

MW & BC Funded Projects
MSU
1977-78

TITLE: Management and Marketing Considerations for Grain Producers Under Risk and Uncertainty

INSTITUTION: Montana State University

DEPARTMENT: Agricultural Economics & Economics

RESEARCHERS: LeRoy Luft

AMOUNT FUNDED: \$18,725.00

OBJECTIVES:

- 1) Update cost of production studies annually during the next two years.
- 2) Conduct cost of production studies in two new locations.
- 3) Relate cost of production to policy implications for wheat producers and evaluate cash flow requirements, given current price levels and under various target and loan price assumptions.
- 4) Conduct educational programs for producers on "uncertainty", to help them understand how uncertainty affects their decision making.
 - a. Why and how risk preference varies among managers.
 - b. Help managers to estimate their risk preference (attitudes toward risk taking).
 - c. Help producers to determine their capacity to take risk (financial analysis, debt/asset relationship, cash flow).
 - d. Help producers develop information upon which to base their decisions.
 - e. Help producers understand the various marketing alternatives (emphasis will be placed on use of futures as a management-marketing tool).
- 5) Develop educational programs on decision making using decision rules of flexible cropping under alternative moisture conditions.

=====

===

TITLE: To develop effective control measures for soil-borne diseases of wheat.

INSTITUTION: Montana State University

DEPARTMENT: Plant Pathology

RESEARCHERS: D.E. Mathre

AMOUNT FUNDED: \$15,000.00

OBJECTIVES:

- 1) To develop resistant germplasm in winter wheat to Cephalosporium stripe.
- 2) To field test in three locations in Montana, advanced lines selected for resistance to Cephalosporium stripe.
- 3) To continue a search for better sources of resistance than are currently available.
- 4) To determine the soil factors controlling the speed of decomposition of wheat residue infected with Cephalosporium stripe.

=====
===

TITLE: Fertilizer and Mineralized N in Small Grains Under Annual Cropping

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: J.R. Sims, Alice Jones, Rick Rodden

AMOUNT FUNDED: \$21,000.00

OBJECTIVES:

APPLIED RESEARCH OBJECTIVES

- 1) Evaluate the amount of N in small grains derived from three sources.

- a. Current year's N fertilizer applications at several rates.
 - b. Previous year's N fertilizer application.
 - 1) From residual ammonium and nitrate in the soil.
 - 2) From N incorporated into organic matter.
 - 3) From N incorporated into straw.
 - c. Native soil organic matter.
- 2) Compare the amounts of N derived from the three sources in Objective 1 under:
- a. Alternate fallow cropping.
 - b. Continuous cropping.
- 3) Provide a basis for making N recommendations for the cropping systems listed in Objective 2. In particular to determine the additional N needed under continuous cropping compared to alternate fallow cropping to achieve maximum yield/protein.
- 4) Evaluate whether the additional N required initially under continuous cropping must be supplied year after year or whether the N rate can be dropped back to that under alternate fallow cropping after several years of continuous cropping.

BASIC RESEARCH OBJECTIVES

- 5) Evaluate the depth to which nitrate leaches.
- 6) Evaluate when fertilizer nitrogen is immobilized and released by decomposing straw.
- 7) Evaluate N incubation soil tests to see if they correlate with N mineralized under field conditions.
- 8) Determine whether fertilizer N is incorporated into any particular amino acids at the expense of the other amino acids.

=====

=====

TITLE: Resistance and/or tolerance of wheat to leaf and head blotch diseases (controlling wheat leaf spot diseases).

INSTITUTION: Montana State University

DEPARTMENT: Plant Pathology

RESEARCHERS: A. L. Scharen, USDA SEA

AMOUNT FUNDED: \$7,500.00

OBJECTIVES:

- 1) Increase the quality and quantity of Montana wheats by holding losses from leaf spots to a minimum.

=====
===

TITLE: Control of Rust Diseases of Wheat

INSTITUTION: Montana State University

DEPARTMENT: Plant Pathology

RESEARCHERS: Eugene L. Sharp, Bernard Sally

AMOUNT FUNDED: \$15,559.00

OBJECTIVES:

- 1) Identify types and sources of resistance to rust disease of wheat.
- 2) Selection of wheats tolerant to rust infection.
- 3) Incorporation of broad based resistance into acceptable wheat types.

=====
===

TITLE: Barley Improvement

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Bob Eastlick, Gregg Fox

AMOUNT FUNDED: \$20,000.00

OBJECTIVES:

- 1) An attempt will be made to:
 - a. Incorporate the high gibberellic acid gene into Shabet.

- b. Reduce after-harvest dormancy of Shabet.
 - c. Select on the basis of germination speed and/or relative growth rate of coleoptile to increase extract.
 - d. Increase alpha amylase activity of Shabet.
- 2) Through an appropriate breeding program:
- a. Develop waxy endosperm variety counterparts of 'Pirolina', Shabet, and 'Unitan'.
 - b. Develop hullless variety counterparts of Shabet, 'Unitan', 'Titan', 'Compana', and 'Betzes'.
 - c. Conduct yield trials of these potential new varieties.
- 3) By chemical mutagenesis and sieving, develop a series of Shabet maturity ranges and develop a larger, plumper seeded Shabet. Promising agronomic types developed (along with a backlog of Betzes isotypes) will be yield tested.

=====

===

TITLE: To establish a research location and to conduct research in the Western Triangle area.

INSTITUTION: Montana State University

DEPARTMENT: Research Centers/WTRC1

RESEARCHERS: Various

AMOUNT FUNDED: \$15,000.00

OBJECTIVES:

1) The Montana Wheat Research and Marketing Committee agrees to supply funds in the amount of \$15,000 to the Montana Agricultural Experiment Station to aid in the establishment of the station. It is felt that the expenditures will be largely for equipment including but not restricted to support of the following items:

Item	Cost Estimate
Vogel Thresher	\$ 3,811.00
Mettler Balance	\$ 1,431.00
Cereal Processor Cleaner	\$ 1,141.00
Burrows Sieve Equipment	\$ 197.00
Pickup or similar cost item	\$ 8,000.00

Miscellaneous items 420.00
TOTAL \$15,000.00

=====
===

TITLE: Winter Wheat Improvement
INSTITUTION: Montana State University
DEPARTMENT: Plant & Soil Sciences
RESEARCHERS: G. Allen Taylor, G. Hollis Spitler, Duane Johnson, Judy Sever, John Frederickson
AMOUNT FUNDED: \$22,000.00

- OBJECTIVES:**
- 1) Support research of winter wheat breeding project.
 - 2) Shatter resistant 'Cheyenne'.
 - 3) Developmental growth stages and components of yield.
 - 4) Protein improvement.
 - 5) Upgrade Buhler experimental flour mill and seed counter.

=====

TITLE: To Develop Cultural Methods Suitable for the Continuous Cropping of the Drylands of Montana
INSTITUTION: Montana State University
DEPARTMENT: Agricultural Research Centers
RESEARCHERS: Various
AMOUNT FUNDED: \$24,000.00

- OBJECTIVES:**
- 1) The development of continuous cropping systems to replace the present fallow system is a complex problem. Many unforeseeable conditions arise. Less time is available for seedbed preparation. More land will have to be seeded and harvested annually. Weeds and other pests will probably be

more troublesome. The fertility moisture inventory, and plant population relationships will be more critical. The machinery, especially for seeding, will require modification. As seasons vary from year to year, more flexibility in respect to crop selection, methods of tillage, and methods of harvest or crop utilization will be required.

- 2) In view of the above problems, it becomes nearly impossible for any one Research Center to conduct research on all facets of any changes. Thus, each Center will work on some phase of the problem with the hope that the farmers will be able to put together a system of continuous cropping that will be best suited for his conditions.