



Wyoming Agricultural Experiment Station 2017 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.



Impacts of Rural Residential Development Pattern on the Cost of Fighting Wildfires

Results of this research suggest that controlling the pattern of development may be more effective at reducing firefighting costs than any other available approach. The average cost of fighting a wildfire for a single isolated home in the wildland-urban interface can be as much as \$225,000, compared to as little as \$100 for a single home within a dense cluster of other homes. This research points to ways that local governments may be able to guide development patterns, rather than restricting development altogether, to simultaneously protect private property rights and reduce the costs of fighting wildfires.

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Weed Control Programs for Irrigated Crops Experiencing Limited Moisture Conditions

This research program evaluates how best to integrate different tactics for better weed control on irrigated crops under limited moisture conditions. The research is generating information to help develop integrated weed control programs for irrigated crops that will ensure productivity and profitability while minimizing environmental effects and conserving water.

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Impacts of Variable Climate on Wyoming Cattle Producers

A Multi-Period Linear Programming model was developed to estimate the economic impact of climate variability on livestock producers in southeast Wyoming. Results show that ignoring climate impacts on production equates to an overestimation of profits by 80% or more. Many producers have indicated they will use this research information when making stocking decisions around climatic variability.

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Solar Electric Investment – Making More Informed Decisions

Researchers and Extension specialists from the University of Wyoming and Ohio State University assembled the most up-to-date research and expertise to produce a six-part educational publication series on solar electric power options. The science- and expert-based information in this series will allow stakeholders to invest in alternative energy (or not) while increasing the likelihood that their decisions will contribute to financial sustainability.

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Invasive Grass Management in Wyoming: Proactive Strategies to 'Stay Ahead of the Curve'

In addition to efforts to predict high-risk areas for cheatgrass, the research team is developing a better understanding of management thresholds to optimize treatment effectiveness. The team is also playing a central role in developing a rapid-response strategy for two newly-documented invasive grasses in Wyoming (medusahead and ventenata). This is the first occurrence of these species in the Great Plains ecoregion, and proactive management actions may help to minimize widespread negative economic and ecological impacts around the state and region.

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Association of the Gut Microbiome with Carbohydrate Absorption in Autistic Children

Children with autism often show symptoms of intestinal malabsorption. Study results revealed there were a variety of changes at the genus and species level in the microbes of children with autism that could be influenced by carbohydrate malabsorption. These findings contribute to an exciting new field with potential for improving patient outcomes through manipulation of gut microbes.

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WYOMING AGRICULTURAL EXPERIMENT STATION

To view previous years' 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.



www.uwyo.edu/uwexpstn