

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

TIME PERIOD: July 1, 1992 to June 30, 1993

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

PERSONNEL: Research faculty members at the following Research Centers:

1. Central Agricultural Research Center - Moccasin
2. Eastern Agricultural Research Center - Sidney
3. Northern Agricultural Research Center - Havre
4. Northwestern Agricultural Research Center - Kalispell
5. Southern Agricultural Research Center - Huntley
6. Western Triangle Agricultural Research Center - Conrad

OBJECTIVES:

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

BACKGROUND AND JUSTIFICATION:

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

PROJECTS:

1. **Cropping Systems Investigations:**
 - a.) Evaluation of continuous spring wheat cropping with tall wheatgrass barriers under no-till and conventional tillage and planting. (Sidney)
 - b.) Evaluation of spring wheat, durum, barley, and oat varieties under minimum till continuous cropping conditions. (Sidney)
 - c.) Small grain variety performance evaluations under no-till cropping conditions. (Conrad)
 - d.) Small grain variety performance under no-till conditions at two fertilizer levels. (Havre)

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- e.) Evaluation of barley, spring wheat, oats, and triticale variety performance under a no-till recrop environment at Moccasin. (Moccasin)

2. Grain Variety Investigations under Conventional Conditions:

- a.) Off-station winter wheat variety evaluations in four counties of the Western Triangle area. (Conrad)
- b.) Off-station spring wheat variety evaluations in four counties of the Western Triangle area. (Conrad)
- c.) Evaluation of fallow-seeded winter wheat, spring wheat, barley, and oat variety performance off-station in five Northern Montana counties. (Havre)
- d.) Winter and spring wheat variety performance evaluation under Northern Montana conditions on the basis of gross market production value as influenced by protein. (Havre)
- e.) Evaluation of winter wheat variety performance in off-station trials at Denton, Highwood, Winifred, and Moore. (Moccasin)
- f.) Evaluation of barley and spring wheat variety performance in off-station trials at Denton, Highwood, and Winifred. (Moccasin)
- g.) Evaluation of Western Regional Hard Red Winter Wheat Nursery entries. (Kalispell)
- h.) Evaluation of Western Regional Soft White Winter Wheat Nursery entries. (Kalispell)
- i.) Evaluation of Western Regional Spring Wheat Nursery entries. (Kalispell)
- j.) Variety performance evaluation in Regional Winter Wheat, Spring Wheat, and Durum Nurseries. (Sidney)

3. Oilseed, Pulse and Miscellaneous Crop Investigations:

- a.) Dryland evaluation of food and specialty oil safflower varieties. (Havre)
- b.) Evaluation of food and specialty oil safflower varieties under dryland conditions off-station at Geraldine. (Moccasin)
- c.) Evaluation of safflower varieties under dryland and irrigated conditions. (Huntley)
- d.) Evaluation of winter canola varieties. (Huntley)

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- e.) Evaluation of miscellaneous oilseed and pulse crops. (Huntley)
 - f.) Production of chickpeas, dry peas, and lentils under dryland management. (Huntley)
 - g.) Evaluation of dryland winter triticale and winter speltz varieties and seeding rates. (Huntley)
 - h.) Germplasm evaluation and advanced testing of 120 winter speltz accessions. (Huntley)
 - i.) Off-station yield comparison studies with winter speltz, winter barley, winter wheat, spring oats, spring barley, and spring triticale. (Huntley)
 - j.) Advanced evaluation of spring emmer accessions under consideration for cultivar release. (Huntley)

4. Disease Management Investigations:

- a.) Evaluation of spring wheat, spring barley, and winter wheat lines and populations for disease resistance. (Sidney)
- b.) Screening of early generation winter wheat lines for TCK smut and stripe rust resistance in cooperation with Dr. Gene Hockett, Bozeman. (Kalispell)
- c.) Influence of seed treatments and winter wheat varieties on the incidence of TCK smut. (Kalispell)
- d.) Evaluation of early generation barley selections for disease resistance in cooperation with Dr. Tom Blake, Bozeman. (Kalispell)
- e.) Off-station evaluation of hard red winter wheat varieties: Dwarf smut area, Lodgegrass. (Huntley)

5. Weed Management Investigations:

- a.) The effect of herbicides, rates, and surfactants on the control of wild oats in small grains. (Kalispell)
- b.) The effect of herbicides, rates, and surfactants on the control of broadleaf weeds in small grains. (Kalispell)

6. Other Agronomic Investigations:

- a.) The interaction of nitrogen and moisture levels on the yield, beta glucans, and oil content of oats. (Huntley)

7. Uniform Statewide Variety Testing of Small Grains:

- a.) Intrastate Winter Wheat Variety Nursery.
- b.) Advanced Yield Spring Wheat Variety Nursery.
- c.) Intrastate Spring Barley Variety Nursery.
- d.) Uniform Northwestern States Oat Variety Nursery.

Trials to be conducted on dryland and/or under irrigation at Conrad, Havre, Huntley, Kalispell, Moccasin, and Sidney in cooperation with MAES Breeder/Coordinators in Bozeman.

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.

PROPOSED BUDGET:

MWBC (partial project funding)

<u>Research Center</u>	<u>Uniform Statewide Variety Testing</u>	<u>Other Projects</u>	<u>Center Total</u>
Central at Moccasin	\$ 1,000	\$ 6,000	\$ 7,000
Eastern at Sidney	\$ 1,000	\$ 6,000	\$ 7,000
Northern at Havre	\$ 1,000	\$ 6,000	\$ 7,000
Northwestern at Kalispell	\$ 1,000	\$ 6,000	\$ 7,000
Southern at Huntley	\$ 1,000	\$ 6,000	\$ 7,000
Western Triangle at Conrad	\$ 1,000	\$ 6,000	\$ 7,000
TOTALS	\$ 6,000	\$ 36,000	\$ 42,000

OTHER REQUIREMENTS:

Data will become the property of the Montana Agricultural Experiment Station and are not to be published without the full consent of MAES. Records will be maintained for access as required to meet any legal requests. Data will be made available to the contractor at a reasonable time after release by MAES.

In case of either party defaulting this contract may be terminated for cause within 30 days by written notice. In the event of litigation venue shall be the First Judicial District of the State of Montana.

Transfer or subcontracting of the duties or services by MAES will not be done without the consent of all parties.

This contract will not be modified without the consent of all parties.

APPROVED:

Coordinator-Joint Research Center Proposal

Date

Associate Director for Research, MAES

Date

Director, MAES

Date

Montana Wheat and Barley Committee

Date

Approved for Legal Content by:

Date