

# AG NEWS

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## Dear Friends and Colleagues,

I hope this note finds you well. As always, the best part of my job is visiting with you. This winter I traveled to our extension offices in the Big Horn Basin. I also attended the Wyoming Crop Improvement Association meeting in Powell and visited with the Wyoming Wool Growers and organic farmers in Laramie. We also appreciated the efforts of the state's Ag leadership in visiting with the university's upper administration in January. It is really great to hear about all that you are doing to make Wyoming's agriculture more sustainable and profitable.

Congratulations to John Etchepare, the new director of the Wyoming Department of Agriculture. During our first visit, John made the important point that we must think about preparing our students for their world, not for our world or our grandfather's world. One is reminded of the important comment from the great scientist, Louis Pasteur, about chance favoring the prepared. In other words, seeds can only develop if the soil in which they drop is already fertile. That is what we are about, preparing students, constituents, and ourselves for the next opportunity. In order to do that, we need to prepare ourselves as an institution so that we may best prepare our students. Academically, we are in the middle of the action-planning phase of our academic plan. This spring, our advisory board will see the first version of that action plan. Financially, we continue to struggle to meet the broad demands of our three-way mission of learning (educating our students), discovery (our research effort), and engagement (reaching out to you, our constituents). Less than one-half of our support now comes from the state. Federal formula funding has been flat for a couple of decades. Thus, we are increasingly reliant on grant support and your generosity to sustain our operations and to fund new ideas. For that reason, we asked our advisory board to take on development (fund raising) for college programs and initiatives as one of its two major functions. Thank you, again, to all who are helping us with time, money, and great ideas!

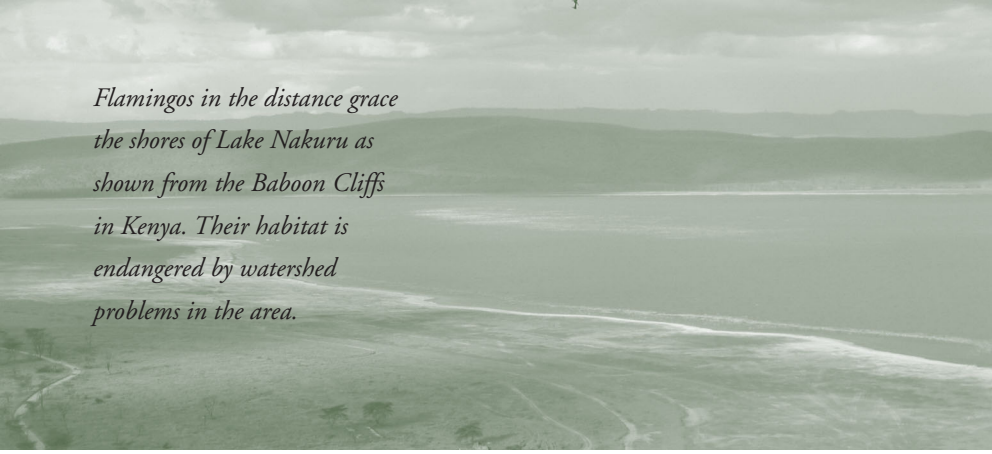
This issue highlights one of our great new programs called "Beyond the Classroom." In light of our discussion about your importance in helping us develop new ideas, this is a program that was initiated by a very generous donor who lives in Saratoga. "Beyond the Classroom" encourages students to explore and broaden themselves by funding experiences for them outside the classroom.

Inside you will find articles that highlight the longevity and importance of our college's programs. Items include a feature on our agroecology program, our role in promoting the university studies program, and to highlight the importance of communicating about agriculture to the public, our involvement in the Writers in Agriculture Guild. Discovery and engagement are featured through a peek at our activities in organic farming, water studies in Kenya, Costa Rican wasp research, and the emergence of bioinformatics. Closer to home, faculty members in the Department of Family and Consumer Sciences are heavily involved in the development of plans for a new childcare facility.

Thank you for your support and ideas. I hope the spring brings lots of moisture to the land and the best for all of you.

"Chance favors  
the prepared  
mind."

*Louis Pasteur*



*Flamingos in the distance grace the shores of Lake Nakuru as shown from the Baboon Cliffs in Kenya. Their habitat is endangered by watershed problems in the area.*

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

Scott Miller envisions a national park in the Rift Valley of Kenya, Africa, where flamingos, rhinos, and lions can live contentedly in their natural habitats and where nearby water sources can remain pristine in quality and plentiful in quantity.

The College of Agriculture spatial processes ecologist in the Department of Renewable Resources has organized a research and outreach program in the environmentally damaged Njoro River watershed that feeds Lake Nakuru, with the goal of restoring the watershed to an ecologically sound and sustainable condition.

In the early 1990s, Miller says, the Kenyan government allowed forest uplands in Njoro to be trans-

formed from protected forested areas into small-scale agricultural lands. "A large number of farmers from outside the region moved in and rapidly cut down the trees and replaced them with crops, primarily maize," he says.

Water quality and quantity in the watershed quickly dropped. Ground water wells began to dry up, and river flow became low and erratic. Since the water leads into Lake Nakuru, a popular tourist site and source of economic importance, issues involving water chemistry and ecology have raised national and international concerns. "There are some really serious ecological, economic, and human health implications here," Miller says.

The problem is complex. Poor agricultural practices are leading to increasing sedimentation and erosion. Compounding the water quality problem, effluent discharges from human waste disposal and animal use are mixing with the water being used by people for drinking and washing.

Faculty members at

Egerton and Moi universities in Kenya initiated the research program and looked to the U.S. for assistance as they began to seek solutions to their growing water problems.

Funded by a USAID grant being administered by UW, Miller is the coordinator of a team of collaborating scientists and graduate students from University of California at Davis, Utah State University, the Kenya Wildlife Service and Fisheries Department, and the two Kenyan universities to study watershed hydrology, ecology, stockholder involvement, and socioeconomics in the affected area.

"We need to come up with a combined ecological and economical approach to convince the people that cutting down the trees is unsustainable management that is not in their best interests," Miller says. Complicating the situation is the fact that most of the farmers are lacking in education and see relatively few options to remedy their situation. "We need to introduce some alternative practices such as aquaculture and agroforestry

that would enhance both the ecological and economic stability of the region."

Maize, he says, has recently been "a dead loser" in the area because infrastructure and distribution problems limit the crop to a local market only. "If the local conditions are poor, crops fail and farmers suffer. In bumper years, local prices drop in response to changing supply and demand, and maize has rotted and been wasted due to an absence of buyers."

The current USAID funding is for a pilot phase aimed at getting the team in place and making sure that the scientific expertise matches the project goals, Miller says. The team is also removing communications barriers by installing computers, phone lines, and Internet lines and by training staff members. He has already spent several weeks in Africa and will return for a few weeks in the summer.

Miller's area of field research will be associated with surface water hydrology, using the Geographic Information System (GIS) and remote sensing to help determine the impacts of

## UW helping

# Kenya solve water problems

land cover change and human management on water quality, water quantity, and stream channel stability.

With extra funding likely in the fall, Miller sees the project pursuing an arm of scientific research aimed at understanding the processes that are causing the watershed changes. Another arm will allow researchers to implement what is recommended by science.

“In the short run, we want to understand the system and what is driving it from a scientific and cultural perspective and then come up with plans for rehabilitation,” Miller says.



*These Kenyan settlements are located on lands recently cleared of trees to make way for corn fields.*

“Then we would like to turn the area into a living outdoor lab where we have a wide range of partners in Kenya and the U.S. who are creating a demonstration and working facility for scientific research and outreach. We’d like it to be a model for watershed research in East Africa.”

To make it all possible, he says, “Significant training in outreach is necessary to try to empower the residents to make their own management decisions.” Miller adds, “Ultimately management is a local question. Either they are going to follow the recommendations or they are not.” Through Community Watershed Action Plans the team is hoping to provide a legal framework and scientific justification for the implementation of improvements.

The time may be right. In a region often plagued by political strife, “Optimism is now high,” Miller says, after a recent democratic election and stable transition of power.

“There is also a huge international awareness of deforestation problems in Kenya now,” Miller says,



*Research scientists and resident stakeholders gather at the headwaters of the Njoro River on the Mau Escarpment in Kenya. Scott Miller is the third person from the left in the back row.*

and local knowledge has been boosted by newspaper reports. “It’s not a problem unique to Kenya,” he adds. “Water quality and quantity is emerging as one of the biggest if not the biggest issue in developing nations.

Miller feels at home with his Kenyan connections. “The international scene is of tremendous importance and interest to me,” he explains. He is also focusing on field research related to Wyoming and semi-arid regions of the West using GIS-based programs. He will teach a seminar and class next semester dealing with emerging tech-

nology and watershed management and with the use of GIS in watershed and landscape studies.

Meanwhile, Miller will be back in Kenya in the summer armed with the goals of conducting “high quality research” and of “trying to make a positive difference in some people’s lives and livelihoods.”

# UW CES educator helps county

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

There's some truth to Dallas Mount's quip, "My job stinks sometimes." The Platte County Cooperative Extension Service (CES) agriculture educator spends a good deal of his time monitoring odors for livestock operations and helping producers meet stiff Department of Environmental Quality (DEQ) laws. Mount's research into animal smells is currently being used in examining a possible revision of Wyoming's odor regulations.

Although Mount is now used to colleagues asking him if he's on his way to do some "poop sniffing" every time he gets into his truck, the Wheatland area odor problem was a surprise to him at first.

Hired by the University of Wyoming in April of 2001, Mount had only been on the job a week or two when cattle producers in the area called an emergency meeting after three livestock operations had suddenly



*Platte County CES educator Dallas Mount uses a scentometer to measure for potential odor problems at a Wheatland cattle feedlot.*

received notices from DEQ that they were in violation of the state odor standard. The ranchers were facing fines of up to \$10,000 per day. Since testing is only done when a complaint has been filed, there was speculation that smells from a large hog farm in Wheatland were responsible for the agency's developing interest.

The current law holds livestock operations to a ratio of one part ambient air to seven parts diluted odor-free air. Measurements are determined by sniffing through a box-like scentometer which utilizes beds of activated charcoal to

eliminate all smells. The user gradually opens tiny holes to let in ambient air until an odor is detected and then measured. Testing must be conducted from the point of nearest public access and must be completed within one hour separated by 15-minute intervals.

"The cattlemen were skeptical and wanted more information," says Mount. "As the new guy, I stood up and said I can research this for you."

Working since then with the cooperation of DEQ, the CES educator has amassed information about odor laws in other states and has worked with a team rep-

resenting the Wyoming Stock Growers Association, the Wyoming Outdoor Council, the Concerned Citizens of Platte County, and a Powder River environmental group to make presentations and to propose changes in Wyoming's regulations to fit contemporary situations and feedlot realities. Mount has also become a certified scentometer operator and has set up an intensive odor monitoring program to alert producers to potential problems and to help them find ways to reduce livestock odors.

Under the current standards, he says, almost any feedlot could be in violation at some point depending on the predisposition of environmental conditions such as wind, dust, and precipitation. Odors from feedlots built right along county roads are more noticeable. Property owners who live close to lots are particularly susceptible to the smells, and legal questions arise when feedlots are opened near already existing dwellings.

Mount advises lot owners to be good managers and to make sure that their pens drain well, are clean, and

# face odor problems

have packed surfaces. He notes that odors from the hog farm have lessened since the owners have covered their irrigation system lagoons.

One of the problems with the current law, Mount explains, is that it is too broad. “It doesn’t specify anything about feedlots – that’s an extreme example. If a neighbor’s lilacs bothered you, DEQ could potentially write your neighbor a ticket.” Mount tested the city sewer and found it to be in violation. In one particular day he discovered problems in five different feedlots. “Obviously this law is not serving its purpose if everyone is in violation,” he notes.

According to Mount’s research, Wyoming is one of only five states that have statewide odor laws tied to the use of scentometers. Nebraska, South Dakota, Montana, Utah, and Idaho have no odor regulations. Colorado’s 7:1 ratio law only applies to housed commercial swine-feeding operations with a one-time capacity in excess of 800,000 pounds of live animal weight. Illinois has more lenient standards

and also requires three trained inspectors and three determinations of odors. Most states with odor standards use a tool that measures concentrations of air particles and gases.

Proposed changes in the law specify that measurements be taken from a complainant’s property, that a

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“It has been a neat example of extension in its purest form. There was an agricultural problem and questions that needed to be answered, and UW was turned to as a source to find unbiased information.”

*Dallas Mount*

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complainant’s home must have existed before a feedlot was established, that odors must exceed the 7:1 limit three different times within 30 days, and that scentometer operators must be certified to help ensure

their objectivity. In addition, lot owners are to be temporarily exempt from the regulations if they are in the midst of trying to comply with a water quality permit. “We don’t want to slap them with another rule while they are trying to comply with a first one,” Mount explains. The changes, he adds, are designed to put the focus on feedlots that are chronic violators rather than on lots with good management that just have occasional problems.

For the law to be revised, DEQ, which is offering a temporary moratorium on fines while Mount and others continue helping producers comply with the regulations, would have to make a recommendation to the Air Quality Advisory Board. That board would review it and send it on to the Environmental Quality Council. That council has the authority to develop new regulations. Public comment is allowed throughout the process.

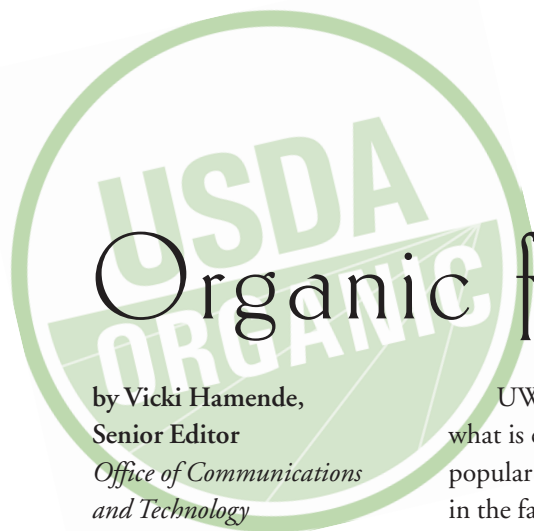
“These kinds of issues are going to continue with the way people are moving out into the country and agricultural operations are

consolidating and getting bigger,” he says. “The odor situation is not a pretty one, but it’s definitely of concern to the feedlots and cattle producers in the area.”

For Mount, who is currently working on a doctoral degree in animal science at UW, the experience of becoming one of Platte County’s odor experts has been a positive one.

“Being a new agent, it has been a great way to get my feet wet and meet the people and gain their trust,” he says. “I am here to work with them and to help them make their systems sustainable. I’ve gotten to know a lot of the producers in the county throughout this.”

Mount is especially happy with the role that UW and CES have played in what has been a difficult situation. “It has been a neat example of extension in its purest form. There was an agricultural problem and questions that needed to be answered, and UW was turned to as a source to find unbiased information,” he says. “It is kind of a neat example of how it all fits together.”



# Organic farming considered as CERTIFIED

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

People in Wyoming are talking about organic farming.

It can mean an additional source of income for a producer, and it can offer the satisfaction of knowing that the earth is being treated well.

A recent Organic Educational Conference in Laramie brought together agency experts, organic farmers, and a crowd of interested producers to discuss new national organic standards and how to get started in the field.

The University of Wyoming (UW), the Cooperative Extension Service (CES), the Wyoming Business Council, and the Wyoming Department of Agriculture sponsored the conference and hosted six different discussion forums on organic farming throughout the state last summer.

A satellite broadcast in March on how CES, organic certifiers, and others involved in the production of organic commodities are affected by government standards caught the interest of people in Wyoming.

UW will be offering what is expected to be a popular new organics course in the fall.

Retail sales of organic products have been growing by about 20 percent annually since 1990, according to the Wyoming Business Council.

Whether organic production in Wyoming actually expands beyond the small number of operations that currently exists remains to be seen. Meanwhile, people with knowledge about what is required to "go organic" say it may be just what growers need in today's economy. However, they caution producers to gather the facts before they make a move.

The term "organic" refers to the food, fiber, and feed of certified producers operating within the framework of using sustainable agricultural practices while adhering to federal regulations mandating the criteria that must be met before a product earns the organic label. According to the regulations, all organic produce must be grown without a specified list of pesticides or synthetic fertilizers. In addition, certified organic producers are responsible for

the frequent inspection of farm fields and processing plants, detailed record keeping, and periodic testing of soil and water. Crop land must have a chemical-free history for at least three years before the first harvest of a certified organic crop. Products labeled as organic can have no genetically altered ingredients or contact with sewage sludge, irradiation, growth hormones, or antibiotics.

"Our job is to keep farmers in the business of farming," says Dave Wilson, a Department of Plant Sciences lecturer who will teach the new UW organics class. "My personal belief is that this is one of our best solu-

that public education about what it takes to be an organic farmer is a must so that producers know the cons as well as the pros of changing their production styles.

He points out that the cold temperatures, the short growing season, and the limits on the number of potential crops in Wyoming that can be processed organically present a problem. "Also, the average rainfall is so low that there's not enough moisture to get sufficient composting," Wilson says.

Another concern that he discusses is the fact that during the three-year certification process, farmers are working to comply with the stringent organic guidelines



tions for doing that." He adds, "There's the potential for them to make almost twice as much as they would with a traditional product. That's the thing that will potentially click in a farmer's head. Reducing inputs on land can potentially lead to increased profit margins."

That said, Wilson feels

while having to sell their products on the traditional market. It isn't until the fourth year, if indeed organic certification has been granted, that producers can expect to see higher rewards. "They're basically working at a lower profit for something produced organically for the first three years,"

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## option for producers

Wilson says. He questions how some growers could manage without opportunities for compensation.

Kelli Belden, a research associate in the Department of Renewable Resources, echoes Wilson's concerns. "The transition period for changing to organic production is financially tough because of all the changeover costs. However, believing that it is eventually going to be profitable is a big driving force," Belden says.

"I think it's a mindset adjustment more than anything else," she adds. "It's a time commitment, and farmers have to be really good managers to be effective."

Wilson says there are many issues organic farmers could potentially face. For example, if a producer were to use manure brought in from out of the state, that producer could suddenly encounter weed specimens he had never seen before. "His hands are tied even though there are some chemicals that are safe and not harmful to humans." He adds, "There could be a chemical in the manure after the composting stage," pointing out that some chemicals last a long time and can be spread from

homeowners and towns as well as from other farms. Expenses can be incurred having manure tested on a regular basis.

Crop contamination can also occur from chemicals in nearby fields and from water. Farmers could be cited for violations they didn't commit and then have to wait three more years for organic recertification.

Belden sees the isolation of many enterprises as a safety net against such contamination. "At this point in time maybe there are some advantages for someone in Wyoming to make the change to organic if you can make nature work for you and if you don't have to waste resources," she says. "I am not convinced that one has to be completely organic to be a good steward of the land, but certainly incorporating more organic options into the soil management system can improve fertility."

Both Wilson and Belden note the fact that certified organic farmers do not have the option of using a chemical as a last resort to save a season's crop. "If you are a traditional farmer, you can still go out and spray," Belden says. "If you are an organic farmer and you do



that, you would have to sell on the regular market for another three years."

Wilson questions whether the government has the personnel to adequately check and certify organic products.

"An organic food is not necessarily safer or healthier and probably not worth more money," Wilson contends, "but the public perception overrides the facts." He adds, "We have a well-established traditional system of guidelines for the safe selling of all farm goods. A product cannot be on the shelf if there's a residual of a chemical in it, whether it was grown organically or traditionally. We monitor that. To the consumer, organic means it was produced chemical free. However, consumers have to wash anything they bring home from the grocery store, organic or not. Organic prod-

ucts may have bacteria from the compost from which they were produced."

Having laid out issues of concern associated with organic agriculture, Wilson says producers can still make it work as long as they know the facts and are prepared to deal with them. He recommends a gradual transition from traditional to sustainable and then to organic production.

Wilson teaches agroecology and horticulture and says his research deals with "decreasing chemical inputs through control practices." In organics, he says, "that's what you have to be able to do." He hopes UW will begin doing more research on organic practices once the fall class begins and students will be available to help with projects.

Meanwhile, agriculturists are faced with the continual challenge of increasing the quality and quantity of their food products with as little impact on the environment as possible. Organic farming might help them do this. "We always have to be open to new ideas," Belden says. "Or maybe this is an old idea whose time has come."



# Producers embrace the challenge

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

The greatest supporters of organic agriculture are often the farmers who are practicing it.

"What I am doing is better for the earth." "I am leaving the soil in as good or better condition than I found it." "It's the best thing we can possibly do for our planet." "It's a great market in terms of premium for your product." "The more I learn about organics, the more I get excited about it and what the industry are trying to do."

The accolades come in the midst of hard talk about the demands of organic agriculture.

The farm of Catherine Wissner, a University of Wyoming Cooperative Extension Service (CES) horticulturist for Laramie County, was certified by the Organic Crop Improvement Association last year. Her organically grown alfalfa has already been sold out for 2003. She also uses her own product to feed her meat and angora goats.

"It's beautiful to look out there," Wissner says of her organic plots and the ladybugs and praying mantises that inhabit them. "It smells so good, and there's so much life going on in that field."

In addition, she adds, "There's more money to be made raising or growing anything organically. Also, being a horticulturist and being in the field, I know what pesticides and herbicides do to the land, animals, and people." Organic agriculture, Wissner says, is not any more labor intensive than conventional agriculture. "It's not any more expensive, either, and the rewards are so much better."

Wissner says the three-year certification process is a learning experience. "There's a lot to know about farming organically, but it's not really that difficult to get started." Finding a certifying agency and a knowledgeable agent, she says, is the first important step.

"During the waiting period you can really start getting some sound practices going," Wissner says. "Once you have good soil fertility and good timing on weed and pest control, the

field gets in balance."

The CES horticulturist says she is "absolutely" planning to continue organic farming. "There's a lot of support for it out there through CES, the Farm Service Agency, and the Wyoming Business Council. There's also a good network of people who are organic producers. We help each other a lot."

Arlene Brown of Riverton is one of Wissner's fellow organic farmers in Wyoming. Her land is in its fourth year of certification for alfalfa dairy hay, which she ships to a dairy that is also in the organic line.

Although most of her practices are organic, Brown is currently using only 163 of her 1,000 acres for organic hay. The rest of the land is farmed convention-

ally. "The drought has a lot to do with that," she explains. Organic production is down. "Maybe the organic fertilizer we are using isn't feeding the plants enough," she says. "Normally it would be okay because you usually pull enough of a premium on your crop to make up for the production." The economics of the dry spell have skewed the picture. Finding a quality product for weed control has also been a concern.

Brown, who has been farming with her husband for 32 years, does not hesitate, however, to urge producers to give organic agriculture a try and not to be afraid of the paperwork involved in getting started. It's a one-time necessity that can then be maintained by a continuation of good record keeping.

"I think people don't know how to switch from conventional to organic," she says. "I think a lot of them think they have to switch completely over." A producer first needs to assemble past records about his or her lands with information about fertilizers and herbicides that have been





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## of organic agriculture

used. The grower then needs to develop a farming plan. “Most farmers do this anyway,” Brown points out. From then on it’s necessary to maintain an audit trail with documentation for every practice. Yearly inspections by a certification agency verify that organic standards are being met or specify improvements that need to be made.

“When you say inspection, really what they are telling you is yes, this is organic, or no, this is not organic and you have to do this to become organic,” she explains. There were no national standards in place when Brown first developed her organic plot. “Now it is much more simplified and everybody is on the same playing field.”

Her crops are far enough apart that contamination is not a problem. Equipment is cleaned thoroughly and regularly. Also, her family owns its own trucking company, giving them control over the shipping of their certified product.

Brown serves on the Wyoming Board of Agriculture, a group she will chair next year. Board members,

she says, “have embraced organic farming with open arms.”

With hopes for an easing of the drought and an increase in her production, Brown says, “Organic farming is very much worth it.” She adds, “I definitely believe that the markets are out there.” Brown encourages producers to investigate organic agriculture before they adopt it and to leave part of their operation in a conventional growing situation, at least in the beginning.

“Take it one step at a time, and don’t be too afraid of it,” she adds.

Shelly Elliott of the Idle Thyme Farm east of Cheyenne in the Carpenter area is living her dream of growing and marketing organic vegetables. Because she and her family are breaking new sod on their property, their certification process has been quick and will be finalized in the summer.

She plans to use two of their 15 acres this year to grow pumpkins, a large scale crop of potatoes, Indian and regular corn, beans, peas, salad greens, beets, radishes, and squash. Elliott is also planting poly-headed sun-



flowers and amaranth to sell in bunches. She will also eventually sell certified organic chickens and eggs. With two or three different varieties of all of her products growing, “crop rotation is a bit intense,” she notes.

Elliott isn’t worried about marketing her goods. “There are 100 people in Cheyenne waiting to buy my products,” she says.

The only problem Elliott has encountered in her pursuit of organic certification has been the fact that there is no manual entitled “So You Want to Start a New Organic System.” She explains, “There are so many people and agencies you need to contact, but nobody seems to have a list of them.” She has sought help from UW CES educators.

Her advice to those without the benefit of such a manual is, “Do your homework. Find out what you are going to need. Un-

derstand the organic program standards so that you don’t make mistakes along the way.” She also encourages organic farmers to conduct market research so that they will know their funding sources and their expenses.

She has purposely diversified her crops to better cope with variables such as the climate and the economy. “The more creative and flexible you are, the better you will weather the storm,” Elliott says.

A key ingredient, she adds, is to find resources and use them. “It’s incredible the information that people have given to me,” she says, referring particularly to those who are already farming organically. “They’re helping make my dreams come true.”

# USDA implements organic standards

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

Organic farming was the traditional norm before pesticide use became widespread. Certification, however, is a more recent phenomenon that accompanied increased awareness of the environment and of personal health.

The 1990 U.S. Department of Agriculture (USDA) Farm Bill developed the Organic Foods Production Act, which was followed in October 2002 by the full enactment of the USDA National Organic Program to govern the uniform production and labeling of organic foods.

Though for decades some foods have carried the label “organic,” consumers can now know exactly what the term means no matter where they live in the nation.

According to the USDA standards, “Foods labeled as organic must have been produced without the use of pesticides, chemical fertilizers, or sewage sludge. They must not have undergone irradiation intended to prolong shelf life nor contain genetically modified ingredients. Animals raised for organic meat, eggs, and milk must not have received antibiotics or growth hormones. These animals must have been fed organic feed and

must have had access to the outdoors.” In addition, USDA must certify growers who produce foods that will be labeled organic.

Specific wording for labels on organic foods is also part of the regulations. Products labeled “100 percent organic” must contain only organically produced ingredients. These goods qualify to sport a “USDA Organic” seal. Products called “organic” must have at least 95 percent of their ingredients certifiably organic. Foods containing at least 70 percent organic ingredients may be labeled “made with organic ingredients” and may list up to three of them on the packaging. Under the new regulations, any product containing less than 70 percent organic ingredients may not be marketed as an organic food.

The USDA Economic Research Service reports that nearly 20,000 natural food stores and 73 percent of all conventional supermarkets sell organic products. Although fresh produce is the top-selling organic food, the sale of or-

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Though for decades some foods have carried the label “organic,” consumers can now know exactly what the term means no matter where they live in the nation.

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ganic dairy products quintupled during the 1990s. Meanwhile, farmland certified as organic has more than doubled since the enactment of the 1990 farm bill.

For more information, visit the USDA Web site at [www.ams.usda.gov/nop/](http://www.ams.usda.gov/nop/).



# Writers in Agriculture Guild offers help to students

by Rhonda Hergenrider,  
Intern  
*Office of Communications  
and Technology*

The Writers in Agriculture Guild (WAG) at the University of Wyoming seeks to help students become more employable by teaching them good communication and writing skills.

Promoting WAG's rewards is James Wangberg, associate dean and director of Academic and Student Programs. Four years ago, Wangberg received a grant from the Ellbogen Center for Teaching and Learning that allowed him to develop college writing workshops that were coordinated by Jane Nelson, director of the UW Writing Center. Two different WAG programs were given that focused on teaching and learning in general as well as problems that occur in the classroom. Wangberg says the workshops provided a great opportunity for faculty members to be more public with their teaching. "Faculty members need the tools to teach," he adds.

There are currently representatives from the

Departments of Family and Consumer Sciences and Agricultural and Applied Economics and the microbiology program who are involved with WAG, including Bruce Cameron, Michael Liebman, Sonya Meyer, Karen Williams, Carl Olson, Don McLeod, Ed Bradley, and Lee Belden. This faculty team has shown great interest in helping students improve their writing and communication skills, Wangberg reports.

WAG hosted an April National Conference on Student Writing and Critical Thinking in Agriculture in Jackson, Wyoming. The conference was made possible through a U.S. Department of Agriculture Higher Education Challenge Grant. It was designed to assist those who teach writing and critical thinking in agriculture and related fields.

Wangberg hopes he is well on his way to meeting his goal of having other universities follow in UW's footsteps. To promote organizations such as WAG, he would like to become part of a national coalition that focuses on improving the critical thinking, writing,



*Carl Olson, a professor in the agricultural and applied economics department, is a member of the UW Writers in Agriculture Guild that is striving to help improve students' communication and writing skills.*

and communication skills of all students. He also hopes that WAG will be a critical component of academic plans and that it will continue into the future so that others can benefit.

Have students been helped by WAG? Wangberg says that a student learning assessment needs to be a future goal for the guild and a continual part of the academic planning process. That way it will be possible to evaluate the impact

WAG has on students.

Wangberg hopes that as time progresses, measurement of WAG's success will be evident in employers' satisfaction with the communication and writing skills of students entering the work force.

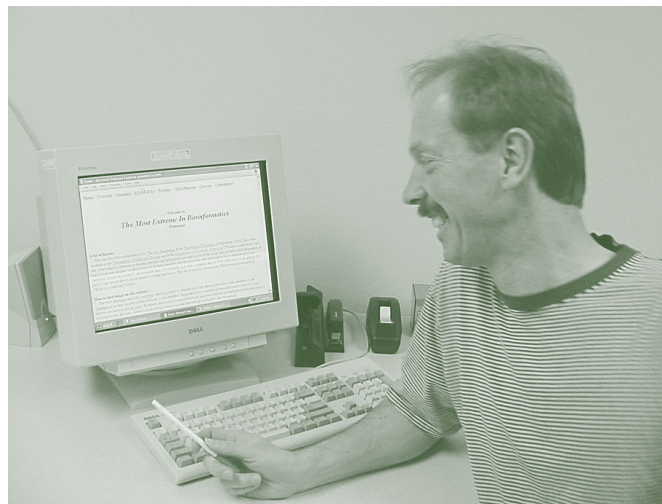
# Bioinformatics offers unique way to research molecular

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

The largest protein found in nature is called titin, and it is big enough to actually be seen under an electron microscope. Comparing the average size of a protein with the average height of a person, titin would stand 350 feet tall. At the other extreme, the smallest protein would equal a person who is merely eight inches off the ground. Although tiny, this dwarf still has a defined biological function.

These facts are among “The Most Extremes in Bioinformatics” that Theo Hanekamp hopes students will have fun investigating in a new course that will be offered in the fall by the Department of Molecular Biology.

“Bioinformatics solves biological questions or problems using computers, explains Hanekamp, an assistant professor in the department. “You still have to back up your predictions with real experimental data,” he adds. “In many cases bioinformatics will get



*Theo Hanekamp explains the Web site he is developing to attract students to “The Most Extreme in Bioinformatics” research.*

you to your research goal faster, but it is not a replacement for solid molecular biology.”

Hanekamp developed the idea for asking students to investigate the “most extremes” in the bioinformatics world from television programs his children enjoy. “The idea is to challenge students by having them do some simple bioinformatics but at the same time to make it interesting for them,” he says.

He has produced a Web site that students will contribute to as they use computational tools to investigate extremes dealing with genomes, DNA, RNA, proteins, and other categories. They will attempt to discover, for ex-

ample, the most repetitive genome, the longest stretch of *Gs*, the nucleic acid sequence with the most slice variants, the most alkaline protein, and the most expensive bioinformatics project in existence. In addition to posing such research questions, the Web site also includes a glossary for those new to the field and links to databases, relevant biological literature, and other Web sources.

“For every fact that we put on this Web site, the students will establish a hyperlink to the actual database and a second link to a literature database that points out the first group of scientists who made the discovery,” he says. The students will then be listed as

contributors. “It will be a group effort with a broad interest.”

Hanekamp hopes the Web site will also show others that “we are doing bioinformatics at the University of Wyoming.” He views the site as another step to stimulate interactions between different departments and different universities and as a recruiting tool for prospective students. He has been working with the College of Health Sciences, the Experimental Program to Stimulate Competitive Research office, and with faculty members in math, chemistry, computer sciences, and in his own department in the College of Agriculture to develop his program.

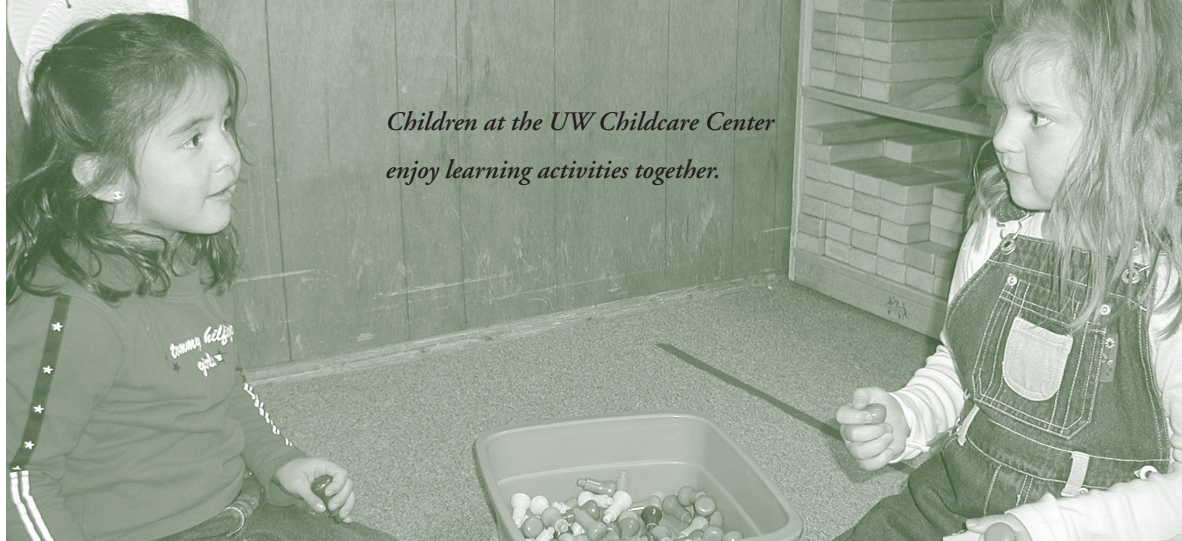
Bioinformatics itself appears to be growing nationwide. Hanekamp quotes an article in *BioInform* magazine noting that the number of graduates in 2002 tripled compared to 2001. “American universities are expected to release 164 freshly trained B.S., M.S., or Ph.D. level bioinformaticists this year,” according to the article. A total of 45 universities now offer degree programs. Hanekamp would like to see UW in the forefront.

## extremes

A native of Germany with undergraduate and master's degrees from Oldenburg University, Hanekamp originally came to Laramie as part of a UW exchange program with his country. He has two master's degrees as well as a doctoral degree from UW and also completed post-doctoral research here. After post-doctoral appointments at the University of Texas in Austin and as a fellow in bioinformatics at California's Stanford University, he was hired in the UW molecular biology department a year ago.

One of his areas of expertise is yeast biology. Aided by research assistants Katja Manninen and Corrine Seebart, he is using bioinformatics in one project to search for new drug targets for the pathogen that causes malaria. He teaches biochemistry and will co-teach two other classes in the fall.

He hopes students will be drawn to "The Most Extreme in Bioinformatics." He adds, "It will be an experimental class. I hope students will have fun with this. I do!"



*Children at the UW Childcare Center enjoy learning activities together.*

## New child care center proposed for UW

by Willow Rossmiller, Intern  
*Office of Communications and Technology*

The University of Wyoming Child Care Center is more than just a place of learning for children – it is an all-encompassing hub of knowledge.

A new center is slated to be constructed in the near future to replace the existing childcare and development facilities located near the campus. It will have a wide variety of classrooms to accommodate infants, toddlers, preschoolers, and school-aged children. The new center will build on the educational mission that has been implemented in the current spot.

The facility was established in 1979 with a two-fold mission. It was designed to provide care for children in the Laramie community. It was also developed to serve as a hands-on learning environment not only for those attending but also for students in the College of Agriculture Department of Family and Consumer Sciences. Because of its dual mission, the center has evolved into a place of learning for all ages.

Children who participate range in age from 3 to 5. The development of all children is taken into consideration through the use of appropriate activities and social situations. The facility has numerous learning programs in the curriculum for youngsters to utilize to expand their knowledge. Different stations offer activities in science, art, computers, and reading.

"There is something for every child at the developmental level, while still challenging each child in a positive environment," according to Crystal Ballard, lead teacher. She also

says that "beyond providing programs based on developmentally appropriate practices, the center provides an atmosphere of multicultural awareness and learning."

Parents are an important part of the program. Brenda Alexander says she has learned better ways to communicate with her children, all three of whom have attended school at the center. Alexander adds that she is "very happy" with the center. "If I had six more children, they would also go there."

UW students are able to gain experience working with preschool-aged children, an opportunity that provides an environment for students in programs such as education, speech pathology, nursing, and child development to work in interactive lab situations. The center is also helped by interns and work-study students. Samantha Moelter, a dietetics major, says, "My experiences at the UW Child Care Center have helped me prepare for my career in meaningful and practical ways." Some of the courses offered with laboratory experiences at the center include child development, observing young children, a child development practicum, and a child development internship.

The teachers who work at the center also learn while teaching. "I learn something new everyday – children continue to amaze me," Ballard says.

According to Roger Baalman, UW facilities planning director, "The administration feels that this center is both a child care and an academic facility which considers the needs of children and also educates students at UW."

# Beyond the Classroom: Blending

“Value added” is an important concept in today’s marketplace. Providing hands-on learning opportunities is one way the College of Agriculture adds value to a student’s degree. Not only can students benefit from exposure to real-life situations, but field trips, internships, research assistantships, and other non-traditional learning programs also give them an edge in the job marketplace.

These activities, which Dean Frank Gale has termed “Beyond the Classroom,” are a part of the university’s academic plan as well as a focus within the

college itself. Examples of Beyond the Classroom learning experiences abound, such as the shrubland ecology field trip offered through the Department of Renewable Resources, opportunities to work with faculty members on research projects, educational experiences through the National Western Livestock Leadership Internship, and study-abroad programs offered in conjunction with the Ecole Superieure d’Agriculture d’Angers in Angers, France. While the activities are very different, they share a common theme - giving students the oppor-

tunity to apply what they have learned in class to situations outside the classroom.

One of the oldest undergraduate study projects in the college is the Paul Stock research work-study program. Funded by the Paul Stock Foundation, it provides stipends to allow students to work one on one with faculty members on specific research topics. This year Katy Byington, Cameron Van Tassell, and John Brooks worked with Professor Stephen Ford in the Department of Animal Science, assisting him in his reproductive health research. In the past other students worked with faculty members at the Wyoming State Veterinary Laboratory studying chronic wasting disease and also with scientists at the UW research and extension centers.

Another off-campus learning opportunity is provided through the FESIA exchange program in Europe. Each June, a small number of students travel to Angers, France, to study at the Ecole Superieure d’Agriculture d’Angers in the Loire Valley. Students

spend a month attending lectures about trade, European business, horticulture, and production agriculture. They can then spend an additional one to two months working with a company in an internship focusing on production agriculture, horticulture, or international marketing and finance. Under this same program, students from France come to Laramie to attend UW. Students on both sides of the Atlantic benefit by gaining an in-depth appreciation of European and U.S. agricultural practices, markets, and trade policies.

The college is also working to expand undergraduate internship programs that place students with a company, ranch, or other business, usually in a field closely related to students’ academic majors or career interests. Recent programs have sponsored up to 50 internships per year. Students work in a variety of settings learning about topics ranging from plant genetics to range management to nutrition and dietetics. Three-way partnerships among employers, students, and faculty members are



*Courtney Ladenburger, a graduate student in the renewable resources department, samples diet vegetation from a cannulated rumen animal. She conducted research in Miles City, Montana, as part of a UW Beyond the Classroom shrubland ecology field trip.*

# academics with real-life experiences

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Not only can students benefit from exposure to real-life situations, but field trips, internships, research assistantships, and other non-traditional learning programs also give them an edge in the job marketplace.

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*UW graduate student Brian Mealor studies shrub communities near Natural Bridges National Monument by Blanding, Utah, on a shrubland ecology field trip with the renewable resources department.*

formed. Employers provide hands-on business experiences which cannot be duplicated in the classroom, and faculty members work with students to integrate those experiences into the course work required for internship credit hours. Each student returns to the classroom with a deeper appreciation of the complexities of agriculture and how a college education can be applied in the field.

Field trips are another important component of

many applied science classes. One example is the renewable resources department's 10-day shrubland ecology trek sponsored by Associate Professor Ann Hild. Last spring Hild and her students toured livestock ranches in Wyoming and rangeland research centers in Utah. The students gained an appreciation of how grazing practices can help ranchers maintain healthy plant diversity and how shrub communities exist.

Finding funding to support these types of activities can be a challenge. As part of Distinction, the Campaign for Wyoming's University, the College of Agriculture hopes to attract permanent funding for off-campus activities. Gifts would help defray the cost of off-campus activities, provide stipends to students wishing to work on research projects with faculty members, and help students take advantage of study programs outside the continental U.S.

Donations of \$50,000 or more are eligible for the state's matching gift program, which matches dollar for dollar new gifts for permanent endowments at UW. For additional information about this or other opportunities to help support students, outreach programs, or faculty research, please contact Anne Leonard, director of development, at (307) 766-3372 or [aleonard@uwyo.edu](mailto:aleonard@uwyo.edu).

# Growing agroecology program

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

The University of Wyoming (UW) agroecology degree program was the first of its kind in the nation when it was established more than 10 years ago. The fact that enrollment this spring is at an all-time high attests to the growing importance of the subject matter and to the employment opportunities available in the field.

“Students are recruiting students, and that speaks highly of their satisfaction with the program’s approach to career preparation,” says Ron Delaney, head of the College of Agriculture’s Department of Plant Sciences.

Developed jointly by plant sciences and the Department of Renewable Resources, the bachelor of science in agroecology program combined and replaced undergraduate de-



*Wayne Ohnesorg (left) of Sidney, Nebraska, and Wes Brown of Meriden, Wyoming, work on an experiment in their Agronomic and Horticultural Plant Biology class. Both students are majoring in agroecology.*

grees in crop science, entomology, and soil science.

“It was decided to create a futuristic degree program that focused on providing the background for critical interdisciplinary decision making addressing the agriculture and natural resource issues that we anticipated the region would be facing over the next 25 years,” Delaney says. Several other land-grant universities

have followed UW’s lead.

Interestingly, the term “agroecology” was selected out of 10 faculty-proposed names for the program by the UW freshman class in 1990. Once the degree was in place in 1992, enrollment immediately began to grow beyond the total enrollment of the three degrees it replaced, Delaney says, and that was during a time when overall UW enrollment was decreasing.

“As students graduated from the program and began their agroecology careers, many employers requested more graduates. The demand has continued

to grow,” Delaney says. “The work force in all segments of agriculture and natural resource management is aging and in need of new employees who are trained to make the right decisions when addressing complex biological and environmentally sensitive systems,” he adds.

The multidisciplinary approach of the agroecology program, Delaney says, “gives the graduate a unique decision-making ability when addressing the issues and problems in these complex systems. This diverse program is also an excellent foundation for those students who wish to further their education with an advanced degree.”

He points out that three of the four years of study required for the agroecology degree can also be obtained at Northwest College (NWC) in Powell. In addition to the instruction available there, UW plant sciences and renewable resources faculty members based at the Research and Extension Center in Powell teach upper division UW courses on the NWC campus.

“The ecological component of the agroecology pro-

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“Private companies and public agencies are pleased with the interns they have employed and request far more interns than there are available students.” Ron Delaney

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# prepares students for careers

gram will be significantly strengthened next fall when a new plant agroecologist will be added to the faculty,” Delaney notes.

Flexibility has been added to the program so that students can now obtain minors within their required credit needs in areas such as crop science, entomology, horticulture, soil science, animal science, agricultural business, and rangeland ecology and watershed management. A minor in agroecology is also available.

When the horticulture minor was established in 2002, seven new courses were added. “The new horticulture offerings have been a long-standing request by students. “This minor allows graduates to enter the job market of the fastest growing segment of agriculture,” Delaney says.

Other career opportunities for graduates with agroecology degrees can be found in all levels of agriculture including scientific work with industries, research for the government and universities, technical fields such as crop protection and soil analysis, production agriculture in farming and ranching, environmental science,

natural resource management, related fields of biology, and education and agricultural extension.

Internships can help prepare students for such careers. “Agroecology has an exceptionally strong salaried internship-for-credit program,” Delaney says. “Private companies and public agencies are pleased with the interns they have employed and request far more interns than there are available students.”

He adds, “Private companies encourage students to experience an internship, and some students actually complete two of them to more fully prepare themselves for the job market.” In addition to the educational experiences students gain from internships, their participation allows them to determine which areas of agroecology they would like to pursue. “Upon graduating, many students are offered jobs with an employer with whom they gained the intern experience,” Delaney points out.

UW agroecology students have served as interns for seed companies, the U.S. Forest Service, the Agricultural Research Service, the

Bureau of Land Management, landscape and greenhouse enterprises, the U.S. Fish and Wildlife Service, golf courses, consulting companies, parks and recreation departments, university cooperators, the National Resources Conservation Service, botanical gar-

dens, chemical companies, nature conservancies, wildlife sanctuaries, analytic labs, farms and ranches, state government, and weed and pest centers.

“The variety really demonstrates the diversity of the students and of the program,” Delaney says.



*Agroecology majors Betsy Mock of Dayton, Wyoming, and Lee Krusa of Long Island, New York, calculate the rate of photosynthesis in corn and Austrian winter peas during their Agronomic and Horticultural Plant Biology lab.*

# TV spots to provide outreach

by Vicki Hamende,  
Senior Editor  
Office of Communications  
and Technology

What's a good way to reach a wide audience with an important educational message? Well, most households have television sets.

A group of University of Wyoming Cooperative Extension Service (UW CES) educators decided to take advantage of a popular medium by filming a series of short TV spots highlighting issues related to Wyoming's natural resources.

Their hope is to provide outreach education to agricultural producers and residents as part of the mission of the CES Sustainable Management of Rangeland Resources state initiative team.

Tom Heald, CES educator in Natrona County, came up with the idea for the news hour segments, and KTWO television in Casper began broadcasting them in March. He has already worked with the station on his long-running program "From the

Ground Up." Heald is now joining with CES educators Gene Gade of Crook County and Eric Peterson of Sublette County to develop the first episodes in the proposed outreach series. Their topics so far focus on types of drought, the nutritional needs of deer, and the characteristics of sagebrush. Future TV spots are planned that will talk more in depth on other ecology, livestock, and wildlife concerns and on rangeland management issues.

The segments already filmed by videographer Greg Irwin of Casper show Peterson and Gade standing outside. Wyoming landscape scenes change periodically as the men speak.

In "A Deer's Smorgasbord," Peterson presents this information:

"It's winter, and deer are on the winter range.

"Deer are likely to digest fibrous feeds. They are browsers – they selectively look for high quality feeds. The highest quality feed is this year's plant growth – stuff that continues to live and will be extending growth next year.



*CES Educator Eric Peterson of Sublette County opens an informational video segment about the nutritional needs of deer for proposed TV spots about Wyoming's natural resources.*

"These perennials, mostly shrubs, include bitterbrush, sage, chokecherry, serviceberry, and all those landscape shrubs you nurture all summer.

"In summer, food is easy. It's obvious why they can't be in those places now. Those places are inhospitable in winter. A deer's strategy is to migrate to areas where they find this feed. This is winter range – a portion of their habitat which provides a winter smorgasbord of high-quality feed.

"As it happens, the wildland/urban interface is often the place where they

find this smorgasbord.

"So next time you notice deer in places you wouldn't see them in summer, or when they are eating your shrubbery, realize that they're just trying to shop for the highest quality produce.

"From the University of Wyoming Cooperative Extension Service, I'm Eric Peterson."

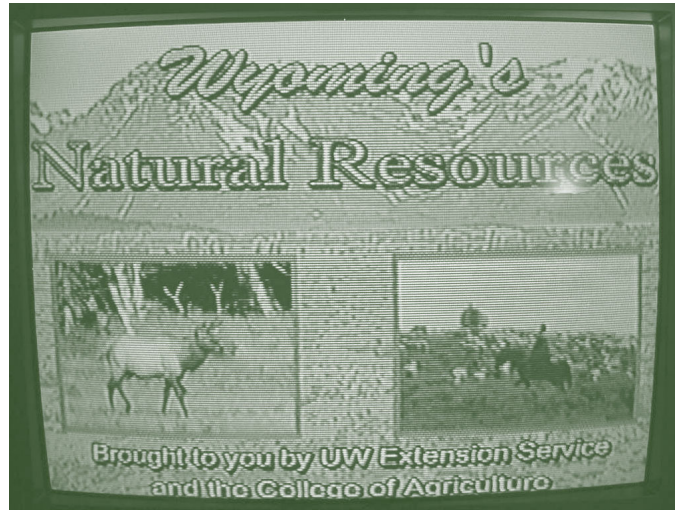
In another segment called "Sagebrush – Wyoming's Sinewy, Silvery Symbol," Gade relays this information:

"Relentless winds, driving airborne chards of crystalline water. Light. Brill-

# education



*The toughness of sagebrush is discussed by CES Educator Gene Gade of Crook County in one of the videos for TV aimed at providing outreach information to Wyoming residents.*



*A CES state initiative team would like to use short television segments on Wyoming's Natural Resources to provide outreach education.*

liant – sometimes painfully intense – because it zips through an atmosphere that is dry. Thin – because it is nearly a thousand kilometers and several mountain ranges removed from the sea – and because it is a vertical mile or more closer to the sun.

“By turns, this place is so cold that frozen leaves and stems sometimes shatter like expensive crystal glasses, or so warm that a tiny spark can set off a raging conflagration. Dry. Sometimes a full year’s precipitation is less than what falls on the eastern seaboard in one good summer thunderstorm.

“This is a tough place where only tough plants and animals, and, yes, tough people can survive outdoors.

“This is the place where sagebrush – Wyoming’s sinewy, silvery symbol - not only survives, it prospers and thrives.

“From the University of Wyoming Cooperative Extension Service, I’m Gene Gade.”

If the state initiative team has its way, this kind of educational information and more about Wyoming’s natural resources will continue to grace the television screens of Wyoming residents.

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“When we look at Wyoming’s rangelands, we should keep in mind that the plants and animals there are struggling to adapt to a tough set of environmental constraints . . . Most of them are as healthy, productive, and beautiful as they are capable of being.”

Gene Gade in an upcoming broadcast

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# Seven new wasp species named after

by Vicki Hamende,  
Senior Editor  
Office of Communications  
and Technology

Years of research in the tropical jungles of Costa Rica have benefited a University of Wyoming (UW) entomology professor and three of his students in an unusual way – new species of wasps have been named for them.

A world authority on the parasitic wasp family Braconidae and the author of more than 60 scientific publications, Scott Shaw has been honored by having the wasp species *Allorhogas shawi*, *Callibormius shawi*, and *Notiospathius shawi* named after him.

These species join four others from China, Brazil, and the southwestern U.S. that have been named for Shaw, who serves as curator of the UW Insect Museum in the College of Agriculture. Shaw himself has described and named 95 new insect species from 23 countries. He has titled his discoveries after his father, his father-in-law, and even David Letterman, the designee for *Marshiella lettermani*.

Shaw says this is the first time that new species have been named for his research students. “It’s a big bang all at once,” he notes.

Former graduate student Samin Dadelahi, a Sheridan native who now lives in Laramie, helped to discover and research the wasp species *Notiospathius saminae* during one of her many expeditions to the rain forests of Costa Rica.

Her jungle experiences, she says, gave her “a newfound respect for the intrepid explorers of the past.” She spent months doing research several hours away from the nearest road, taking cold showers in river water, and relying on a generator for electricity. “It was so wet that anything left outside would grow mold on it,” Dadelahi adds. “Being an entomologist in Wyoming in no way prepares you for the tropics, where there is so much diversity and you are exposed to things you have only seen as colored pictures in books.”

*Notiospathius ninae* has been named for UW doctoral student Nina Zitani, originally of Moorestown,

New Jersey, and now finishing her work in London, Ontario. Her honor comes “in recognition of her interest and study of the braconid fauna of Costa Rica.” Zitani has also published the names and descriptions of 15 new insect species based on her months of work overseeing undergraduate students at remote tropical forest field stations.

Two new insects, *Sharkeyelloides vanderenti* and *Vanderentiellus ennychius* have been named for Leendert-Jan van der Ent, a native of the Netherlands who studied with Shaw to earn his doctorate degree. Of particular importance is the fact that both of these species are known only from specimens collected by van der Ent.



Samín Dadelahi conducted extensive research on wasps, including discovering the one that has been named for her, during several trips to Costa Rica as a UW graduate student.

# UW professor and students

“He went into the forest night after night with a blacklight and a flashlight to search for rare insects that are only a few millimeters long,” says Shaw. “Without his efforts, we would not know that these two species exist.”

Descriptions of all of the new species are included in a recently published book on Costa Rican insects written by Paul Marsh. The procedure for determining and officially acknowledging the discovery of new species is governed by the International Code of Zoological Nomenclature. Scientific names must include two words and must be Latinized.

Deciding whether a specimen is new is a lengthy, complicated process. “If an organism is discovered that has no name, in theory anyone could describe and name it,” Shaw says. Exhaustive research must be conducted to make sure that the specimen does not already exist in known literature and museums. “When it is determined by specialists that it doesn’t fit within the existing framework of anything known to science,”

he explains, the new specimen will become official once its name and description are published in a recognized journal.

Dadelahi suspects that there are many new species sitting in files in universities waiting to be properly mounted and investigated. “We have so many different collection mechanisms,” she explains. “In the jungle at night with limited light it’s not really possible to recognize a new species. We have to sort through the samples after we get home.”

The extensive UW wasp collection has more than 120,000 specimens including the ones named for the UW researchers. “For a small regional university, we have a world class insect collection, and it was accumulated in a little over 10 years,” Shaw notes.

Grants from the National Science Foundation and other resources have allowed continued studies in Costa Rica. Why there? “It’s politically stable and friendly,” says Dadelahi, “and it’s extremely diverse in terms of specimens.” Reserved tropical forest lands have been set aside for



*Two new wasps have been named for Leendert-Jan van der Ent, who spent time researching insects in Costa Rica while earning his doctorate degree from UW.*

study. Shaw says the government cultivates relationships with scientists and that it is relatively easy to acquire research permits. He describes it as “a biological paradise.”

The research of Shaw and his students has primarily revolved around beneficial Doryctinae wasp species that parasitize beetle larvae, many of which are forest pests. Since the use of pesticides would be disastrous to the diversity of plants and animals in tropical forest preserves, biological control using wasps may provide the best option for suppressing forest pest outbreaks.

“The environmental services provided by these tiny organisms in terms of natural suppression of forest pests are of enormous benefit to humans,” Shaw says.

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An extensive UW wasp collection has more than 120,000 specimens including the ones named for the UW researchers.

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# College's menu of University Studies classes offers variety of tastes

by Shelli Boyd, Intern  
Office of Communications  
and Technology

Though it is the smallest college at the University of Wyoming, the College of Agriculture makes a strong contribution to the University Studies Program (USP).

The college offers a total of 55 university studies courses, with the Department of Family and Consumer Sciences (FCS) contributing 18 and the Department of Agricultural and Applied Economics offering 14.

USP was developed to give students a core education curriculum. The program outlines certain course categories students must have in order to graduate and then offers them the flexibility to choose which classes they would like to take under the broad classifications. Students are not totally limited to university studies classes in their major, and teachers can apply to have one or more of their classes recognized as university studies courses.

"I'm proud of the College of Agriculture because



*Plant Sciences Lecturer Dave Wilson's agroecology class, AECL 1000, satisfies one of the biological sciences requirements of the University Studies Program.*

of what I consider a significant investment on the part of faculty members to teach courses that fulfill USP requirements," says Jim Wangberg, associate dean and director of Academic and Student Programs for the college. "From the beginning of USP more than a decade ago, the faculty here has shown great interest in being a part of it."

The college offers a variety of university studies classes that satisfy many different requirements. For example, FCS teaches a therapeutic nutrition course that meets the upper division math requirement. The same requirement can be met with the Department of Plant Sciences' soil

physics class. In addition, FCS has a food safety course that counts for a biological science credit, and the Department of Renewable Resources includes a course called ranch recreation that satisfies one of the cultural context requirements.

"For a class to become a university studies course, faculty members have to submit a course proposal and explain how the course is going to meet the various and specific criteria for whichever course category they want," Wangberg explains. "This process involves extra work for faculty members because they have to pay attention to general education criteria

when planning their classes."

Professor Alan Schroeder went to the extra work of making his ag law class a university studies course. "I wanted this class to be part of the program because I wanted students to get more credit for all the writing and research that law requires," Schroeder says. "No matter what their major, it is important for all students to know about the law even if it's just to become more knowledgeable about how to find information."

According to Wangberg, the College of Agriculture's contribution to USP has broadened the menu of class choices available to students and added to the rich diversity of classes the university offers.

"It's important for students to focus on more than their major," he says. "Our college's class opportunities enrich the college experience and allow students to get a variety of tastes. This may be the only time in students' lives that they can devote to some specific area like an agricultural science."

# PROGRAM NOTES



## Ag and Applied Economics

Assistant Professor Donald McLeod was nominated for and has accepted a temporary position in Washington, D.C., with the U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service as a National Program Leader for Natural Resource and Environmental Economics. The term of the position will be from June 1 through December 15, 2003. He will be helping to provide national leadership in developing strategies, program information, and resources to foster innovative approaches for tackling issues involving natural resources, the environment, land use, land stewardship, and rural/urban interface that communities across the nation are facing. It is significant that a member of the faculty is receiving the opportunity to make an important contribution to natural resource issues at the national level.

### Office Associate

Debbie Stark was awarded the Ag Council Outstanding Staff Award for 2002. She was chosen by members of the student organization for the student services she provides and the student-friendly atmosphere she cultivates in the department.

### Associate Professor

Alan Schroeder, chair of the Wyoming Mediation Board, has indicated that there has been a small increase in the number of requests for mediation in Wyoming during the last several months. The board expects an increase in these requests if drought conditions persist in the state this summer.

Professor Larry Held is recovering from the stroke he suffered in August. Although he is still uses a wheelchair, he is doing some walking, speaks well, and is making good overall progress. He frequently spends time in his office, where he keeps up with his research and his graduate students' programs. The department anticipates that Held will return to his normal teaching duties in the fall.



## Animal Science

Friday public seminars (ANSC 5890) from 12 to 12:50 p.m. offered by the Department of Animal Science during the spring semester have given attendees information about important research projects and issues of interest. Coordinated by Professor Stephen Ford, the weekly events also feature a \$3.00 lunch at 11:30 a.m. with meat prepared by graduate students in the department's meat laboratory.

The final sessions May 2 and 9 will feature presentations by animal science interns about their experiences and by UW graduate student Rebecca Atkinson about ruminant nutrition research in sheep.

Other graduate student presentations included Kim Vonnahme on placental research in pigs, Alex Wolf on destruction methods for *Salmonella spp.*, Michelle Gottsch on tumor studies involving ewes, and Billy Myers on work relating to digesta flow markers in sheep.

Department Professor Tod Hansen spoke on the structure/function of a pregnancy-associated protein, and Assistant Professor Donal Skinner of the Department of Zoology and Physiology introduced "Progesterone: The Forgotten Steroid." John Etchepare, director of the Wyoming Department of Agriculture, discussed his perspectives on the current situation in the state.

Other seminar speakers represented the National Cattlemen's Beef Association, the Center for Women's Health Research and the Department of Obstetrics and Gynecology at New York University, and the Animal Reproduction and Biotechnology Lab at Colorado State University.

# PROGRAM NOTES



## Family and Consumer Sciences

Increasing numbers of students are taking advantage of the opportunity to earn a bachelor of science degree with a child development option through the department's distance learning flexible enrollment and online curriculum offered in cooperation with Casper College.

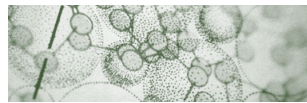
There are currently 38 distance students actively pursuing the degree plus perhaps twice that many who will come on board with community college transfer credits. When the department outreach program began nearly three years ago, there were 20 participants.

Online courses have become so popular that an offering of FCSC 4124 (Children with Special Needs) closed in two hours in the fall. FCSC 2131 (Family Relations) had a long waiting list. Because threaded discussions in chat sessions are an important part of online courses, it is

often difficult to increase instructors' student loads.

The department is currently answering 10 to 15 requests for information per week. Many of the inquiries come from women who are home raising children or from women with full-time jobs who are seeking a career change. Participants come from all over through the world, many of them military spouses who can log on wherever they are.

FCS also offers a certification curriculum for people interested in becoming early childhood program directors. Plans are underway to develop a new distance degree in family life education.



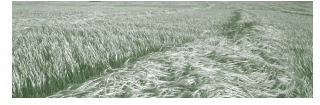
## Molecular Biology

Professors Don Jarvis and Randy Lewis traveled to community colleges in Wyoming and also to Montana State University in Billings during the spring semester to present public lectures and to recruit students to the University of Wyoming.

The public lectures entitled "Beyond Silk and Honey: Developing Insect Systems for Biomedical Applications" and "Spider Silk: An Ancient Guide to the Future" drew high school as well as college and community audiences.

The professors also visited several classes at the three institutions to discuss modern biological research and to recruit both undergraduate and graduate students. They were hosted at the Sheridan and Casper colleges by faculty members involved in the UW-supported Experimental Program to Stimulate Competitive Research and the Biomedical Research Infrastructure Network.

The department is also seeking to attract graduate students through personalized recruiting CDs that introduce prospective enrollees to UW and to the types of research and opportunities available in molecular biology.



## Plant Sciences

Professors Fred Gray and Dave Koch attended the 8th International Congress of Plant Pathology in Christchurch, New Zealand, and presented research results on two Wyoming projects involving the integrated control of the sugar beet cyst nematode and the effect of fall harvest management practices on Verticillium wilt. More than 1,300 participants from 62 countries attended the week-long event, which takes place every five years. The next Congress will be in Italy in 2008.

Prior to attending the conference in New Zealand, they joined Professor James Krall in a two-week tour of southern Australia studying agricultural research and production practices related to sustainable agriculture. At the Waite Institute near Adelaide, they learned about research being conducted on forage legume crops, particularly in the development of varieties



with resistance to disease, nematodes, and insects. Grain legumes (pulse crops) and forage legumes are used to a greater extent in crop rotations there than in Wyoming.

The team visited several experiment stations and stayed at Australian farms, noting differences in production systems. Australians commonly mix grazing practices, using either both animal species in the same pasture or following cattle with sheep. Grazing is carried on more months of the year, and farmers produce and feed less hay and silage. They commonly integrate forages and livestock into cropping rotations. In the wool-producing Hamilton region, there is an attempt to integrate crops into forage/sheep operations. Cattle and sheep were observed grazing fields of forage turnips.

Krall, who also toured in New Zealand, noted that the country has changed from a sheep-based to a dairy-based economy in the last ten years. Some land formally devoted to perennial pasture has been con-

verted to corn silage production to support the dairy industry.

The visit of the Department of Plant Sciences faculty members with their Australian colleagues augments an ongoing collaboration between scientists in the two countries on the possible utilization of a “wheat-annual medic rotation system” developed in Australia for possible use in eastern Wyoming.



## Renewable Resources

Discussions on important research and issues related to water studies have taken place throughout the spring semester as part of the department’s graduate Water Resources Seminar from 2:55 to 4 p.m. Thursdays in Room 2024. The events are open to the public.

The May 1 seminar will feature student Mike Henn talking about “Forage Behavior, Efficiency, and Habitat Selection by Cattle on Plains Prickly Pear Cactus in Eastern

Wyoming.” During the final session May 8, seminar coordinator and Assistant Professor K. J. Reddy will summarize and conclude the series. He spoke on “Chemistry of Coal Bed Methane Discharge Water in Semi-Arid Ephemeral Stream Channels” during one of the other seminars.

Earlier in the semester, Professor Tom Thurow, department head, spoke on “Risk Management Instead of Crisis Management: Recognizing and Minimizing Constraints to Effective Drought Policy.” Professor Mike Smith’s topic was “Strategic Planning for Drought: Implementation Plan.”

Other sessions were led by graduate students Rich Jackson on “Plant Response to CBM Product Water,” Jonathan Anderson on “Rainfall Erosion on Surface Mining Lands,” Chris Ellison on “Sediment Study in Cold Desert Stream,” Gyami Shreshtha on “Rainwater Harvesting for Nepal,” Bret Noecker on “Methods to Minimize Acid Mine Drainage,” Jumram Li on “Selenium Speciation in Natural Wa-

ters,” Leah Burgess on “Management Options for Colorado Butterfly Plant,” and Cotton Bousman on “Long-Term Monitoring on Silver Creek.”



## Veterinary Sciences

The department has converted a large storage space at the Wyoming State Veterinary Laboratory in West Laramie into a classroom. Funds for the effort were supplied by the UW Office of Academic Affairs. The room can hold 40 students and is set up for wireless Internet access. This is the first time the department has had its own dedicated classroom environment although laboratory-based teaching of undergraduates has been ongoing for many years. The new space is located close to the various specialty laboratories at the facility and will be used for teaching undergraduates and for guest lectures.

# PROGRAM NOTES

Another modification in the works in the department is the conversion of a suite of six animal care rooms into a specialized laboratory in which field samples from transmissible spongiform encephalopathy diseases such as chronic wasting disease (CWD) and scrapie will be processed. The new laboratory will house histology equipment for handling brain and lymph node samples as well as specialized enzyme-linked immunosorbent assay equipment for rapid immunological diagnosis of CWD. Co-localizing both sets of equipment will help centralize testing for CWD. It will also ensure the efficient management and disposal of wastes generated from CWD work. Funds for the modification are being supplied by the Research Office at UW.



## Academic Programs

Associate Dean and Director of Academic and Student Programs Jim Wangberg is co-chairing an Academic Summit Task Force planning a national symposium that will look to the future to determine the academic needs of students and the expectations and needs of employers in the fields of agriculture and food science.

The task force falls under the umbrella of the National Association of State Universities and Land-Grant Colleges (NASULGC). The national organization has directed representatives of institutions to come together in a summit to coordinate efforts, share ideas, and envision what the future will be for students and employers and what academic program changes should be made to help make graduates employable.

Currently in the brainstorming stage, the task force recently met in Wash-

ington, D.C., and will soon set a target date for the summit.



## Cooperative Extension Service

Zola Ryan joined the Carbon County extension staff as an area agriculture educator with an emphasis in range management. She has a bachelor's degree in rangeland resources from Oregon State University and is completing a master's degree in rangeland ecology and management from Texas A & M University. Her research there is focusing on a drought early warning system for the Laikipia District in Kenya, Africa.

UW CES joined with the Colorado State University CES and the Colorado Forest Service for in-depth training on the CSU campus. The collaborative effort provided education for staff members working in 4-H and youth development, nutrition, agriculture, natural resources, community development,

horticulture, and financial management. Highlights of the conference included a session on fire and drought and keynote presentations from national speakers about diabetes and financial health.

Since gaining stakeholder input is vital to the success of extension programs, nine area advisory committees have been organized and have met to discuss issues impacting their geographic locations in the areas of agriculture, natural resources, youth and 4-H programs, nutrition, food safety, and management of communities, finances, and small businesses. UW CES is currently conducting a statewide needs assessment through a mail survey. An advisory committee of Wyoming county commissioners also provides direction for CES on critical issues.



## Agricultural Experiment Station

The Agricultural Experiment Station Competitive Grants Program was initiated in 1994 to provide seed funding for interdisciplinary research and outreach projects that addressed one or more of the college's focus areas. During the succeeding eight years, 43 projects have been funded for more than \$2 million. A recent survey of faculty members who have benefited from the program indicated that the initial funding was leveraged to something over \$2.2 million as of 2001.

Projects funded in the past range from traditional production-oriented grazing and crop experiments to the novel application of traditional tools to tackle new problems. For example, the program supported the first description of Brown Root Rot in alfalfa in the U.S. and initiated ongoing research that is close to creating a resistant variety of alfalfa. The

1994 competition funded pioneering work on grasshopper control based on alternate strip and reduced insecticide application. This method has been developed to the point that adequate control is achieved with less than one-half the pesticide of traditional treatments and with drastically lowered costs. It is now the recommended mode of control by the National Grasshopper Management Board.

One of the first applications of experimental economics to agricultural commodity pricing was supported by the program in 1994. The small original study blossomed into a research focus that has received three major USDA and two international grants and is the basis of ongoing collaboration with the University of Saratov in Russia. Early support of cost-effective, practical bovine diarrheal virus control strategies resulted in several years of industry funding for vaccine trials.



## Ag Development

Spring is a season for rebirth. It is lambing season and calving season. It is the time of year to prepare the ground for next year's crop. In the life cycle of the College of Agriculture, spring is also a time for preparing. It is the time of year when high school seniors consider their post-graduation plans. For current students, it is a time to review course offerings for the coming year and meet with their advisors to plan their class schedules. For many young people, determining how to cover the cost of their education is also an important part of the planning process. Fortunately, the College of Agriculture is able to help many of these students through its scholarship program.

This spring the college has offered 154 full and partial tuition scholarships to students in all disciplines and from a variety of backgrounds. Honorees were picked by the Ag College Scholarship Selection Committee. All of the awards

are sponsored by individuals, businesses, or families. Next year the college will be able to add at least two additional scholarships to the list.

The college has received a bequest from Ardis Radichal to establish the UW "Jack" Radichal scholarship fund. The Radichals ranched for many years in the Wheatland canyon and were well known in both Albany and Platte counties. Jack Radichal graduated from the UW College of Agriculture in 1943, and his fund will provide two full-tuition scholarships per year for Wyoming high school graduates who wish to attend the College of Agriculture. Ardis Radichal says it is her desire to "help a person attend college who might otherwise be financially unable to do so."



## Reunion planned for UW stock farm workers

Officials of the Wyoming Territorial Park, formerly the University of Wyoming Stock Farm, are planning an August 8 to 10 reunion in Laramie for persons who worked at the stock farm from the early 1900s through 1990 or who have connections to former employees of the old territorial prison.

For further information, contact the park at 975 Snowy Range Road, Laramie, WY 82070 or e-mail [ollie@wyoprisonpark.org](mailto:ollie@wyoprisonpark.org) or [sheila@wyoprisonpark.org](mailto:sheila@wyoprisonpark.org).

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