

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

Time Period: July 1, 1989 to June 30, 1990

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 varieties for production under minimum-till, continuous cropping. (Sidney)

- c.) Small grain variety performance evaluations under no-till cropping conditions. (Conrad)
- d.) Evaluation of no-till, recrop spring wheat, barley and triticale variety performance off-station in Northern Montana. (Havre)
- e.) Small grain seeding rate studies under no-till conditions. (Conrad-Havre-Moccasin joint project)

2. Grain Variety Performance Investigations Under Conventional Conditions:

- a.) Off-station spring wheat and triticale variety evaluation. (Conrad)
- b.) Evaluation of fallow-seeded winter wheat, spring wheat, barley and oat variety performance off-station in five Northern Montana counties. (Havre)
- c.) Evaluation of winter wheat, spring wheat, spring barley and triticale variety performance at four, off-station locations in Central Montana. (Moccasin)
- d.) Irrigated, off-station soft white winter wheat, hard red winter wheat, and triticale variety yield and quality trials at Hysham. (Huntley)
- e.) Dryland, off-station hard red winter wheat variety yield and quality trial at Acton. (Huntley)
- f.) Off-Station winter wheat, spring wheat and barley variety nurseries in Lake and Ravalli Counties. (Kalispell)
- g.) Uniform Western Regional Hard Red Winter Wheat Nursery. (Kalispell)
- h.) Uniform Western Regional Hard Red Winter Wheat Nursery. (Sidney)
- i.) Uniform Western Regional Soft White Winter Wheat Nursery. (Kalispell)
- j.) Uniform Western Regional Spring Wheat Nursery. (Kalispell)
- k.) Uniform Western Regional Spring Wheat Nursery. (Sidney)
- l.) Uniform Western Regional Durum Nursery. (Sidney)

3. Oilseed, Pulse and Miscellaneous Crop Investigations:

- a.) Oilseed and pulse crop evaluation under no-till conditions. (Conrad)

- b.) Dryland evaluation of food and fuel oil safflower varieties. (Havre)
- c.) Safflower variety trials. (Huntley)
- d.) Evaluation of dryland alternate crops for use in non-program cropping. (Huntley)
- e.) Dryland evaluation of large-seeded legume variety yield and quality. (Huntley)

4. Crop Nutrition Investigations:

- a.) Relationship of Beta-Glucan content of oats and waxy barley with nitrogen-fertilizer rates. (Conrad-Havre-Moccasin joint project)

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, Dozeman. (Kalispell)
- c.) Evaluation of early generation barley selections in cooperation with Dr. Tom Blake. (Kalispell)
- d.) Evaluation of winter wheat varieties for resistance to dwarf smut, yield and quality in the Lodgegrass area. (Huntley)

6. Weed Management Investigations:

- a.) Evaluation of the effects on rotational crops planted back to ground previously treated with the new sulfonylurea herbicide, 'Amber.' (Kalispell)
- b.) Resistant weed management and tank mix evaluations for sulfonylurea herbicides in combination with various other herbicides. (Kalispell)
- c.) Evaluation of herbicides for simultaneous control of wild oats and broadleaf weeds in spring and winter grains. (Kalispell)
- d.) Evaluation of triallate ('Pargo') plus trifluralin ('Treflan') for control of pigeon grass (Setaria viridis) in spring barley. (Kalispell)
- e.) Continuation studies with 'Express' and 'Harmony Extra' for broadleaf weed control. (Huntley)

7. Other Agronomic Investigations:

- a.) Studies of the interaction of seeding rate, row spacing and 'Cerone' on yield and quality of malting barley. (Huntley)
- b.) The effects of rates and timing of 'Cerone' on barley yield, quality and lodging. (Huntley)
- c.) The effect of planting date on hard red winter wheat. (Huntley)
- d.) The effect of seeding rate and planting date on barley yield and quality. (Huntley w/Havre and Moccasin cooperating)

8. Uniform Statewide Variety Testing of Small Grains:

- a.) 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 Dozeman.

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 the scientific community.

PROPOSED BUDGET:

MWBC (Partial Project Funding)

Research Center	Uniform Statewide Variety Testing	Other Projects	Total
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
TOTALS	\$3,000	\$33,000	\$36,000

