June 2017

AGADEMICS

JUNE 2017

UW COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

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WyoLearn online courses from UW Extension

By Tanya Engel | June 2017

Visit https://extension.catalog.instructure.com/ for classes from UW Extension including:

- 4-H Animal Science for WY High School Students
- Rangeland Drought Planning (free, self-paced)
- Understanding the GMO Debate (registration closed)
- Wyoming Pesticide Applicator Training (free, self-paced, Spanish version available)

Publications

By Tanya Engel | June 2017

Landowner Guide to Sage-grouse Conservation in Wyoming

This guide, which includes the basic biology, life stages and habitat needs, habitat components, sagebrush monitoring, conservation planning in Wyoming, and predator impact, is intended to enhance understanding of sage-grouse conservation in Wyoming. Greater sage-grouse conservation, put simply, is understanding the needs of the sage-grouse for each life stage, knowing the life stage you provide habitat for, knowing what threats exist on the land, and implementing actions on the land to minimize or reduce the threats.

Videos

By Tanya Engel | June 2017

Choosing Fertilizer

Bird Feeder Cleaning

Lasagne Gardens

Drip Irrigation Options

Drip Irrigation Flow Rates

Teton County

Changing Faces, Changing Places

By Tanya Engel | June 2017

Farewell:

Isidro-Perez, Maira: Administrative Business Office, office assistant, senior (5/19)

Proposals Submitted

By Tanya Engel | June 2017

Hess, Bret: $390,847 to Wyoming Department of Agriculture (WDA) for “Operations and Maintenance of the Wyoming State Seed Laboratory.”

Hess, Bret, James Heitholt, Vivek Sharma, Mike Moore, Jay Norton, Andrew Kniss, Gustavo Sbatella, and William Stump: $68,430 to WDA for “Dry Edible Bean Research.”

Sbatella, Gustavo: $1,400 to Rob See Co for “Corn/Soybean Variety Trial.”

Schell, Scott, Alexandre Latchininsky, John Connett, John Scasta, and Daniel Tekiela: $721,050 to U.S. Department of Agriculture National Institute of Food and Agriculture for “University of Wyoming’s Extension Team USDA-NIFA-CPPM EIP Grant Application.”

Schumaker, Brant, and Walter Cook: $149,136 to Foundation for Food and Agriculture Research for “The Validation of a Novel qPCR for the Rapid Detection of *Brucella suis*.”

Tanaka, John, and Anna Collins: $21,662.70 to Western Sustainable Agriculture Research and Education for “Motivations and Outcomes for Ranchers that Adopted Conservation Practices for the Greater Sage-Grouse.”

Wissner, Catherine: $20,000 to WDA for “Laramie County Master Gardener

Monies Awarded

By Tanya Engel | June 2017

Collier, Timothy: $3,396 from U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) for “Biological Control of Wyoming Weeds.”

Edwards, Jeffrey: $170,700 from Wyoming Department of Agriculture (WDA) for “Pesticide Safety Education Program.”

Ernest, Holly, Sue VandeWoude, Kevin Crooks, and Jeff Tracey: $7,982 from Colorado State University (CSU) for “REU Supplement: Mountain Lion Landscape Genomics and Disease Ecology.”

Hilgert, Christopher, and Urszula Norton: $17,520 from WDA for “Apple Variety and Rootstock Evaluation for Wyoming.”

Islam, Anowar: $24,500 from WDA for “Evaluation of Chickpeas in Wyoming Environments.”

Jabbour, Randa, M. Schipanski, and K. Paustian: $49,279 from CSU for “Decision Support to Quantify GHG Mitigation and Ecosystem Services from Organic Production Systems.”

Latchininsky, Alexandre, and Larry Debrey: $27,810 from USDA APHIS for “Wyoming Cooperative Agricultural Pest Survey Program: Infrastructure (Core), Small Grains Commodity and Nematode Survey.”

Norton, Jay, Jeremiah Vardiman, Urszula Norton, Carrie Eberle, and James Heitholt: $24,500 from WDA for “Sustainable Production Practices for Edible Dry Beans.”

Schumaker, Brant: $35,130 from USDA APHIS for “Brucellosis Diagnostic Testing 2017.”

Sharma, Vivek, James Heitholt, and Jeremiah Vardiman: $23,302 from WDA for “Dry Bean Water Management and Yield Response under Surface and Sprinkle Irrigation.”

Presentations

By Tanya Engel | June 2017

Hewlett, John, Caleb Carter, and Cole Ehmke. National Extension Risk Management Education conference. “Ag Legacy: Resources on Transition Planning” Poster. Hewlett presenting. April 27-28, 2017. Cincinnati, Ohio.

Summer equine opportunities

By Tanya Engel | June 2017

Jenny Ingwerson-Neimann, equine specialist, announces the following Wyoming 4-H equine events.

Horse clinics

(presented by Ingwerson-Niemann and student interns)

- June 6, Gillette
- June 9, Laramie
- June 29, Thermopolis
- July 6, Torrington
- July 10, Jackson

4-H camps and state contests

- June 16-19 Horse camp, Douglas
- June 21 State horse judging contest at Hansen Arena, Laramie
- Aug 13-16 Wyoming State Fair horse show, Douglas
- Aug 16 4-H horse development committee meeting, Douglas

For more information, contact Jenny Ingwerson-Neimann at 307-766-4373 or jingwers@uwyo.edu.

19th Coat Couture on exhibit at American Heritage Center

By Tanya Engel | June 2017

Orient Expressions is the theme of the 19th annual Coat Couture exhibition, which opened May 5 in the American Heritage Center loggia. A dozen Asian-inspired designs from Department of Family and Consumer Sciences fiber arts students and instructor Donna Brown are on display until August 28. Letecia Guevara's Cherry Blossom Fields Forever jacket (pictured) features marbling on silk, ribbon flowers, machine embroidery, beading, and hot-fix crystals.

Letecia Guevara's Cherry Blossom Fields Forever jacket.

Visiting researcher hopes to uncork Sheridan scientist’s grape precision breeding expertise and cure Italy’s grape grower dilemma

By Tanya Engel | June 2017

Even if the visiting Ph.D. student’s efforts at the Sheridan Research and Extension Center succeed, she won’t get a taste of her own success.

Cecilia Limera from Italy is working six months in Sadanand Dhekney’s laboratory trying to learn, and then return to Europe, grape precision breeding techniques Dhekney has crafted through years of research.

Limera is learning how to initiate embryo cultures of different grape varieties via non-sexual means and modify them using existing DNA sequences from the grapes and their “wild” relatives. No new genetic material is added.

She’s learning precision breeding because European grape growers are caught in a triple squeeze of diseases, pests, and regulations limiting chemical applications. Wine industry businesses and government regulators want other ways of continuing their varieties without using GMOs.

Limera rates the value of learning such techniques high.

“I’d say ’10,’ or even priceless,” she says. “The people specialized in this are really few.”

Dhekney is one of the few, and his expertise may help researchers who face time and consumer preference pressures.

Precision Breeding Solves Problems

Researchers cannot improve existing grape varieties for pest and disease-resistance through conventional plant breeding.

“The problem is most of the varieties are ancient varieties,” says Dhekney, an E.A. Whitney endowed assistant professor in the Department of Plant Sciences at the University of Wyoming. “If you try to breed grapes that would be more resistant, you would loose their enological characteristics.”

The mixed genomes of the new varieties would create a grape completely different from what made the original grape variety desirable.

Time is also a factor. Precision breeding allows fruit production and evaluation the second year. Breeders might have to wait four to five years for evaluating fruit and wine quality if using conventional plant breeding practices.

“You bypass the juvenile phase completely using precision breeding,” says Dhekney.

European scientists had tried breeding disease-resistant grapes, but growers and vitners hated the results, he says.

Grape precision breeding may be the solution, and no one may know the techniques better than Dhekney,

who joined the University of Wyoming in 2012. His expertise draws from around the world.

Limera is in her second year at Universita Politecnica delle Marche in Ancona, Italy. She is the sixth international researcher to work in Dhekney's laboratory. Others have been from University of Sao Paolo, Brazil; Pontifical Catholic University of Chile; Hebei Agricultural University, China; University of Cairo, Egypt; and Kyrgyz National Academy of sciences, Kyrgyzstan.

Her adviser in Italy had collaborated with Dhekney and suggested she work with him. She also had also looked at other laboratories in France, Spain, and the U.S.

"I realized I was going to learn much more here than in Europe," she says. "It is much more open here than in Italy, France, or Spain. I made the right choice."

Keeps Desirable Characteristics

Europeans are softening their non-GMO stance. Precision breeding techniques are now more palatable because no external or foreign genetic material is added.

"You are improving varieties where the wine characteristics are going to be the same," says Dhekney. "Shortcomings are improved, but you keep everything that's desirable and adding new, desirable traits, like disease resistance or frost tolerance."

Europe is more open to the techniques but scientists are behind the technological curve.

"That's one of the reasons Cecilia is here," he says. "To learn those techniques and then go back and apply them in their laboratories, possibly teaching them to students and other researchers. It's a direct transfer of technology from Sheridan back to Italy."

It's Complicated

Scientists falter at the beginning of the process. Collecting embryos from the plants bewilders many.

"I'm still trying to understand the technique of getting the embryos," says Limera. "It's really delicate. You need so much patience to be able to master the techniques of coming up with the embryo."

Culture medium chemical compositions have to be worked out for each variety. More than 30 different chemicals might be required to grow cultures for successfully obtaining embryos.

"That's the place where lots of researchers get stuck," says Dhekney. "I think that's where the Italians are stuck right now. They have not been able to produce the embryos."

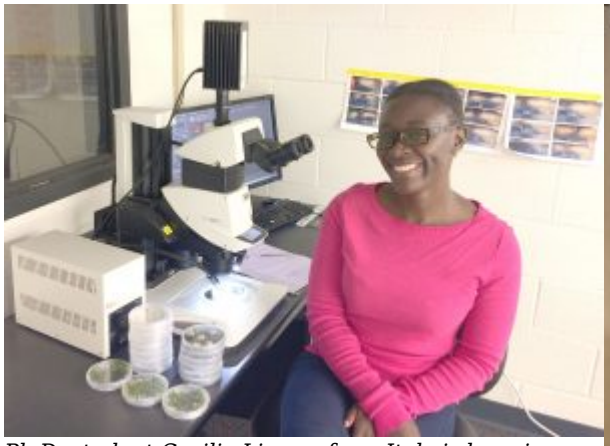
Different chemicals required at different stages of embryo development further complicate the process. Once the chemical combinations are found, researchers then have to successfully insert genes into the embryos.

"Most of what we are using has come through experiments we've done over the last 10 years," says Dhekney, whose laboratory is in the research center's facilities on the Sheridan College campus. The vineyard is on a west-facing hillside near the center.

Timing also matters. Flowering only occurs once a year. Visiting scientists to Sheridan usually work in the lab starting in March, April, or May when grapes flower in Wyoming.

Limera won't taste any success because, "I'm a teetotaler," she says, and giggles at the contrast to studying

grapes for wine. “It’s not important for me to be a wine drinker. My main point is I’m learning the technique to improve grapes and move to the next stage where other people take over, such as wine makers and wine tasters.”



Ph.D. student Cecilia Limera from Italy is learning first-hand laboratory techniques developed by Sadanand Dhekney at the Sheridan Research and Extension Center.

Assistant Professor Sadanand Dhekney

Klebba finalist for UW's top graduate award

By Tanya Engel | June 2017

Phil Klebba

Phil Klebba of Sheridan was among seven finalists for the 2017 Tobin Memorial Award as the University of Wyoming's outstanding graduating man.

The annual award is based on academic excellence and achievement, service to the university, participation and leadership in the community and campus activities, and citizenship qualities.

Klebba graduated with degrees in rangeland ecology and watershed management, and environment and natural resources.

Klebba says being a leader for the Wyoming Conservation Corps was a challenge but extremely worthwhile, which helped him succeed at UW.

"Nothing felt better than leading a determined crew and overcoming tough conditions to complete a project," Klebba says. "Such projects taught me to be flexible, taught me to approach problems from multiple angles and increased my interest in designing similar projects in the future. The University of Wyoming played a crucial role in providing the support and atmosphere, which enabled my growth."

A nominator says Klebba's motivation and drive were key in his academic success.

"I was consistently impressed with his ability to map out new lines of research, come up with solutions and analyze his data to explain the mechanisms that drive the hydrologic cycle in the Snowy Range," the nominator says. "Phil is the rare student who achieved mastery of all the subjects he covered."

Another nominator recognizes Klebba's passion and engagement in leadership and the environment.

"Phil's passion for and willingness to dedicate his time and effort to environmental causes is admirable and sets him apart," his nominator says. "I found Phil to be a highly engaging and articulate student with genuine enthusiasm and desire to learn, possessing a powerful combination of strong work ethic, innate talent, collegiality and positivity."

Anthony Farmer of Cheyenne received the Tobin Award, while Sarah Maze, of Ranchester, was named the Rosemarie Martha Spitaleri Award recipient as the outstanding graduating woman during a recent ceremony honoring all the nominees.

Hanekamp finalist for UW's Spitaleri Award

By Tanya Engel | June 2017

Heidi Hanekamp

Heidi Hanekamp from Laramie was among seven finalists for the Rosemarie Martha Spitaleri Award as the University of Wyoming's outstanding graduating woman.

The annual award, established in 1964, recognizes a student for exhibiting the finest leadership, academic integrity, and citizenship qualities.

Hanekamp graduated with dual degrees in molecular biology and physiology, and minors in music and the Honors Program. She says when she returned to UW her sophomore year, she began to take advantage of the opportunities to become a leader.

"Because of my experiences at UW, I have been able to blossom into an individual who is no longer afraid to lecture in front of a class of 60, sit as concertmaster for the Chamber Orchestra, or give a speech in front of the university president," Hanekamp says.

A contributing nominator for Hanekamp recognizes her as a multitalented young woman.

"She has challenged herself in and out of the classroom. She knows what she wants and will pursue her goals to the best of her abilities," the nominator says. "Heidi is more engaged in the university and local community than any other student I've personally encountered."

Another nominator notes that Hanekamp is well-rounded and dedicated.

"She is not afraid to engage in all the experiences she can. Heidi has gone above and beyond the typical undergraduate requirements: becoming a teaching assistant and assisting with research," her nominator says. "She models consistent and responsible preparation, dedication, and a consistently positive and supportive attitude."

Sarah Maze of Ranchester was named the Rosemarie Martha Spitaleri Award recipient, while Anthony Farmer, from Cheyenne, received the Tobin Award, as the outstanding graduating man during a recent ceremony honoring all the nominees.

Graduate gallery

By Tanya Engel | June 2017

Pistol and Pete with handlers Rebecca Derner and Doug Zalesky visited spring graduation and led graduates from the College of Agriculture Building to the Arts and Sciences Building for ceremonies. Pistol and Pete were on Prexy's Pasture prior to leading the students and had numerous photos taken with graduates. Pistol and Pete are representatives of the Wyoming Agricultural Experiment Station. Zalesky is the director of the Laramie Research and Extension Center. The WAES is in the College of Agriculture and Natural Resources.

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