



Wyoming Agricultural Experiment Station 2018 SELECTED RESEARCH IMPACTS

WAES—Who We Are

For over 125 years the Wyoming Agricultural Experiment Station has been providing support for fundamental and applied research on agricultural, natural, and community resource issues related to the needs of Wyoming, the region, the nation, and the world. WAES operates four Research and Extension Centers located in Laramie, Powell, Sheridan, and Lingle. As the research branch of the University of Wyoming College of Agriculture and Natural Resources, WAES funds and actively promotes research with emphasis on areas identified through stakeholder input and national priorities. The following impacts represent a small sample of the research that we support.



Wild Horse Management: Old Problem—New Technology

Wyoming ranks in the top three states with the greatest number of wild horses. This burgeoning horse population is putting increasing pressure on native plant communities, native wildlife populations, and multiple use of public lands. We collared 30 feral mares and are using the latest GPS tracking technology to obtain near-real-time spatial data to determine horse movement on rangeland sites. This project provides tangible data for resource managers making difficult decisions regarding wild horses in Wyoming.

Contact: *John D. Scasta, JScasta@uwyo.edu*



Iodine Deficiency in the Laramie Valley

Iodine deficiency is one of the most common nutritional deficiencies worldwide and is associated with numerous health problems including thyroid, cognitive, and reproductive issues. Although iodine deficiency is not thought of as a public health concern in the US, it may be a problem in some subpopulations. Our sample analysis of young adults living in the Laramie area revealed a high prevalence of iodine deficiency in young adults, with 14% being moderately deficient and 32% showing a mild deficiency. Work is underway to measure a larger sample and determine dietary and lifestyle risk factors.

Contact: *Enette Larson-Meyer, Enette@uwyo.edu*



Using Worms to Understand Animal Biology and Disease

Our research uses the nematode *Caenorhabditis elegans* (*C. elegans*), a small transparent roundworm, to understand how genes and the proteins they encode, control fundamental molecular and cellular processes during animal development. By understanding the normal function of these genes we can better understand how mutations cause human diseases such as cancer, heart defects, and kidney disease. This knowledge could help us accurately detect and diagnose human disease states and potentially counteract or alleviate the symptomatic outcomes of genetic defects.

Contact: *David Fay, DavidFay@uwyo.edu*





Herbicide Toxicity Hazard in the U.S. over the Past 25 Years

Changes in herbicide use patterns in genetically engineered (GE) and non-GE crops were quantified for the last 25 years using USDA pesticide use data for six major US crops: corn, cotton, soybean, winter wheat, spring wheat, and rice. Our results found that herbicide use intensity has increased in all crops analyzed—GE and non-GE. However, chronic and acute herbicide toxicity hazard to pesticide applicators has remained constant or even declined in many cases. These results should be of interest to regulatory agencies, pesticide applicators, and the general public.

Contact: Andrew Kniss, AKniss@uwyo.edu



Restoration Using Commercial Seed: Consequences for Native Plant Populations

Restoration of public lands frequently requires reintroduction of native plants using commercial seed. Our research shows that although commercial cultivars successfully establish and persist at reclamation sites, they differ in key traits from local populations of the same species. Outcomes of this study will contribute to guidelines for restoration seed mixes and assist planning for future development of native plant materials used in land reclamation and ecological restoration.

Contact: Kristina M. Hufford, KHufford@uwyo.edu



Spending Too Much? Don't Bother Using Reminders

Many consumers tend to overspend. As a result, some companies and government programs have implemented reminders or “spending nudges” to encourage more saving. We conducted an experiment to test whether these reminders reduced overspending. Our research showed that for people that already overspend, reminders don't help. In contrast, for the people that already underspend, the reminders caused them to underspend even more. Our data indicate that “spending nudges” typically do not have the desired effect.

Contact: Chian Jones Ritten, Chian.JonesRitten@uwyo.edu



WYOMING AGRICULTURAL EXPERIMENT STATION

To view past impact summaries and the WAES research database, visit www.uwyo.edu/uwexpstn/research-results-impacts.

Contact (307) 766-3667 or aes@uwyo.edu to learn more about these research projects and other WAES programs.



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