reaction" changes.

Although arrangements affecting the direct security of agents and toxins will be required, Raisbeck empha-

sizes that the government "is probably looking for protocol changes more than they are for physical changes." Accountability, he says, has to be built into the new systems.

Persons working with federally listed materials will be required to undergo background checks and to gain permission to use the items. Raisbeck reports that most faculty members he has approached have been reasonable about the prospect although concerned about their freedom to conduct research. "They don't like the idea of all the extra paperwork but will go along with it," he says.

"The reality is that if you want to work with these specific materials, you have to jump through a series of hoops," Raisbeck says. He is confident that the requirements can be met at UW "without an exorbitant amount of pain" although "some gray areas in the new rules are probably going to be sorted out in court."

He predicts that experiments involving the listed materials are going to be restricted to people who have dedicated their careers to such research and that

meet bioterrorism mandates

graduate students and foreign scientists trying to work in the United States are going to face roadblocks.

Despite early predictions of “doom and gloom” as university officials began looking at how to comply with homeland security regulations, Raisbeck says the new system should not interfere too much with ongoing disease research.

“It is important to remember that all of the bacteria, viruses, and toxins that have been designated as ‘select agents’ occur naturally in the environment and that these natural agents often cause disease in people and animals,” Raisbeck says.

“For example, we regularly diagnose brucellosis, plague, and tularemia (rabbit fever) in Wyoming. Environmental labs need to keep small quantities of many such agents on hand in order to detect them in the environment. By the same token medical labs often need to keep pure agents to use in diagnosing disease outbreaks. Scientists need access to pathogens to develop new prophylactic and therapeutic measures to fight these diseases,

whether from terrorist or natural sources,” he explains.

The professor says he volunteered to help UW meet the mandates because “I feel quite strongly that we don’t want to throw the baby out with the bath water. If we all quit working with these agents, we would really set ourselves up for the next outbreak.” His work is part of his participation in an Experiment Station Committee on Organization and Policy program focusing on leadership development.

“The problem we have in this country is not how to treat a disease like anthrax or even how to clean it up but rather how to recognize an epidemic and to diagnose it promptly in the first place before it gets out of control. This means that we need more, not fewer, laboratories with these capabilities operating close to the population we are trying to protect,” Raisbeck says. As a result of the new federal laws, he adds, “we will probably have a much better public health infrastructure than we did in the past. That’s the silver lining.”



Checking blueprints of the Wyoming State Veterinary Lab to ensure compliance with bioterrorism mandates are, from left, Donal O'Toole, professor and head of the Department of Veterinary Sciences, and department colleagues Professor Ken Mills and Professor Merl Raisbeck.

He points out that universities and other entities have learned to accept such requirements as the need for separating waste products and for mandatory drug testing. “I think we can also learn to live with this once it becomes more user friendly.” He notes that a biosecurity industry is being built around the new regulations by firms in the nation’s capital. “I don’t think it will ever go back to the good old days,” Raisbeck says.

His goal now is to remain part of the solution to today’s problems. “What I

feel I have accomplished with my project is being able to come up with a set of policies that we can live with fairly easily and doing so in adequate time so that the campus has had a chance to prepare,” Raisbeck says.

“There are some fairly big changes that are going to have to be accommodated,” he adds. “Is this going to close the university? No. There will be some unhappy people, but I think in five years it will be something they have learned to accept. Those who don’t adapt well will have to find something else to do.”

Cent\$ible Nutrition cooking show

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

“Spice Up Your Life,”
“Mixin’ It Up,” Making
Do With What You’ve
Got,” “The Long and
Short of It” – sound like
the names of reality TV
shows? They are.

Catchy titles like these
and the educational cook-
ing tips that accompany
them draw viewers to the

College of Agriculture
Family and Consumer Sci-
ences’ television program
“Cent\$ible Nutrition.”

Funded by a grant
from the U.S. Department
of Agriculture’s food stamp
program, the half-hour
cooking show, now in its
third season on Wyoming’s
PBS, airs at 2 p.m. Mon-
days during the fall and
spring.

Coordinating the series
are Linda Melcher, director
of Cent\$ible Nutrition for
the University of Wyo-

ming, and Twila Ortiz,
project assistant with the
Department of Family and
Consumer Sciences. They
are assisted by UW Coop-
erative Extension Service
(CES) county nutrition
educators as well as guests
from food safety and health
agencies. Steve Costin and
Ali Grossman produce and
direct the program through
the UW TV station, and
filming takes place in a stu-
dio in the physical sciences
building. Mary Jung serves
as the host, interviewing
nutrition experts and sam-
pling their creations.

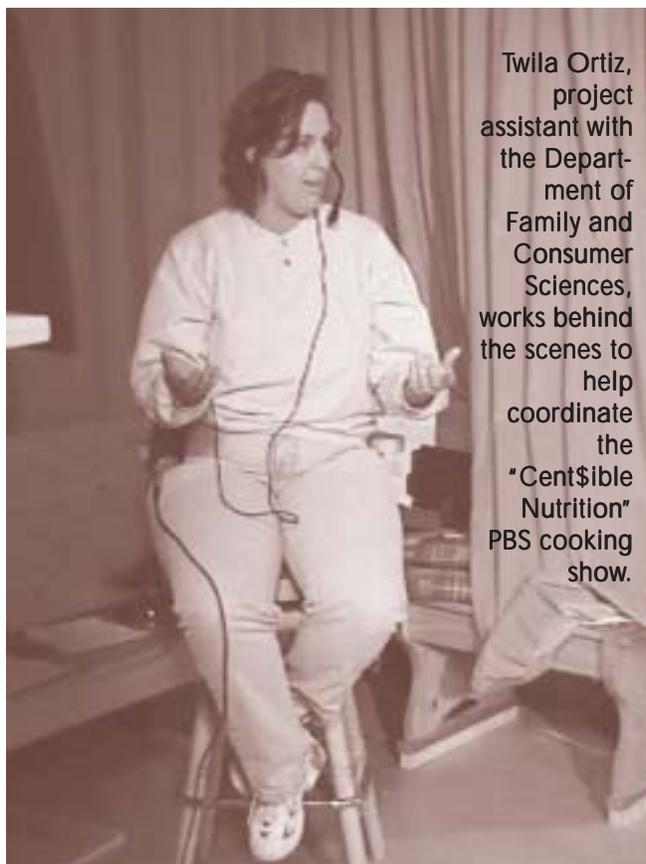
The set is a corner
kitchen counter sur-
rounded by attractive cur-
tains, decorations, and
moveable trees and bushes
in the background.

The line-up of shows
for the 2003 season in-
cludes segments on wild
game cooking, growing
window herb gardens, eggs
as wonder foods, cooking
and cleaning essentials, how
to make nutritious and in-
expensive snacks, how to
read labels, bread and
whole grains, how to pre-
pare food for babies, the
importance of breakfast,
cheap and easy meals, and
the persuasiveness of super-
markets.

Last year’s programs
focused on outdoor cook-
ing, super shopping, the
food pyramid, all-purpose
recipe mixes, the diversity
of grains, fruits and veg-
etables, the importance of
calcium, proteins from le-
gumes, cooking chicken
safely, prenatal nutrition,
using cupboard foods, and
preparing two weeks of
meals in one day.

A typical segment be-
gins with Jung explaining a
particular week’s topic. For
“Calcium Connection” she
began: “Mmmmmmm...
milk! Some of us love it,
but not everyone feels the
same way. In fact, the U.S.
government has identified
low calcium intake as one
of the nation’s top nutri-
tional problems. Well, if
people knew that three
glasses a day was not the
only way to meet their cal-
cium requirements, they
might be more apt to par-
take. In this show, we’ll give
you the scoop on the body’s
need for calcium and some
tips for achieving our nutri-
tional goals.” A dietitian
from the Western Dairy
Council was the guest.

For “All About
Chicken,” Jung explained:
“The USDA receives thou-
sands of calls each year re-



Twila Ortiz,
project
assistant with
the Depart-
ment of
Family and
Consumer
Sciences,
works behind
the scenes to
help
coordinate
the
“Cent\$ible
Nutrition”
PBS cooking
show.

serves up healthy food ideas

garding the safe handling and cooking of chicken. In fact, it's estimated that the average American consumes more than 80 pounds of chicken a year. In this episode of CentSible Nutrition, we'll show you how to safely roast, oven bake, and boil the 'original white meat.'" She and Melcher proceeded to show viewers how to cut and preserve chicken while making healthy, delicious recipes.

Once each show's guest is introduced, four separate sessions are filmed that include questions and answers, special hints, food preparation and tasting, and final comments. The "commercial" breaks are actually pre-filmed segments that reveal tips on food safety with Chris Pasley, shopping with Cindy Frederick, and nutrition with Carolyn Benepe, all CES educators.

The finished product is always 28 minutes and 30 seconds of educational information aimed at helping Wyoming's residents and families learn how to buy and prepare nutritional, wholesome foods.

Behind the scenes are weeks of brainstorming sessions, the development of



Discussing the benefits of crock pot cooking on an episode of the "CentSible Nutrition" cooking show are retired UW Cooperative Extension Service Educator Bonnie Ellenwood, left, and host Mary Jung.

script outlines, and the meticulous planning of each show and the gathering of props and foods to make sure that viewers enjoy polished, professional performances. It takes hours to put together an actual 30-minute episode.

Ortiz, who has a background in theater, says that "the creative side of how to package something in regards to seeing it visually and talking about it is more where my talents come in handy." In a segment filmed in May on "The Long (crock pots) and Short

(microwaves) of It," Ortiz helped to prepare CES guest Bonnie Ellenwood to present and discuss several different types of crock pots, to demonstrate how to make beef stew, to explain the appropriate cookware for use in microwaves, and to show how to safely microwave a cake and other foods.

"This episode of CentSible Nutrition is for busy people who come home hungry after hectic days. As every mom and some dads know, it's no fun to throw together dinner

for a starving family," Jung explained for the Ellenwood program.

Hot lights, retakes, outtakes, running over allotted time periods, close-ups of foods being chopped or compared, and just the looming presence of large television cameras, cue cards, and intense producers and directors were probably enough to fluster any TV "star."

Viewers, however, will be treated to "CentSible Nutrition" at its best in the fall with each new episode.

Professors to use endowment for economic research

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

An endowment created by University of Wyoming alumnus Paul Lowham to fund collaborative projects between the Colleges of Agriculture and Business will be used by Professors Dale Menkhaus and Owen Phillips to support their ongoing research into transitional agricultural markets, focusing on such topics as collusion, price discovery, and auction markets.

Menkhaus of the Department of Agricultural and Applied Economics and Phillips of the Department of Economics and Finance have published many papers together, all using experimental economics to analyze how markets are affected by trading rules or institutions, methods of delivery, and tighter vertical coordination among market participants.

Lowham, a resident of Jackson and a long-time Wyoming real estate company owner, earned bachelor's degrees in animal

science in 1962 and in business administration in 1963 from the University of Wyoming.

Menkhaus and Phillips will use the Lowham endowment to research market institutions and structures by creating simple markets in computer laboratories where students earn money as buyers and sellers. The use of experimental economic methods provides a controlled setting for obtaining data needed to investigate the effects of changing market environments.

The two began their collaboration in 1995 with the help of grant funds and have combined Phillips's expertise in industrial organization and experimental economics and Menkhaus's expertise in market structure issues in agriculture to further their studies. Menkhaus says they are attempting to answer such questions as, "If we change market institutions, what happens in the price discovery process? How are market outcomes affected?"

Menkhaus adds, "Re-searching market structure

issues in agriculture is important because markets are evolving so rapidly in agriculture. There is concern among producers and producer groups with regard to how these changes affect prices and earnings."

In one of their recent papers, Menkhaus and Phillips and UW Cooperative Extension Service Specialist Chris Bastian write, "Our research suggests that the trading institution and also the method of delivery can go a long way toward explaining relative earnings and that public policy should be directed toward better understanding and then maintaining basic market conditions that preserve efficiency and relative earnings regardless of buyer concentration."

The Lowham endowment will allow the two professors to fund undergraduate and graduate research assistance, continue classroom market simulations, present research results at scholarly gatherings, and conduct collaborative research with other universities throughout the world.



Dale Menkhaus and Owen Phillips



David Carson

Creativity key to professor's research, teaching, and counseling

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

As a professor of child and family studies, David Carson promotes the use of creativity in helping people nurture their relationships. His many research, teaching, and therapy interests reflect his own creative bent.

A faculty member in the University of Wyoming College of Agriculture's Department of Family and Consumer Sciences since 1989, Carson is also a two-time Fulbright Senior Scholar who is currently co-editing a book on family life education in India with a long-time colleague and several partners in that country.

Carson first visited India, a country of 1.2 billion people, when he was 22 and has been returning to

South Asia ever since. "What they mean by family life education is a little bit different from what it means here," he says, describing tribal families in underdeveloped areas of the state of Orissa near the Bay of Bengal who live in mud houses with thatched roofs.

When the often volatile political situation in that part of the world has allowed it, Carson has given talks in northern India and Nepal in the Himalayas and has also worked on rural development projects.

Carson has also spent the past few years writing a psychology book that will be released in the fall. Entitled *Creativity in Psychotherapy: Reaching New Heights with Individuals, Couples, and Families*, the book focuses on how creativity can be nourished in children and families and some of the potential pay-

offs of helping people live more ingenious lives.

The text discusses treatment techniques and interventions and also includes a theory and research base and an educational component. "It teaches how people can notice their gifts early on and how they can accentuate and nurture them," Carson explains.

He and co-author Kent Becker, a UW assistant professor of counselor education, hope to reach an audience of academics teaching graduate level therapy classes as well as practicing clinicians with their collection of exercises, vignettes, and practical case study examples.

"We hope it will be a nice contribution to the field," Carson says of the new book and its contemporary psychotherapeutic schools of thought. "There's nothing like it out there that we can see that

talks about different stages and uses of creativity," he notes.

Such stages have interested Carson throughout much of his career. "The vast majority of people in counseling are doing the best they can with that they know. They are just stuck," he explains, often inadvertently facilitating more of the problem they are trying to get rid of. "Creative thinking can give people who find themselves locked in a box ways of imagining different options and possibilities for their lives and relationships."

Carson has applied a similar philosophy to his research with language-delayed children who are a year or more behind their peers in communication development and who may develop emotional or behavioral problems as a result.

(Continued on page 10)

Carson *(continued from page 9)*

“What we are trying to figure out is what parents can be doing to try to provide a more language-enriched and stimulating environment in the home and to give them suggestions and behavior management help,” he explains. Carson and his wife Cecyle, an associate professor of speech-language pathology, along with a colleague in England have followed the progress of various groups of children starting when they were 2 and continuing through the third and fourth grades. He also plans to work with another researcher and former collaborator in California on a new creativity study this fall.

A licensed marriage and family therapist and nationally certified psychologist, Carson has periodically operated a private practice so that he has the opportunity to test his theories with couples and families in the throes of troubled relationships.

“Family therapy is much more than talking – it’s a whole experience that takes a great deal of stamina. There’s a lot of

energy in the room that requires moment-by-moment attention. It’s taxing, but it gets the adrenaline going at the same time,” he describes.

Carson is currently conducting clinical supervision around the state for people who are working towards licensing, providing them with immediate feedback and helping them prepare for state exams.

He is proud of his role in helping to organize the college’s popular child and family studies program and of his collaborative work with Becker in coordinating the UW graduate specialization in marriage and family therapy. Both programs, he says, are designed to help students be able to creatively practice the theories and models they learn when they make the transition from college to careers.

“There’s a bridge from research to application, and our way of helping students cross that bridge is to talk about creativity,” Carson says. “It adds feeling and meaning and discovery to anything we do.”

UW student hopes

by Vicki Hamende, Senior Editor
Office of Communications and Technology

University of Wyoming agroecology senior Sara Sauer hopes the people of Sheridan will become interested in sharing vegetable harvests and supporting a community project at the same time.

To earn internship credits for her College of Agriculture degree, Sauer is working with the Sheridan Research and Extension Center, the Sheridan County Cooperative Extension Service, and Sheridan College to develop a Community Supported Agriculture (CSA) program designed to connect consumers, gardeners, and organically grown products of the land.

CSA, which is a worldwide endeavor, allows community members to receive a weekly share of harvested vegetables by paying a grower an annual membership fee to cover the production costs of a garden.

“It’s a sure way for farmers to earn money, and it guarantees that every week during the growing season the buyer receives a good share of vegetables,” Sauer explains.

With the help of Carolyn Benepe, CentSible Nutrition project coordinator for Sheridan County, Sauer planted rows of cabbage, onions, peas, beans, spinach, carrots, beets, potatoes, squash, tomatoes, peppers, eggplants, pumpkins, lettuce, radishes, broccoli, and marigolds in June in a plot near Sheridan College’s Joe and Arlene Watt Agriculture Center. Compost from an area sawmill has been used to nurture the crops, and residents of the Wyoming Girls School in

to involve community in shared gardening

Sheridan have helped weed the garden every week.

In this pilot year of the program, produce from the plot is being sold at Saturday farmers' markets, and information about CSA is being advertised at the same time. All proceeds will be used to develop next year's garden program. Some of the vegetables are also being donated to local food banks.

The development of CSA in Sheridan is an outgrowth of Benepe's teaching garden, which was organized as part of Cent\$ible Nutrition to give participants hands-on gardening experience and access to inexpensive, locally grown vegetables to include in meals.

According to Benepe, the goal of the project is "to empower participants to plant their own gardens and/or share in the work and harvest of the teaching garden, thereby increasing the number of vegetable servings in their diet." Benepe shows students how to preserve, cook, and serve vegetables.

Sauer says it is a "great opportunity" for her to work with Benepe to learn how to organize a community project and to promote healthy eating at the same time. Originally from eastern Colorado where she grew up on her family's farm, Sauer has spent the past two summers as a field aide at the Sheridan Research and Extension Center, working with center director Roger Hybner to help maintain a variety of research projects being conducted there.

Sauer hopes to pursue a career in agriculture or horticulture after she receives her UW degree. Her internship, she says, "has been a really, really good experience. I am excited to be here."



UW student Sara Sauer, left, checks plants earlier in the summer at the vegetable garden in Sheridan she hopes will soon become part of a Community Supported Agriculture program. Sauer and Juanita McGuire, right, of Utah, are both working as field aides for the Sheridan Research and Extension Center.

Bean nodules key to nitrogen

by Vicki Hamende,
Senior Editor
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and Technology*

Kelli Maxwell spends her days counting beans and nodules and loves it.

The College of Agriculture graduate student is conducting a study at the University of Wyoming Powell Research and Extension Center to analyze the

interaction between nitrogen fertilizer and helpful soil bacteria called Rhizobia in pinto bean roots. Rhizobia extract nitrogen from the atmosphere to give to the plants, which in turn provide the bacteria with energy.

The goal of her project is to develop an optimum fertilizer management system that will promote the crop's symbiotic relationship with the bacteria while

at the same time producing a maximum economic yield for the beans.

The "Catch 22:" Adding nitrogen fertilizer reduces the colonization of the bacteria. Thus, the more fertilizer that is added, the less help the plant receives out of the relationship.

For Maxwell, this translates into hours, days, weeks, and months of designing experiments, determining treatments, preparing soil, mapping fertilizer and non-fertilizer plots, planting and irrigating beans, applying nitrogen at different times and in different amounts throughout the growing season, chronologically removing samples from the field, and carefully cleaning the roots and counting and weighing the nodules that have formed on them. The work can be tedious, but Maxwell, who is from southeast Kansas, says she finds it "fascinating."

Guiding her is Bart Stevens, a soil specialist at the Powell center since 1999. "When the crop matures," Stevens says, "we will measure the yield of



Kelli Maxwell counts and records the number of Rhizobia nodules on the roots of pinto bean plants for her research on the interaction between nitrogen fertilizer and the bacteria. She discovered from zero to 50 nodules on the 400 plants she tested during one period.

the beans that were produced within each treatment. We'll compare them to determine which treatment was optimum."

Stevens adds, "We know that we need fertilizer or the crop will suffer, but we would certainly like to reduce the amount of fertilizer we use for both economical and environmental reasons."



Bart Stevens and Kelli Maxwell dig pinto bean plants at the UW Powell Research and Extension Center to use for root study.

fertilizer research in Powell

Maxwell and Stevens will be conducting laboratory analyses to determine how efficiently the nodules are capturing nitrogen, combining their results with data collected last year. “We feel we will soon have enough research to answer some questions,” Stevens says. Eventually their results will be published in a journal so that it will be available to the scientific community at large.

Maxwell’s work continues as she studies the bean nodules to determine what inoculant strain of *Rhizobium* is there, the total overall number of attachments, and the mass of the nodules. “There are so many variables,” she notes. “The more you get into it, the more you wonder about.”

It is the complexity of the research, though, that first grabbed her attention. While earning a bachelor’s degree with a double major in natural resources and animal science at Kansas State University, Maxwell was introduced to soil research and soil microbiology. She became hooked on nitrogen issues. “It all makes sense to me, and I

find it very interesting.”

In her search for background information, Maxwell says she has been excited to read papers from places as far away as Africa and Latin America about projects similar to hers. After she completes her current experiments at the research and extension center, she will bring her samples to the College of Agriculture in Laramie for further testing.

In addition to enjoying her project and to developing new understandings about soil research, Maxwell says she also likes sharing her work with others. “Taking research and applying it to practical situations helps in sustaining agriculture and providing extension services,” she explains.

“Finding better ways to manage microbes will have overwhelming applications,” Maxwell adds.

Although her family teases her about spending her time counting beans and nodules, Maxwell says she doesn’t mind. “Soil science is so important, and it’s fun to help people start looking at it differently.”



Removing dirt from the roots of bean plants are, from left, UW graduate student Kelli Maxwell, summer helper Katia Davis, and Bart Stevens, a soils specialist at the Powell Research and Extension Center.

Gil Waibel brings expertise in seed

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

Gil Waibel is at home in a seed lab.

During his career he has worked as manager of the Colorado Seed Growers Association and the Colorado Seed Laboratory and as a seed analyst and lab operator in states such as Idaho, California, Minnesota, and Maryland.

Waibel brings his expertise, his willingness to work with growers to help them produce high-quality seeds, and a handsome list of goals to his position as director of the new Wyoming Department of Agriculture seed laboratory that is being operated by the University of Wyoming's College of Agriculture at

the Powell Research and Extension Center.

"Seeds are what I know," the University of Minnesota graduate says, "and I would like to build clientele and serve as many people as possible with seed testing."

Through seed analysis, Waibel says, farmers in the seed business are provided with an opportunity to have a third party look at their seed production to make sure that it meets government standards.

"A blue label on their seed pack gives producers a level of authenticity and gives the public the assurance that they are buying a quality product," Waibel explains.

One of his main goals as director of the new lab, which was funded by the legislature and dedicated in July, is to build credibility so that producers know they will receive accurate, timely results. "I would like this lab to have a good reputation with the growers and the state so that the services we provide will be trusted," Waibel says.

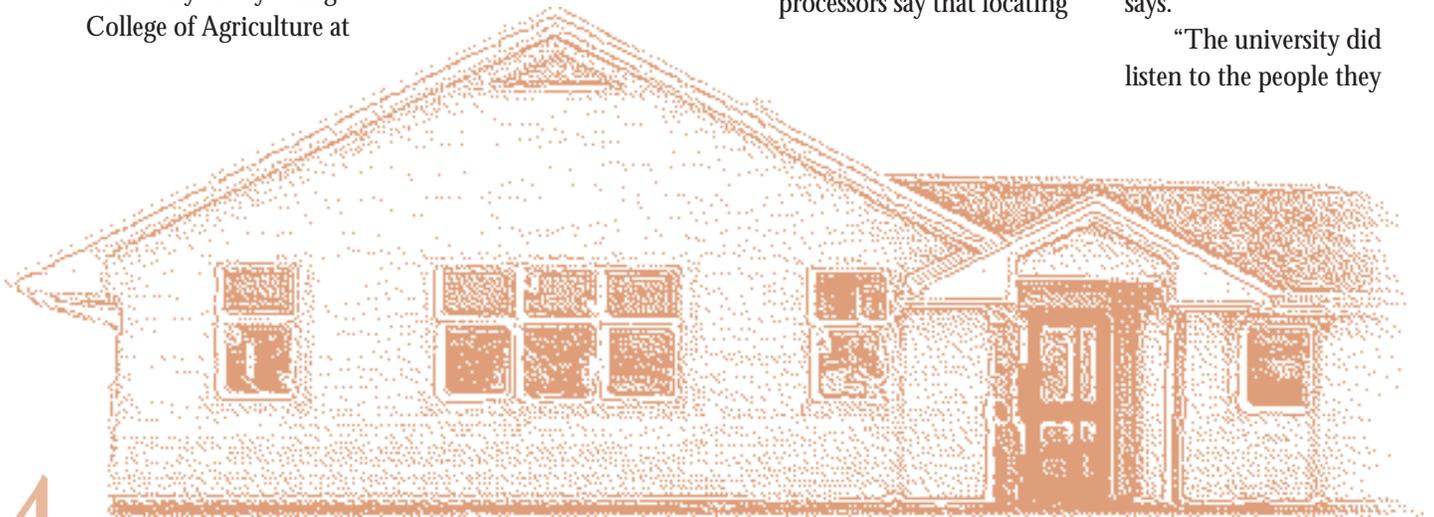
Utilizing its services will be seed processing companies, seed growers, producers, consumers, and agencies such as the highway department, bureau of land management, and forest service.

Wyoming was without a seed certification lab since the closure a few years ago of a former Cheyenne-based state seed lab. Seed processors say that locating

the new lab in the Big Horn Basin, where approximately 90 percent of the industry is located, will allow for the more timely analysis of seeds and will offer clientele easy access to the lab and its staff.

The new building features 2,500 square feet of space to be used for the preparation of seeds for analysis, the determination of seed purity and noxious weed seed contamination, and the testing of seed viability using germination and tetrazolium methods. A computer system will provide automatic e-mail reports for people who have submitted seeds. "The system is a tool that will really help people stay on top of what's happening to their sample in the lab," Waibel says.

"The university did listen to the people they



analysis to new lab directorship

talked to in putting the lab together properly,” Waibel adds. “I think we have a top-flight facility.” It is named the Denny J. Smith Memorial Seed Analysis Laboratory in honor of the late Powell farmer, seed producer, and state legislator who first spearheaded the new enterprise.

Waibel plans to focus on the seed-testing needs of the state and to help producers understand that the seeds they use are valuable. “Before people put a whole year’s livelihood on the line, they should ‘test drive’ their seeds to make sure that they are weed free and able to germinate to equal or surpass the standards,” he notes.

“It would cost many more thousands of dollars to get rid of weeds later than it would to pay a nominal fee to test the seed in the first place,” Waibel adds.

Another goal of the new director is to foster more interest in native species and in planting them in parks and rangelands. “There are many native species that seed labs haven’t tested. As a regional



Gil Waibel shows some of the equipment in the seed analysis laboratory at the Powell Research and Extension Center.

goal, I would like to work with other seed labs to find optimal ways of testing these seeds that have not been analyzed before.”

He hopes to establish good lines of communication to help producers learn how to improve their seed quality and also to utilize the help of students and area residents who are interesting in learning about seed testing.

Assisting Waibel is seed analyst R. Denny Hall, a

graduate of West Virginia University and Montana State University who has worked in the field for UW and MSU and also has a background in agronomy, research, and Cooperative Extension Service outreach education.

“He brings a lot of expertise to the position and knows everyone in the seed business in Wyoming,” Waibel says.

The new director invites anyone who has an

interest in seeds to visit the new lab in Powell. “If they want special tests conducted, the lab is set up very nicely to test practically anything they want us to do,” he says. “I would like to get to know people and to involve them in helping to promote quality seed testing in Wyoming.”

Sunflower research points to a promising crop alternative

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

Sunflowers may be a viable rotational crop that can generate revenue for producers seeking to reduce the fallow period in a conventional wheat/fallow rotation.

Current research being conducted at the College of Agriculture's Archer Research and Extension Center shows that experimentation with row spacing and varieties and systems can result in a healthy sun-

flower crop in both irrigated and dryland situations.

"I am pretty convinced that sunflowers are a good crop for us in southeast Wyoming," says Professor Steve Miller of the Department of Plant Sciences, who is studying the plants with the help of Craig Alford, a research scientist in the department.

They have been growing large-seed confection (non-oil) and oil types in no-tillage plots at the research and extension center since 1988.

Oil sunflower hybrids can be divided into two main types - conventional oil and NuSun (mid-oleic). Oleic oil processed from sunflowers is a cooking oil that is low in saturated fat. NuSun oil contains approximately 20 percent fewer saturated fats than traditional linoleic oil types and does not have to be hydrogenated, making it a popular frying oil with a long shelf life.

The main market for confection sunflowers is in North Dakota while Kansas and Nebraska seek oil hybrids.

Miller reports that the average sunflower yield in

the experimental plots has been 950 pounds per acre. There was a complete crop failure in 2002 due to drought conditions, but past yields have been as high as 2,200 pounds per acre. The best results have come in four-year rotations.

A total of 14,000 to 20,000 seeds per acre have been planted between May 15 and June 10 and harvested in mid October. Fertilization generally includes 40 pounds of nitrogen and 20 pounds of phosphorus.

The main disease pests that have affected the research are white mold and phoma, which causes premature ripening. Stem and seed weevils, head moths, and midges are the insect pests the University of Wyoming scientists have battled along with weeds like foxtail, kochia, Russian thistle, pigweed, and nightshades. Various herbicides have been used in the project.

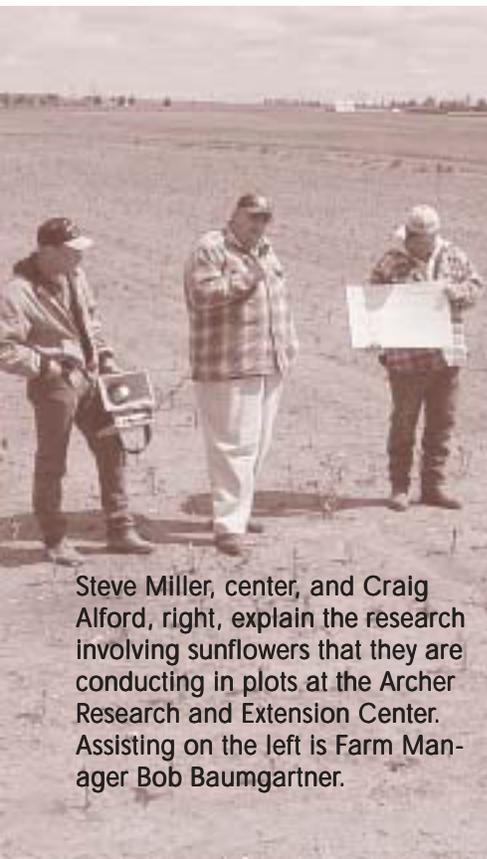
While birds can cause havoc to sunflower plants, Miller notes that there are mechanical and chemical techniques that can be used to repel the creatures. There are also ways to make the heads of the plants bend

under at maturity to protect them from being pecked.

Data is still being gathered on population trials involving growing different numbers of sunflowers in 30-inch, 22-inch, and 15-inch rows to determine the combinations that produce the best yields.

Bob Baumgartner, the farm manager at the Archer center, says sunflowers are one of several different crops currently being researched as rotational alternatives to see how well they produce in the area. "The idea is to look for different spring rotational crops to go along with winter wheat that will generate additional revenue by reducing the fallow period from every other year to once every three to four years," Baumgartner explains.

"The whole goal of the fallow period is to control weeds and to recharge the soil moisture to produce the next year's wheat crop," he adds. "With sunflowers and other rotational crops, we are trying to utilize the soil and moisture to its greatest potential, therefore generating more income and not leaving the ground idle."



Steve Miller, center, and Craig Alford, right, explain the research involving sunflowers that they are conducting in plots at the Archer Research and Extension Center. Assisting on the left is Farm Manager Bob Baumgartner.



Doc Beetle remembered by colleagues and friends

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

There's a familiarity laced in respect that comes with being able to call someone "Doc." Such was the case with Doc Beetle.

It was Professor Alan A. Beetle who founded the Society for Range Management and later received its highest award.

It was Doc Beetle who cleaned the plows of racquet-ball-playing graduate students up until he was almost 80.

It was the professor who developed one of the nation's most extensive international grass collections, second in some respects only to the holdings of the Smithsonian Institution, and who wrote a multi-volume set on the grasses of Mexico, defining

the face of that country's agrostology.

It was Doc who always answered a question with a question, pushing those around him to think on their own.

The scientist extraordinaire who battled federal officials over wildlife issues and the grinning joker who smuggled grass seed home from China in his socks died at 89 on March 27.

In a 57-year career as a faculty member and then professor emeritus in the College of Agriculture, Doc Beetle started the department of range management, established a perpetual scholarship, and amassed an eclectic, comprehensive Rangeland Reference Collection for the University of Wyoming. "He was a classic," says Quentin Skinner, "a classic taxonomist, academician,

and field person." Skinner's association with Beetle began when Doc signed on as the major professor for his doctoral research.

The two men roamed the ranges together studying vegetation. "He was an aggressive publisher and a competitive person. I enjoyed his poker parties. Most of all I enjoyed the fact that Doc was always a gentleman," Skinner says.

"When he would get mad at me, he would call me 'Junior,'" Skinner recalls. The younger man once questioned some of the information in Doc's heralded *Grasses of Wyoming* textbook. "Junior, I hope to hell I live long enough to see you rewrite this book," was Doc's retort. He did. Skinner added a preface in Beetle's honor, "pulling teeth" from his mentor to gather information about the man's many accomplishments.

Doc still came to work every day after he moved to an assisted-living facility. "He was one of the best grass people in the country, and he knew sagebrush inside out," says department colleague Dan Rodgers.

"He was just a fun guy. He would challenge you on anything just to make sure you knew what you were talking about," Rodgers recalls.

Beetle garnered his department's "Golden Udder" award one year for watering and sunning a cactus that turned out to be plastic. Christmas never passed without his gifts of homemade jelly.

How did he get the nickname "Doc"? The reaction to the question is always the same – a pause, a puzzled look, and then the heartfelt reply – "He was always just 'Doc.'"

AG APPRECIATION

Alumni, supporters, and corporate partner to be honored during Ag Appreciation Weekend

The College of Agriculture's outstanding alumni, supporters, and corporate partner for 2003 will be honored September 12 and 13 as part of Ag Appreciation Weekend, a celebration of the importance of agriculture to Wyoming's history, culture, and economy.

Mary Gullikson, a health educator who spearheaded the project to house the College of Health Sciences in its own building, and Tom Whitson, a long-time University of Wyoming weed specialist, will be recognized as the college's outstanding alumni. The Mountain West Farm Bureau Mutual Insurance Company has been named the corporate partner of the year for its gifts to the college, and former head of the Department of Agricultural and Applied Economics Andrew Vanvig and his wife Connie will be honored for their support of college programs and for the scholarship they provide.

The honorees will be special guests at the Dean's Appreciation Dinner on September 12 and will also be introduced in a ceremony during halftime of the University of Wyoming versus Kansas football game on September 13. For more information about the Dean's Appreciation Dinner, contact the College of Agriculture Development Office at (307) 766-3372. Tickets for the Ag Appreciation Weekend football game are \$25 each and may be reserved by calling (800) 922-9641 and asking for seats in the Ag Day block. The game will begin at 2 p.m.

Tom Whitson praised for

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

Others may someday be able to continue Tom Whitson's nationally recognized weed research, but his admirers say that earning the kind of respect he has garnered from the individuals and organizations he has served through extension work may be a much more difficult task.

For his development of one of the top Cooperative Extension Service (CES) weed science programs in the United States, for his leadership as a professional educator, and for his dedication to the people he has helped, the professor emeritus in the Department of Plant Sciences has been selected a College of Agriculture outstanding alumnus for 2003.

"Dr. Whitson showed great pride to be a part of the College of Agriculture and the university and was perhaps one of our greatest ambassadors," says Robert Heil, professor emeritus and former dean of the college.

"In all the presentations I ever heard him make, I was impressed with his professionalism and his show of respect for the university," Heil continues. "He loved his work, the people of Wyoming, and exhibited in a humble way his appreciation for having been given the opportunity to serve. His service can be described in only one way, that being a service of excellence."

Wyoming's rangelands, pasturelands, parks, forests, yards, and gardens are better for the work that Whitson has performed on behalf of CES, notes Teton County Educator Mary Martin. "We who have known and worked with Tom have been gifted for the opportunity to have walked for awhile alongside a bright, intelligent visionary and truly great human being," she adds.

The editor of the renowned *Weeds of the West* and the author and editor of a dozen other books and hundreds of refereed articles and research progress reports, the 23-year UW faculty member began his career in extension and re-

WEEKEND

dedication to extension, research

search in Texas after earning a bachelor's degree in agricultural education and a master's degree in plant and animal science there.

Whitson worked for a time in Natrona County and later at the Laramie campus, where he also earned a doctorate in weed science.

From 1985 until his retirement in 2002, Whitson served as an extension weed specialist and coordinator of Wyoming's Integrated Pest Management program, initiating hundreds of weed management trials. He taught statewide, national, and international educational programs for farmers, ranchers, CES educators, pesticide users, small acreage owners, Master Gardeners, government agencies, and private industries. Whitson, who has won many awards for his accomplishments, continues to work on special projects throughout the state and region.

He credits others for helping him with his career. "I really enjoyed the extension part because the people were always so nice to me," Whitson says. "They were



willing to cooperate in so many ways and to help as much as they could. That was a real highlight for me."

Whitson adds, "From an extension standpoint, the good agents I knew allowed me to do four to five times as much work as I would have been able to do without their help"

the amount of forage for livestock. "It created a win-win opportunity between livestock and wildlife operators," he says. Various state and federal agencies now follow Whitson's guidelines.

He also recalls a project involving the use of chemicals in perennial weed control that eventually led him to the realization that established plants can become competitive with particular weeds. As a result, an expensive treatment operation has been replaced by nature's own systems.

In both of these areas of research, Whitson notes that simply paying careful attention to experimental plots led to new discoveries. In the case of the sagebrush

Whitson has been active and has served leadership roles in such organizations as the Weed Science Society of America, the Society of Range Management, the Western Society of Weed Science, the Crop Science Society of America, Gamma Sigma Delta, and Epsilon Sigma Phi.

"He exemplifies, more than anyone I encountered in my 30-plus years of association with the land-grant system, a faculty member who was truly fulfilling the teaching, research, and extension mission of a land-grant university," Heil says of Whitson. "It seems to me that he was an ideal role model for others in the way that he carried out his responsibilities."

outstanding alumnus

One particular research project Whitson points to with satisfaction is his discovery that the herbicide Spike 20P successfully thins big sagebrush to improve wildlife habitat and double

thinning, he originally thought that the treatment was a failure. "Sometimes being a close observer is one of the most important things we can do as researchers," he says.

Heil adds, "The impact of his contributions will be felt for many years to come in benefiting agriculture not only in Wyoming but also in the western region and nationally."

AG APPRECIATION

Mary Thorson Gullikson honored for service to others

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

For her advocacy of the importance of health care, her philanthropic efforts on behalf of the University of Wyoming, and her commitment to community service, Mary Thorson Gullikson has been named a College of Agriculture Outstanding Alumnus for 2003.

"I am bowled over," says the 1958 home economics graduate and cancer survivor whose career as a dietitian has led her to champion the needs of others.

"If you teach people how to value and take care



Mary Thorson Gullikson

emplary service" to the university and a former president of the foundation board and member of the alumni board, Gullikson worked for many years to secure funding so that the College of Health Sciences could be housed in its own building.

"Mary's ongoing leadership and commitment facilitated a \$12.5 million

for the college, we would not be enjoying the success a new building generates," he notes. "Additionally, Mary has continued her work with the board to urge others to support all the activities of UW through private gifts and grants."

Gullikson has given a personal contribution, one of more than 50 gifts she has donated to UW, to help renovate the campus's Biochemistry Building into a health sciences complex.

In the community of Loveland, Colorado, where Gullikson and her husband David, the parents of four children, make their home, her admirers say she has applied "her talents, abilities, and get-it-done skills" to be

dition of a conference and wellness center, a therapy pool, a chapel, a downtown clinic for the uninsured and underinsured, a cancer treatment center, and other enhancements to medical care in the Loveland area.

Gullikson says her father's fund-raising efforts on behalf of cancer organizations and her own bout with the disease at 28 "really impressed upon me how we need to help each other. Everything that we do to help our community ends up as a benefit for everybody."

Her devotion to community service has also touched United Way, Rotary International, the National Western Stock Show, Zonta, the P.E.O. Sisterhood, the Chamber of Commerce, and church and political organizations.

Gullikson is described as "a vigorous advocate" of UW "who is proud of her education and who maintains a substantial loyalty and dedication" to the promotion of the university.

"I believe that you need to make an investment of yourself to secure a good future for others," she says.

outstanding alumnus

of their bodies, they will be more responsible and will make much better choices," Gullikson says. "Health education has been a guiding light for me."

A past recipient of the UW Medallion Service Award for "extraordinary, ex-

appropriation this year by the Wyoming legislature to construct a new facility for the college," says Robert Kelley, dean of the UW College of Health Sciences.

"Without Mary's dogged pursuit of realizing the vision of a new home

recognized as a major supporter of the local hospital.

As a member and current president of the McKee Medical Center Foundation Board executive committee, Gullikson has provided the leadership that has resulted in the ad-

WEEKEND

Andrew & Connie Vanvig recognized for supporting college

by Vicki Hamende,
Senior Editor

*Office of Communications
and Technology*

Andrew Vanvig has left his mark at the University of Wyoming.

An agricultural economist on the faculty for 34 years, 25 of them as a department head, Vanvig is remembered for his research and teaching in the fields of agricultural credit and finance. A scholarship that bears his name and that of his wife Connie rewards accomplished students every year.

"I always had a strong interest in students at UW. I enjoyed my contacts with them in the classroom and in advising and also in following their career progress after they graduated," Vanvig says.

Now operating a farm in western North Dakota, Andrew and Connie Vanvig continue to contribute to the College of Agriculture to promote new and ongoing endeavors. The Vanvigs are being honored as the college's Outstanding Supporters for 2003.

Andrew Vanvig was born and raised in western North Dakota and educated at North Dakota State University, Cornell University, and the University of Minnesota. He began his career as an assistant and then associate professor at the University of Arizona. Connie Vanvig is also a North Dakota native who graduated from Concordia College in Moorhead, Minnesota, and earned a master's degree in

social work at the University of Denver.

Vanvig was a professor in the Department of Agricultural and Applied Economics from 1957 to 1991, serving as department head from 1957 to 1982. He says he was fortunate to have "a very fine faculty" to work with. During his tenure, the number of students in the field grew from 11 to 145.

Vanvig was active in national and western regional professional activities, lending his leadership to the American Agricul-

tural Economics Association, the Western Agricultural Economics Association (president), the Western Agricultural Economics Research Council (chairman), the Council for Agricultural Science and Technology, the American Association for the Advancement of Science, and several regional technical research committees.

Vanvig was instrumental in organizing the Western Agricultural Lenders

Institute, started in cooperation with the Wyoming Bankers Association to provide loan officers in the state with the opportunity to stay abreast of current developments in the agricultural finance field.

As part of his research in ag credit and finance, Vanvig studied the Wyoming farm and ranch land market, starting an annual survey of farm and ranch real estate values. "We would gather information on current sales to stay abreast of what the land



Connie & Andrew Vanvig

market was doing, what changes were taking place, and some of the reasons for

outstanding supporters

those changes," he explains. He also wrote scores of professional research and extension publications during his tenure.

Former department colleague Gordon Kearl, now retired, credits Vanvig with adding programs in agricultural business and international ag econ and with promoting agricultural ventures throughout the state. "He was, in my opinion, a very good scholar," Kearl says. "He

(Continued on page 28)

Mountain West insurance named Corporate Partner of the Year

by Vicki Hamende,
Senior Editor
*Office of Communications
and Technology*

The Mountain West Farm Bureau Mutual Insurance Company has a history of supporting the College of Agriculture. The company's most recent gift will bolster that support by allowing new and ongoing programs to prosper.

In recognition of its generosity, the Mountain West Farm Bureau Mutual Insurance Company has been named the college's 2003 Corporate Partner of the Year.

Started in 1948 by the Wyoming Farm Bureau Federation, the company conducts business in Wyoming and Montana. "We're the only property and casualty insurance company domiciled in the state of Wyoming," says Sam Clark, the chief executive officer and executive vice



Mountain West Farm Bureau Mutual Insurance Company

president, a 1969 graduate of the University of Wyoming's College of Agriculture.

"We are a major writer of all lines of property and casualty and life insurance in the two states," adds Clark, who has been with the company for 34 years. "In Wyoming we write over 60 percent of the farm and ranch business in the state."

Several of the company's board members are UW ag-

riculture graduates. "We have always been very closely associated with the College of Agriculture and also its extension program."

Karen Henry of Robertson, the president of both the Mountain West Farm Bureau Mutual Insurance Company and the Wyoming Farm Bureau Federation boards of directors, says, "I think the entire board was excited about this gift. We feel that

this is an excellent time to be working with the College of Agriculture."

Henry's family has ranched for five generations in the Bridger Valley, and both of her grandfathers were instrumental in starting the Farm Bureau in Wyoming. "UW extension was a big part of that," she says.

"It's very important that we continue to work with the college because there are so many board members and employees who are graduates of UW or have their children going there," Henry adds. "As a land-grant university, it's important for the college and the university to continue to support agriculture and to understand agriculture in Wyoming."

corporate partner
of the year

PROGRAM NOTES



Ag and Applied Economics

Anna Slyusarenko, an agricultural economics graduate student from Saratov State Agrarian University in Russia, is working with the College of Agriculture at the University of Wyoming and at Colorado State University to learn more about how to educate producers about agriculture, economics, and marketing.

She has been collaborating with mentor Ed Bradley, head of the Department of Agricultural and Applied Economics, and with Cooperative Extensive Service specialists, educators, and administrators to learn the scope of extension programming and to gather information about American food systems.

During her stay, which is being funded by Rotary International with the help of host families, Slyusarenko has been visiting farms, ranches, agricul-

tural research sites, and county extension offices throughout the two states.

With the on-site information she has been gathering, Slyusarenko is conducting scholarly research aimed at helping her create programs that she can implement upon her return to Saratov in October.

Agriculture is important in Russia, she says, because so much of the population is in rural areas and because the country's changed political structure has led to farm and livestock products being imported, displacing Russian production. Systems there need to be reorganized, reconstructed, modernized, and expanded, she notes, so that people involved in the industry can make a good living.



Animal Science

Two new faculty members and a new meat laboratory manager have joined the Department of Animal Science.

Min Du is a meat scientist faculty member interested in the application of proteomics in applied muscle biology and meat science. His research focuses include identifying potential protein biomarkers for predicting muscle growth and meat tenderness, protein expression mapping during myoblast growth and differentiation, differences in protein profiles of animals with different genetic backgrounds, the effects of nutrient availability on cell growth and proliferation, and the development of functional meat products.

Du was hired after working as a post-doctoral fellow in the Department of Agriculture, Food, and Nutritional Science and the Department of Medicine at the University of Alberta in Canada. He received his bachelor's degree at Zehjiang University, his master's degree at China Agricultural University, and his doctorate at Iowa State University.

The new faculty member also served a three-month stint as a visiting

scientist at the Institute of Technology Federal Meat Research Center in Kulmbach, Germany, where he cooperated on research to reduce bacterial contamination during animal harvest and meat processing. Du also taught for five years at China Agricultural University.

Lawrence Goodridge has also joined the faculty as a food microbiologist. A native of Hamilton, Ontario, Canada, he received his education at the University of Guelph. His bachelor's degree is in microbiology, and his master's degree in food science involved the development of a fluorescent bacteriophage assay for the detection of *E. coli* 0157:H7 in ground beef and raw milk. His doctoral dissertation focused on the development of a most probable number reporter bacteriophage assay to detect and enumerate generic *Escherichia coli* from beef carcasses.

Goodridge served as a research associate for the Canadian Research Institute for Food Safety. He spent a year as a post-doc-

PROGRAM NOTES

toral fellow in the Center for Food Safety at the University of Georgia prior to coming to the University of Wyoming.

The new food microbiologist will provide leadership in food safety issues as he further researches methods of rapid detection of microbial contaminants of meat products. He also brings a wide range of teaching experience to his position.

Shane Thompson, who earned a bachelor's degree in May of this year in the meat science and food technology option of the animal and veterinary sciences major, has been hired as the department's new meat laboratory manager.

Thompson was a member of the 2002 UW Meat-Judging Team, scoring well in national competitions. He worked as a student employee in the meat lab beginning in 2001, assisting with the harvesting of animals, the fabrication of carcasses into retail cuts, the production of processed meat products, and the sale of products to the public.

He also served as an undergraduate teaching assistant for Food Science 2060 for two semesters. He was a student assistant for the WYO BEEF Short Course for Wyoming beef producers in January.



Family and Consumer Sciences

Associate Professor Karen Williams, head of the Department of Family and Consumer Sciences, spent several weeks in Australia on an educational trip that was funded in part by the College of Agriculture's Global Perspectives Program.

Williams spent nine days at the University of the Sunshine Coast in Skippy Downs, Queensland, meeting with administrators, faculty members, and students to explore the possibility of faculty and student exchanges and joint research projects.

She also served as a visiting scholar at the University of Melbourne's Centre for Equity and Innovation in Early Childhood. Williams met with a representative there to study the structure and function of the center. In addition, she met with doctoral students to discuss their research projects, participated in a graduate student seminar on qualitative research methodology, and conducted a seminar entitled "Parent and Teacher Perceptions of Play and Curriculum for 5-Year-Old Children: Insights from China and Mongolia."



Molecular Biology

Two faculty members in the Department of Molecular Biology have received grants that will enable them to explore new avenues of research in their fields of expertise.

Professor Randy Lewis has received a \$1 million National Institutes of Health (NIH) bioengineer-

ing research grant and another \$1 million from the National Science Foundation (NSF) for projects pertaining to spider silk proteins.

The three-year NIH funds will be used to design spider silk proteins with specific kinds of strength and elasticity to be used for biomedical applications. Such proteins could become artificial ligaments, tendons, and scaffolds as well as provide for the temporary securing of parts while bones are regenerating in facial bone reconstruction.

Meanwhile, the four-year NSF grant will be earmarked for studying how spider silk proteins could be used to self assemble into wires that could be coated with metal or ceramic to make microscopic devices like a spring elastic for opening or closing something.

Lewis is working with Associate Professor Jeff Yarger of the University of Wyoming chemistry department as well as with researchers in Canada and

Kansas on the two projects. Eight new laboratory staff members will be hired at UW to help with the studies.

Assistant Professor Mark Gomelsky has been awarded a three-year \$360,000 grant from NSF to research cyclic diguanylate, a novel secondary messenger in bacteria.

The recent sequencing of bacterial genomes has uncovered numerous proteins of unknown function, Gomelsky says. Many of these proteins contain modules or domains that are conserved through evolution. However, their functions are unknown.

"We now realize that we've been missing a huge chunk of our understanding of microbial biochemistry, physiology, and behavior. This is surprising and unexpected given that some of the bacterial species like *E. coli* have been studied for many years by hundreds of researchers," he notes.

Gomelsky's project will be aimed at identifying functions of some of these evolutionary conserved protein domains that are predicted to produce a novel signaling molecule – cyclic diguanylate – in bacteria.

Working with Gomelsky in this new area of research will be graduate student Dmitri Ryjenkov and post-doctoral fellow Marina Tarutima.



Plant Sciences

The Department of Plant Sciences has hired four new employees.

Gil Waibel was added to the staff in June as director of the new seed analysis laboratory at the Powell Research and Extension Center. Waibel has 27 years of seed experience, with 20 of those as a seed analyst. He was most recently the manager of the Colorado Seed Laboratory and Seed Certification Service.

Denny Hall joined Waibel in the seed lab in July as a seed analyst. Hall is well known by the Wyoming seed industry after serving nine years as coordinator of the Wyoming Seed Certification Service. He was employed by the Montana Seed Laboratory as a seed analyst the past three years.

Stephen Enloe is the department's new extension weed specialist. Enloe earned a bachelor's degree in agronomy at North Carolina State University, a master's degree in bioagricultural science and pest management at Colorado State University, and a doctorate in plant biology at the University of California in Davis. Enloe specializes in the management of grassland invasive weeds.

Brad Williams has been hired as the coordina-

tor of greenhouse operations for the College of Agriculture greenhouse facility. Williams was previously employed as a greenhouse manager for Metropolitan Community College in Omaha, Nebraska. He obtained an applied science degree in horticulture services from the Nebraska College of Technical Agriculture.



Renewable Resources

Research conducted and published by Associate Professor K. J. Reddy relating to ideas about removing carbon dioxide from the atmosphere to stem global warming is currently being tested in Sweden.

In addition, Reddy joined more than 600 scholars from throughout the world who attended the Seventh International Conference on the Biogeochemistry of Trace Elements in Uppsala, Sweden, where he gave a presentation on "Natural Attenuation of Trace Elements in Coalbed Methane Product Water Disposal Ponds."

He has collaborated on coalbed methane writings and research with Professor Quentin Skinner and former graduate student Marji Patz.

"Most countries are looking into new energy

sources," Reddy says. "Natural gas is one they are exploring extensively throughout the world."

Reddy and Skinner attended the Missouri River Natural Resource Conference in Atchison, Kansas, where they discussed methane development in the upper Missouri River basin.

Reddy also attended a land reclamation symposium at the 20th annual meeting of the American Society of Mining and Reclamation in Billings, Montana, where coalbed methane discharge water interaction with stream channel sediment in the Powder River Basin in Wyoming was discussed.

During the summer he was scheduled to visit India to gather the support of scientists there for a national symposium in 2005 in Adelaide, Australia, to consider the fundamentals of metal speciation in natural waters.



Veterinary Sciences

Researchers in the Department of Veterinary Sciences conducted a session on interesting cases for practitioners at a scientific gathering of state veterinary associations from Wyoming, Utah, and Idaho at a summer rendezvous in Jackson. Approximately

PROGRAM NOTES

250 veterinarians from the region and across the nation attended the event.

Part of the goal of the clinical case conferences is to involve veterinary practitioners in sharing complete information about particular cases with their peers. Wyoming practitioners co-present cases with University of Wyoming faculty members, generally reviewing their approach to each case, the diagnosis, and the treatment provided.

Cases discussed included several large-scale poisoning episodes, a fatal dog attack resulting in the death of a young child, an unusual neurological disease in a dog, an idiosyncratic reaction to a commonly used anti-arthritis drug used in dogs, an abortion storm in heifers due to improper use of a vaccine, a large diarrhea outbreak in a herd of goats, and updates on rabies in bats, pigeon fever in horses, chronic wasting disease, and West Nile virus.

"Practitioners are very effective in co-presenting cases they have dealt with

recently, and it allows the faculty to interact with clients of the Wyoming State Veterinary Laboratory," Department Head Donal O'Toole says of the joint discussions.

At least two of the cases will be presented at peer-reviewed, national veterinary meetings later in the year.

Those in the department who participated in the presentations included O'Toole, Alberto van Olphen, Jackie Cavender, Todd Cornish, Carol Hearne, Ken Mills, and Merl Raisbeck.



Academic Programs

The college has received a seed-money grant from the President's Advisory Council on Minorities and Women's Affairs (PACMA) to begin planning a project aimed at highlighting the roles of women and minorities in the development of Wyoming's agricultural heritage.

Called "Wyoming Agriculture: Rooted in Diversity," the goals of the project are to create a more welcoming learning and working environment sensitive to women and minorities, to sponsor agricultural diversity theme events for the campus and the community, and to enrich the college's educational curriculum and archives related to agricultural diversity.

Educational objectives include the establishment of a course on the history of diversity in agriculture, the production of a collection of museum-quality exhibits for permanent mounting in the college, the creation of an agricultural diversity archive for teaching and research, the sponsorship of student and community symposiums, and the publication of a book of student research findings and archival photographs.

Leading the project is Jim Wangberg, associate dean and director of academic and student programs for the college.

Meanwhile, student recruitment efforts through Wangberg's office continued during the summer. Recruitment coordinator Pepper Jo Six organized activities promoting the college at an FFA convention, the 4-H Youth Leadership Conference, the Cowboy Youth Classic livestock event, a livestock-judging clinic, the Northwest Colorado Livestock Expo, the 4-H State Shooting Sports Match, and the state fair.



Ag Experiment Station

The College of Agriculture and the University of Wyoming Research Office have been promoting the U.S. Department of Agriculture's National Research Initiative (NRI) Competitive Research Program to faculty and staff members and academic professionals in the Colleges of Agriculture, Arts and Sciences, and Engineering. Descriptive pro-

gram information handouts developed by Professor George Vance of the Department of Renewable Resources providing details of the 25 separate NRI program areas were distributed to more than 200 individuals in the three colleges.

In the four years prior to the college's efforts to promote the NRI program, there were six to ten proposals submitted from UW per year. In the past three years, proposal numbers have ranged from 23 to 28. During the four years prior to 2001, two to five proposals were awarded per year with annual funding averaging around \$500,000. During 2001 and 2002, ten and nine proposals were funded for \$1,170,000 and \$833,000, respectively. In 2003, UW submitted 24 proposals with the amount of funding from NRI expected to be at or above the 2001 or 2002 levels. Twenty-five to 50 percent of all proposals submitted from UW have been accepted by NRI.

The program offers opportunities to those interested in standard strengthening awards, equipment grants, seed grants, new investigator awards, research career enhancement awards (e.g., sabbatical awards), and post-doctoral fellowships. UW employees have an added advantage because

the university qualifies as a strengthening school that includes set-aside funds to support submissions of the various awards in the NRI programs. Equipment grant requests of less than \$25,000 require no match, and seed grants are for two years for up to \$75,000. Sabbatical requests have typically been awarded for from \$50,000 to \$75,000, and standard awards range from \$100,000 to more than \$1 million.

For more information on the USDA NRI program, contact Vance (766-2297, gfv@uwyo.edu) or the AES office (766-3667, aes@uwyo.edu).



Cooperative Extension Service

Cooperative Extension Service educators and specialists from throughout the state gathered in Kemmerer for their annual EPIC conference, which was coordinated by Laurie Peternal of the Lincoln County CES office.

The four-day event included presentations by College of Agriculture Dean Frank Galey, CES Director Glen Whipple, and Associate Director Duane Williams. Attendees also heard motivational talks about CES area con-

cepts in other states, successful workplaces, and ways to tell stories about extension accomplishments.

Special meetings took place for three of the state initiative teams, the Wyoming Extension Association of Family and Consumer Sciences, the Wyoming Association of County Agricultural Agents, 4-H educators, and Epsilon Sigma Phi.

Social events included an awards banquet, bowling, and tours of the PacifiCorp Naughton Plant, the Fossil Butte National Monument, and the P & M Coal Mine.

Steering committee members included Peternal, Williams, Lise Foy, Hudson Hill, Phyllis Lewis, Dallas Mount, Steve Schafer, Rhonda Shipp, Denise Smith, and Susan James.

In other CES news, UW grad and long-time Johnson County science teacher and 4-H leader Jim Dawson has joined the staff as 4-H program associate in natural resources. He will coordinate the shooting, sport fishing, and wildlife habitat evaluation projects. He will also be collaborating with the Wyoming Game and Fish Department on a Wyoming Expo and other projects. Dawson has been a hunter safety instructor for more than 20 years.



Ag Development

Drought management, soil chemistry, coalbed methane water disposal, water use by agriculture, and nitrate, fluoride, and arsenic levels in drinking water are all important issues related to water quality and watershed management.

With increased public concern and governmental regulations related to water use, the University of Wyoming and the College of Agriculture are continuing to focus research, teaching, and outreach efforts in this area.

Support is currently being sought for an endowed chair in water quality and watershed ecology to attract a faculty member interested in water quality as it relates to the land. In addition to providing classroom instruction, this person would also work closely with the Ruckelshaus Institute and School of Environment and Natural Resources, local communities, and the public to provide research and educational programs related to water.

Andrew and Connie Vanvig *(continued from page 21)*

was totally fair and honest, very thorough, and very knowledgeable.”

Dale Menkhaus, who was hired by Vanvig in 1973 and is still a professor in the department, says his former supervisor was an effective administrator who accomplished many things behind the scenes that a lot of people did not know about. “He wasn’t always quick to take credit for things,” Menkhaus recalls.

“He always had a strong, special feeling toward the people of Wyoming and this university and this college. He was a real supporter of

students, and our past students remained in contact with him over the years. They had an appreciation for what he contributed to them in terms of their education,” Menkhaus adds.

Vanvig and his wife now raise durum wheat for pasta, flax, oats, alfalfa, and lentils on their farm, utilizing a no-till production system designed to help the soil retain moisture and to provide protection against wind and water erosion.

“Agriculture is changing rapidly in terms of all the new technology that is available,”

Vanvig says. “It’s interesting to watch the changes that are taking place.”

To keep up with today’s trends, he notes, it is important for students to complete a college education. The Vanvigs’ gifts to the College of Agriculture continue to make that possible and also help with program development and research opportunities.

“The college under Dean Galey’s leadership is doing a good job for its students and the people in the state,” Vanvig says. “It’s certainly worthy of support by the citizens of Wyoming.”

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