

7. Weather monitoring in winter wheat variety trials

Investigators: Keith Kennedy, Jerry Nachtman, Axel Garcia y Garcia, and Caleb Carter

Issue: Hard winter wheat variety trials have been conducted by the University of Wyoming Agricultural Experiment Station in partnership with the Wyoming Wheat Marketing Commission/Crop Research Foundation of Wyoming since 1992. The scarcity of weather data correlating to these trials, however, impedes the ability of farmers to select hard winter wheat (HWW) varieties suited to their location, which also complicates the selection of experimental lines for public release.

Goal: Establish mobile weather stations at five HWW variety trial locations across southeast Wyoming, including dryland and irrigated trials.

Objectives: Correlate weather events, including frost dates, low temperatures, and factors affecting breaking of spring dormancy, among them day length and air/soil temperatures.

Impact: Data obtained should aid dryland and irrigated wheat farmers throughout southeast Wyoming in varietal selection and the timing and type of cultural practices. Selecting varieties for release will be eased, and plant breeders should be better equipped to develop traits to mitigate stresses occurring in Wyoming's climate.

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Keywords: winter wheat, variety trial, weather

PARP: VIII, X

8. Evaluating variable-rate irrigation system at SAREC

Investigators: Brian Lee, Robert Baumgartner, and Milton Geiger

Issue: Variable-rate irrigation (VRI) systems allow farmers to irrigate more efficiently based on an electrical conductivity map overlay for the pivot to determine different watering zones. Such systems, however, take time to pay off.

Goal: Conduct an economic evaluation of the VRI system that has been installed on a 61.48-acre pivot at the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC), including a determination of the payback period and energy savings.

Objectives: Evaluate the VRI system for increased irrigation efficiency and energy savings, which will help determine how long it takes to pay the machine off and begin realizing greater profits.

Impact: Results should assist area farmers make more informed decisions whether VRI is something that would benefit their operations and whether the purchase of a VRI system for their pivot irrigation operations makes economic sense.

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Keywords: variable-rate irrigation, economic evaluation, energy efficiency

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