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

**TIME PERIOD:** July 1, 1994 to June 30, 1995

**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 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 sytems 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:**

1. <u>Cropping Systems Investigations</u>:

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

2. <u>Grain Variety Investigations under Conventional Conditions</u>:

a) Long-term small grain variety performance evaluations under fallow conditions off-station in five northern Montana counties. (Havre)

b) Winter and spring wheat variety performance evaluation under northern Montana conditions on the basis of gross production value as influenced by yield, protein, and market. (Havre)

c) Off-station winter wheat variety evaluations in four counties of the Western Triangle area. (Conrad)

d) Off-station spring wheat variety evaluations in four counties of the Western Triangle area. (Conrad)

e) Evaluation of winter wheat variety performance in off-station trials at Denton, Highwood and Winifred. (Moccasin)

f) Evaluation of spring wheat variety performance in off-station trials at Highwood and Denton. (Moccasin)

g) Evaluation of spring barley variety performance in off-station trials at Denton, Highwood and Winifred. (Moccasin)

h) Evaluation of oat variety performance in an off-station trial at Grass Range. (Moccasin)

i) Variety performance evaluation with regional winter wheat, spring wheat, durum, and oat nurseries. (Sidney)

j) Western Regional hard red winter wheat evaluations. (Kalispell)

k) Western Regional soft white winter wheat evaluations. (Kalispell)

l) Western Regional spring wheat evaluations. (Kalispell)

3. <u>Oilseed, Pulse and Miscellaneous Crop Investigations:</u>

a) Dryland evaluation of standard and specialty oil safflower varieties. (Havre)

b) Evaluation of standard and specialty oil safflower variety performance in off-station trials at Geraldine. (Moccasin)

c) Evaluation of winter wheat, winter triticale and winter spelt off-station at Musselshell and Forsyth. (Huntley)

d) Alternative winter/spring cereal crop variety comparisons off-station at Billings. (Huntley)

e) Evaluation of winter spelt and winter triticale for forage production. (Huntley)

f) Evaluation of winter wheat, winter spelt, and winter triticale for protein quantity and quality - cooperative MSU and NDSU study. (Huntley)

g) Evaluation of alternative spring cereal crops: awnless triticale, emmer, einkorn, and spring spelt. (Huntley)

h) Evaluation of hulless oat varieties. (Huntley)

i) Evaluation of chickpea varieties for alternative dryland cropping. (Huntley)

4. Crop Fertility Investigations:

a) Comparison of spring wheat and barley varietal response under conditions of low versus optimum fertility off-station at Turner. (Havre)

5. Disease Management Investigations:

a) Screening of early generation winter wheat lines for dwarf bunt and stripe rust resistance. (Kalispell)

b) Screening of early generation spring barley selections for disease resistance. (Kalispell)

6. Weed Management Investigations:

a) Evaluation of wild oat management methods in spring grains. (Kalispell)

b) Evaluation of broadleaf weed control methods in spring grains. (Kalispell)

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 Montana 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/Geneticists 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 the scientific community.

**APPROVED BUDGET:** **MWBC = partial project funding**

| Research Center | Uniform Statewide Variety Testing | Other Projects | Center Total |
|---|---|---|---|
| Central at Moccasin | $ 1,000 | $ 9,000 | $10,000 |
| Eastern at Sidney | 1,000 | 9,000 | 10,000 |
| Northern at Havre | 1,000 | 9,000 | 10,000 |
| Northwestern at Kalispell | 1,000 | 9,000 | 10,000 |
| Southern at Huntley | 1,000 | 9,000 | 10,000 |
| Western Triangle at Conrad | 1,000 | 9,000 | 10,000 |
| Totals | $ 6,000 | $54,000 | $60,000 |

**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 Dean for Research, MAES** | **Date** |
| **Director, MAES** | **Date** |
| **Montana Wheat and Barley Committee** | **Date** |
| **Approved for Legal Content by:** | **Date** |