

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

**TIME PERIOD:** July 1, 1990 to June 30, 1991

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

**PERSONNEL:** Staff 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 cropping with tall wheatgrass barriers. (Sidney)
  - b.) Evaluation of spring wheat, durum, barley and oat variety adaptability for production under minimum-till, continuous cropping. (Sidney)

- 2
- c.) Small grain variety performance evaluations under no-till cropping conditions. (Conrad)
  - d.) Evaluation of no-till, winter wheat, spring wheat, and barley variety performance at two off-station locations in Northern Montana. (Havre)
  - e.) Small grain seeding rate studies under no-till conditions. (Havre)

**2. Grain Variety Performance Investigations Under Conventional Conditions:**

- a.) Off-station winter wheat variety investigations. (Conrad)
- b.) Off-station spring wheat variety investigations. (Conrad)
- c.) Evaluation of fallow-seeded winter wheat, spring wheat, barley and oat variety performance off-station in five northern Montana counties. (Havre)
- d.) Off-station variety testing of winter wheat and spring wheat, spring barley and triticale at Moore, Highwood, Denton and Geraldine. (Moccasin)
- e.) Evaluation of irrigated hard red and soft white winter wheat, yield and quality. (Huntley)
- f.) Evaluation of semi-dwarf oats under irrigated management. (Huntley)
- g.) Off-Station spring wheat and barley variety nurseries in Lake and Ravalli Counties. (Kalispell)
- h.) Western Regional Uniform Hard Red Winter Wheat Nursery. (Kalispell)
- i.) Western Regional Uniform Soft White Winter Wheat Nursery. (Kalispell)
- j.) Western Regional Uniform Spring Wheat Nursery. (Kalispell)
- k.) Evaluation of regional winter wheat, spring wheat and durum nursery selections. (Sidney)

**3. Oilseed, Pulse and Miscellaneous Crop Investigations:**

- a.) Dryland evaluation of food and specialty oil safflower varieties. (Havre)
- b.) Irrigated and dryland safflower variety trials. (Huntley)
- c.) Oilseed and pulse crop evaluation. (Huntley)

- d.) Production of chickpeas, dry peas and lentils under dryland management. (Huntley)
- e.) Studies on alternate cereal crops, spelt, emmer and triticale: yield and quality. (Huntley)

4. Crop Nutrition Investigations:

- a.) Relationships of Beta-Glucan content, protein content, and yield of oats and waxy-hulless barley with nitrogen fertilizer rates. (Conrad-Havre-Moccasin cooperating)
- b.) The interaction of nitrogen and moisture levels on the yield, Beta-Glucan, protein, and oil content of oats and barley. (Huntley)

5. Disease Management Investigations:

- a.) Disease evaluations of spring wheat, winter wheat and barley introductions, selections and bulk populations. (Sidney)
- b.) Screening of early generation winter wheat lines for TCK and stripe rust resistance in cooperation with Dr. Allan Taylor, Bozeman. (Kalispell)
- c.) Evaluation of early generation barley selections in cooperation with Dr. Tom Blake. (Kalispell)
- d.) Off-station hard red winter wheat variety trial: Dwarf smut area, Lodgegrass. (Huntley)

6. Weed Management Investigations:

- a.) Evaluation of the effects on rotational crops planted back to ground previously treated with 'Curtail' and 'Assert' herbicides. (Kalispell)
- b.) Resistant weed management and tank mix evaluations for sulfonylurea herbicides in combination with various rates of Bromoxynil. (Kalispell)
- c.) Evaluation of herbicides for simultaneous control of wild oats and broadleaf weeds in spring and winter grains. (Kalispell)
- d.) Crop tolerance to 'Harmony Extra' and 'Express' herbicides. (Kalispell)
- e.) Second year evaluations of leafy spurge control with various herbicides. (Kalispell)

**7. Other Agronomic Investigations:**

- a.) The effect of row spacing, planting rate and 'Cerone' on three spring malting barley varieties grown under irrigated management. (Huntley)
- b.) The effect of planting date on six hard red winter wheat varieties: yield and quality. (Huntley)
- c.) The effect of rate of seeding and planting date on yield and quality of 'Bowman', 'Clark' and 'Gallatin' spring barley varieties at SARC, CARC and NARC. (Huntley w/Havre and Moccasin cooperating)

**8. Uniform Statewide Variety Testing of Small Grains:**

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 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>Total</u>
Central at Moccasin	\$ 500	\$ 5,500	\$ 6,000
Eastern at Sidney	\$ 500	\$ 5,500	\$ 6,000
Northern at Havre	\$ 500	\$ 5,500	\$ 6,000
Northwestern at Kalispell	\$ 500	\$ 5,500	\$ 6,000
Southern at Huntley	\$ 500	\$ 5,500	\$ 6,000
Western Triangle at Conrad	\$ 500	\$ 5,500	\$ 6,000
<b>TOTALS</b>	<b>\$3,000</b>	<b>\$33,000</b>	<b>\$36,000</b>

**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

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Date

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Associate Director, MAES

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Date

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Director, MAES

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Date

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Montana Wheat and Barley Committee

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Date

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Approved for Legal Content by:

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Date