

**CONTRACT BETWEEN
MONTANA AGRICULTURAL EXPERIMENT STATION
RESEARCH CENTERS
and the
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, 2011 to June 30, 2012

PERSONNEL: Research scientists at the following AES Research Centers:

1. Southern Agricultural Research Center (SARC) - Huntley
 - a. Kent A. McVay, Crop Scientist & Coordinator
2. Northern Agricultural Research Center (NARC) - Havre
 - a. Peggy Lamb/Ken Kephart, NARC Crop Research
3. Central Agricultural Research Center (CARC) - Moccasin
 - a. David M. Wichman, Superintendent/Crop Scientist
4. Eastern Agricultural Research Center (EARC) - Sidney
 - a. Jerald W. Bergman, Superintendent/Crop Scientist
 - b. Joyce L. Eckhoff, Crop Scientist
5. Northwestern Agricultural Research Center (NWARC) - Kalispell
 - a. Robert N. Stougaard, Superintendent/Weed Scientist
6. Western Triangle Ag Research Center (WTARC) - Conrad
 - a. John Miller/David Wichman, Crop Research

COOPERATORS: Research Associates, Assistants and Technicians at the above research centers; 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 Montana Agricultural Experiment Station - Research Center network.
2. To evaluate the potential fit of other materials, concepts and techniques with various cropping systems employed.

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 Systems Investigations

- i. Evaluation of continuous spring wheat minimum-till, no-till and crop/fallow cropping systems – EARC
- ii. Long-term small grain variety performance under mechanical or chemical fallow conditions off-station in northern Montana counties – NARC

II. Cereal Cultivar Performance Investigations Under Crop-Fallow, Crop-Crop-Fallow, or Continuous Cropping Conditions

- a. Hard Red and Hard White Winter Wheat Trials
 - i. Evaluation of winter wheat cultivar performance under continuous crop, crop-crop-fallow and crop-fallow systems in central Montana – CARC
 - ii. Off-station winter wheat variety performance trials in south central Montana – SARC
 - iii. Cooperative winter wheat evaluation nursery – NWARC
 - iv. Long-term winter wheat variety performance evaluations under northern Montana conditions on the basis of gross production value as influenced by yield, protein, and market – NARC
 - v. Evaluation of winter wheat cultivar performance under chemical fallow systems in the western triangle area of Montana – WTARC
- b. Hard Red and Hard White Spring Wheat Trials
 - i. Evaluation of spring wheat cultivar performance under continuous-crop and crop-crop-fallow systems in central Montana – CARC
 - ii. Off-station spring wheat variety performance trials in south central Montana – SARC
 - iii. Evaluation of spring wheat varieties under minimum-till, continuous cropping conditions – EARC
 - iv. Evaluation of uniform regional spring wheat yield trials – EARC
 - v. Off-station spring wheat variety evaluations in eastern Montana – EARC
 - vi. Cooperative spring wheat evaluation nursery – NWARC
 - vii. Long-term spring wheat variety performance evaluations under northern Montana conditions on the basis of gross production value as influenced by yield, protein, and market – NARC
 - viii. Evaluation of spring wheat cultivar performance under chemical fallow systems in the western triangle area of Montana – WTARC

- c. Durum Wheat Trials
 - i. Evaluation of durum varieties under minimum-till, continuous cropping conditions – EARC
 - ii. Evaluation of uniform regional durum yield trials – EARC
 - iii. Statewide durum yield trial – Evaluation of durum varieties and experimental lines in Montana – EARC
 - iv. Off-station durum variety evaluations in eastern Montana – EARC

- d. Soft White Spring Wheat Trials
 - i. Soft white spring wheat evaluations in northwestern Montana -- NWARC

- e. Feed and Malt Barley Trials
 - i. Evaluation of spring barley cultivar performance under continuous-crop and crop-crop-fallow systems in central Montana – CARC
 - ii. Off-station spring barley variety performance trials in south central Montana – SARC
 - iii. Off-station barley variety performance in northwestern Montana – NWARC
 - iv. Evaluation of barley varieties under minimum-till, continuous cropping conditions – EARC
 - v. Evaluation of spring barley cultivar performance under chemical fallow systems in the western triangle area of Montana – WTARC

III. Other Agronomic Investigations

- i. Effect of plant growth regulators in spring wheat – NWARC

PROCEDURES:

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

APPLICATION AND RESULTS:

Results substantiated via consistency with adequate repetition are available for dissemination to the Montana crop producer as well as to the scientific community. All results from these investigations will be available in CD format available by request and posted to the web at <http://www.sarc.montana.edu/> and via a link at the Montana Wheat and Barley Committee website under “Producers, Ag Resources & Links” at <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 39 crop years (1972-2010) 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	\$ 24,000	\$ 24,000
Eastern at Sidney	24,000	24,000
Northern at Havre	24,000	24,000
Northwestern at Kalispell	24,000	24,000
Southern at Huntley	24,000	24,000
Western Triangle at Conrad	24,000	24,000
Totals	\$144,000	\$144,000

