Funded Research Projects for FY 05

Title: Evaluation of Various Materials and Practices Contributing Toward Economic Crop Production Under Flexible, Continuous and Other Cropping Systems in Montana
Institution: MSU Research Centers
Amount Funded: $7,000

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 systems employed.

Title: Winter Wheat Breeding/Genetics
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Phil Bruckner
Amount Funded: $70,000

Objectives:
1) Develop improved cultivars of winter wheat adapted to Montana climatic conditions and cropping systems, which possess superior on-farm production characteristics (grain yield, winter hardiness, adequate and durable pest resistance, stress tolerance, agronomic characteristics) and superior end-use quality characteristics.
2) Isolate, as much as possible, our foreign wheat customers from variations in wheat quality performance by development and release of suitable cultivars and production research to develop strategies to maximize quality consistency for wheat produced in Montana.
3) Investigate environmental, genetic, and management factors which influence wheat productivity and end-use in Montana including 2004 project: selection methods for low polyphenol oxidase (PPO) levels and yield expectation and agronomic considerations for reseeding winterkilled winter wheat.
4) Coordinate Montana statewide winter wheat variety testing program and provide long-term performance data necessary for cultivar release decisions, variety recommendations, and producer management decisions.

Title: Spring Wheat Breeding and Genetics
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Luther Talbert
Amount Funded: $70,000

Objectives:
1) Develop spring wheat varieties for Montana producers.
2) Manage the variety testing program for Montana.
3) Conduct experiments to improve the productivity of the breeding program.

Title: Spring Wheat Breeding and Genetics
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Thomas Blake
Amount Funded: $60,000

Objectives:
1) Develop, release and have adopted improved feed, malt and forage barley varieties.
2) Improve our understanding of the genetic bases of variation for quality and adaptation.
3) Lay the groundwork for improved drought and salinity tolerance in Montana-adapted germplasm.

Title: Spring Wheat Breeding and Genetics
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Deanna Nash
Amount Funded: $25,000

Objectives:
1) To evaluate end-use quality of Hard Red and Hard White Wheat lines developed by MSU spring and winter wheat breeding programs.
2) Showcase Montana's newest varietal releases by baking bread and making noodles for visiting Trade Teams to sample while they tour the Cereal Quality Lab testing facilities.
3) {Participate in the milling and baking contests by processing and judging entries submitted for the Central Montana Fair and the Chouteau County Fair.
4) Conduct tours and hands-on demonstrations through the Cereal Quality Lab to interested students, faculty and legislators about what we do to promote Montana wheat quality.
5) To participate in research projects designed to determine ways to improve end-use quality parameters of new wheat varieties by cooperating with Research Centers, researchers and producers as well as cooperating with the general public and industry to improve cereal quality.

Title: Weed Resistant Small Grain Varieties for Montana
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Bob Stougaard
Amount Funded: $20,000

Objective:
1) Identify and breed for novel small grain plant traits contributing to improved weed suppression, stress resistance, and end-use quality.

Title: Redistribution and Monitoring of Wheat Stem Sawfly Parasitoids after Inoculative Establishment
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: David Weaver
Amount Funded: $15,760

Objective:
1) To continue a pilot program to inoculatively release sawfly parasitoids on farms where there is a high level of sawfly damage and evaluate their success – in direct collaboration with selected wheat producers and wheat grower organizations. To conduct a second year monitoring of parasitoid population growth on sites where inoculative releases established in 2003.

Title: Enhanced Field Selection For Wheat Stem Sawfly Resistance
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Phil Bruckner
Amount Funded: $12,000

Objectives:
1) Subject early generation segregating winter wheat bulk populations and derived lines to heavy selection pressure for wheat stem sawfly (WSS) resistance and select plant phenotypes resistant to WSS infestation and cutting damage.
2) Evaluate spring and winter wheat cultivars and advanced lines for resistance to infestation and cutting damage by WSS and for yield performance under heavy infestation by WSS.
3) Systematically evaluate selected germplasm for enhanced stem solidness and alternative sources of WSS resistance.
4) Provide field sites, representative of sawfly-infested production regions, for research and demonstration to producers of effective sawfly management strategies including use of resistant cultivars.

Title: Early Generation Durum Selection and Germplasm Improvement
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Joyce Eckhoff
Amount Funded: $10,000

Objectives:
1) To produce improved durum germplasm for development of varieties for Montana producers.
2) To develop value-added characteristics in durum for manufacture of specialty products.

Title: Studies on the Influence of Polyphenol Oxidase and Grain Protein on Asian Noodle Color
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Jack Martin
Amount Funded: $10,000

Objectives:
1) Further the development of high and low protein genotypes that are high in polyphenol oxidase and high and low protein genotypes that are low in polyphenol oxidase.
2) Use compounds that inhibit polyphenol oxidase to isolate the effect of protein on noodle color change.

Title: Comparing Low and High Input Strategies in Diversified Cropping Systems
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Perry Miller
Amount Funded: $9,240

Objectives:
1) Compare diversified no-till and organic cropping systems for crop productivity and quality and resource use efficiency.
2) Compare low and high input strategies for crop productivity and quality and resource use efficiency.

Title: Continuing as an Underwriter for "Montana Ag Live!"
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Jack Riesselman
Amount Funded: $2,500

Objectives:
Continue underwriting support for "Montana Ag Live!", one of Montana public television's most popular programs, where a special guest is highlighted every Sunday night and a wide variety of agricultural topics is covered and followed by a question and answer period. In addition to a guest each week, a standard three-member panel is maintained, comprised of University specialists in Plant Pathology, Agronomy, Weed Science, Horticulture, Soil Fertility and Entomology.

Title: Ag Appreciation Weekend 2004
Institution: MSU
Department: MSU/Plant Sciences
Principal Investigator: Dean's Office
Amount Funded: $1,000

Objectives:
Provide students in the College of Agriculture at MSU the opportunity to participate and represent MSU at regional and national contests, conference, and other important events by raising funds during MSU's Ag Appreciation Weekend, November 2004, through corporate sponsorships and donations. Showcase agriculture in Montana during Ag Appreciation Weekend.