



Wyoming Agricultural Experiment Station 2016 SELECTED RESEARCH IMPACTS



Using Snowmobiles and Geophysics to Measure Snow Water

The amount of snow water present in western mountains is the single greatest predictor of stream flow. Geophysical instruments were mounted onto snowmobiles that allow a rider to measure snow water content and snow depth underneath the snowmobile at the speed of driving. Knowledge gained from this technique is being transferred to state and federal land managers charged with water resource management. Better measurement of snow water will allow water resource managers, flood engineers, and ecologists to predict and prepare for spring and summer runoff.

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Insect Pest Management in Alfalfa

Alfalfa weevil is a consistently problematic pest for growers of Wyoming's highest acreage crop, alfalfa. Alfalfa producer fields in southeastern Wyoming and the Big Horn Basin were sampled to measure pest and natural enemy abundance. Parasitism of alfalfa weevil occurred in most fields, but the parasitism rate varied from 0-40%. Field size and weevil density are both associated with parasitism rate. Future analyses will determine other factors that could drive parasitism. Considerable economic and environmental costs of chemical pest control highlight a critical need to develop more effective and efficient management strategies.

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Seroprevalence of *Brucella ovis* in US Domestic Sheep

Brucella ovis is a bacterial pathogen present in most major sheep-producing regions of the world. Infection spreads through direct contact between rams and ewes. The implications of a *B. ovis* infection for the flock include: ram infertility, decreased ewe conception rates, more abortions in pregnant ewes, and higher numbers of premature lambs. In addition to having huge economic impacts, *B. ovis* infection can result in valuable genetics being lost when infected rams are culled from the flock. By determining the seroprevalence of *B. ovis*, producers are given data to help them make management decisions about improving reproductive health of their flocks, increasing economic returns, and preventing losses due to infection.

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Economic Benefits from Off-Road Vehicle Recreation in Wyoming: Implications of Potential Site Closure Due to Environmental Concerns

Current trends in off-road vehicle (ORV) use indicate the potential for increased concerns and regulation of this recreational activity. Some areas of public lands in Wyoming have been closed to ORV use in recent years. Travel cost data, ORV-user socio-demographic data, and recreational site attribute data were used to calculate the potential change in recreation benefits if some or all of Wyoming trails and roads were closed to ORV use. Closing ORV access to Wyoming sites dominated by US Forest Service land would result in a mean recreation loss of \$4,460,261 per year, and closing all ORV sites in Wyoming would yield a mean loss of \$8,494,365 per year.

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Promoting Positive Aging Outcomes in Wyoming Communities by Mapping Populations and Assets

Wyoming is experiencing a demographic shift toward an older population. Projections indicate that by 2030, Wyoming will be among states with the highest concentration of individuals over age 85. This project will develop a set of asset maps that can be used by community stakeholders to identify and visualize connections and partnerships, as well as resource density, in relation to the dispersion of the state's older population. Given the vast topography of Wyoming and the wide dispersion of its population, it is imperative that policymakers and service providers have accurate information about where older adults reside relative to programs and services available to serve them.

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