

**CONTRACT BETWEEN
MONTANA AGRICULTURAL EXPERIMENT STATION
RESEARCH CENTERS
and
MONTANA WHEAT AND BARLEY COMMITTEE**

TITLE: Evaluation of various materials and practices contributing toward economic crop production under flexible, continuous and other cropping systems in Montana.

TIME PERIOD: July 1, 2013 to June 30, 2014

PERSONNEL: Research scientists at the following AES Research Centers:

1. Southern Agricultural Research Center (SARC) - Huntley
Kent A. McVay, Crop Scientist & Coordinator
2. Northern Agricultural Research Center (NARC) - Havre
Peggy Lamb Crop Scientist
3. Central Agricultural Research Center (CARC) - Moccasin
David M. Wichman, Superintendent/Crop Scientist
4. Eastern Agricultural Research Center (EARC) - Sidney
Joyce L. Eckhoff, Crop Scientist
5. Northwestern Agricultural Research Center (NWARC) - Kalispell
Robert N. Stougaard, Superintendent/Weed Scientist
6. Western Triangle Ag Research Center (WTARC) - Conrad
Gadi V.P. Reddy, Superintendent/Entomologist

COOPERATORS: Research Associates, Assistants, Technicians and Farm Managers at each research center, and cooperating producers hosting off-station research trials on farms across Montana.

OBJECTIVES:

1. To evaluate the effects of differing systems on crop and variety performance under diverse environments represented across the state of Montana.
2. To evaluate the potential fit of other materials, concepts and techniques with various cropping systems employed for cereal crop production.

BACKGROUND AND JUSTIFICATION:

An ever-increasing need is felt among Montana agricultural producers for development and implementation of new and/or refined materials and methods for enhanced economic efficiency in crop production.

PROJECTS:

- I. Cropping System Investigations
 - a. Evaluation of continuous spring wheat under minimum-till, no-till, and crop/fallow cropping systems -- EARC
- II. Cereal Variety Performance Evaluations
 - a. Hard Red & White Winter Wheat Trials
 - i. North central Montana off-station winter wheat variety performance evaluations – NARC
 - ii. Evaluation of winter wheat cultivars in central Montana – CARC
 - iii. Winter wheat variety evaluations with a special reference to insect infestations in the Western Triangle Region – WTARC
 - iv. Off-station winter wheat variety performance trials in south central Montana – SARC
 - b. Hard Red & White Spring Wheat Trials
 - i. Evaluation of spring wheat varieties under dryland fallow and dryland recrop, conditions at five off-station sites – EARC
 - ii. North central Montana off-station spring wheat variety performance evaluations – NARC
 - iii. Evaluation of spring wheat cultivars in central Montana – CARC
 - iv. Spring wheat variety evaluations with a special reference to insect infestations in the Western Triangle Region – WTARC
 - v. Off-station spring wheat variety performance trials in south central Montana -- SARC
 - c. Soft White Wheat Trials
 - i. Soft white spring wheat evaluations in northwestern Montana -- NWARC
 - d. Durum Trials
 - i. Evaluation of durum varieties under dryland fallow and dryland recrop conditions at seven off-station sites – EARC
 - ii. Statewide durum yield trial – Evaluation of durum varieties and experimental lines in Montana – EARC
 - iii. Durum variety evaluations with a special reference to insect infestations in the Western Triangle area – WTARC
 - e. Spring Barley Trials
 - i. Evaluation of barley under dryland fallow, dryland recrop, and irrigated conditions – EARC
 - ii. Off-station barley variety performance in northwestern Montana – NWARC
 - iii. Evaluation of spring barley cultivar performance under continuous-crop and crop-crop-fallow systems in on-farm trials in central Montana – CARC
 - iv. Off-station spring barley variety performance trials in south central Montana – SARC
 - v. Spring Barley variety evaluation with a special reference to insect infestations in the Western Triangle Region – WTARC

- III. Alternative Crop Management (none this year)
- IV. Crop Nutrient Management (none this year)
- V. Disease Management
 - a. Stripe rust evaluation of experimental winter wheat lines – NWARC
 - b. Winter wheat cultivar response to plant growth regulators and fungicides – NWARC
 - c. Spring wheat cultivar response to insecticide and fungicide application – NWARC
- VI. Insect Management (none this year)
- VII. Weed Management (none this year)
- VIII. Other studies
 - a. Spring wheat seed size effects on agronomic performance – NWARC
 - b. Evaluation of relative stand yields of fall and winter dormant season seeding of winter and spring wheat – CARC
 - c. Impact of dormant seeding effects on winter wheat and spring wheat performance in south central Montana – SARC

PROCEDURES:

Scientific research procedures will be employed appropriate to each specific project listed herein.

APPLICATION AND RESULTS:

Results are available to the Montana crop producer as well as to the scientific community. All results from these investigations will be available in CD format by request and can be found on the web at the Southern Agricultural Research Center website (<http://www.sarc.montana.edu/>) as well as at the Montana Wheat and Barley Committee website (<http://wbc.agr.mt.gov/>) .

CURRENT or PENDING BUDGETARY SUPPORT:

All projects included herein are partially supported by MAES funding to include scientist salaries. Projects included herein are not supported by other grants.

POTENTIAL FOR ENHANCED EXTRAMURAL FUNDING:

Much of the research conducted within this overall project is associated with the development of crop performance databases over substantial periods of time and numerous environments. While it is difficult to obtain most types of extramural funding for such work, the results arising from long-term investigations serve well in documenting base data for proposals toward other grant-supported research.

INCREASED COMPETITIVENESS DUE TO THIS FUNDING:

Much of the research associated with this project is conducted off-station on cooperating producer's farms. The addition of important cropping environments differing from those represented by the fixed-location research facilities is additive to the overall databases employed to support producer decisions in cropping systems, crop and variety selection, crop nutrition, crop pest management and general agronomics.

NUMBER OF YEARS MWBC HAS FUNDED THIS PROJECT:

This Joint Research Center project has been funded by MWBC for 42 crop years (1972-2013) at various levels of total award beginning with \$14,000 in 1972.

OVERALL BUDGET: (Individual Budgets by Research Center are attached)

Research Center	Off-Station Trials & Other Projects	Research Center Total
Central at Moccasin	\$ 30,000	\$ 30,000
Eastern at Sidney	30,000	30,000
Northern at Havre	30,000	30,000
Northwestern at Kalispell	30,000	30,000
Southern at Huntley	30,000	30,000
Western Triangle at Conrad	30,000	30,000
Totals	\$180,000	\$180,000