Plan of Work

Wisconsin Agricultural Experiment Station

College of Agricultural and Life Sciences
University of Wisconsin-Madison

Federal Fiscal Years
2000 to 2004

Research Activities

FILED 07/15/99

Plan of Work, Wisconsin Research Section

Background:

CHOICE OF REPORTING

The Wisconsin Agricultural Experiment Station, as an 1862 Land Grant Institution, has chosen to file a separate Plan of Work for USDA-funded research activities at the University of Wisconsin (UW). Institutions involved include the University of Wisconsin-Madison and the University of Wisconsin-Stevens Point for the period of federal fiscal years 2000 through 2004. Programs included in this plan are those funded by formula funds provided under the Hatch Act, McIntire-Stennis Cooperative Forestry Research Program, and the Animal Health and Disease Research Program.

POINT OF CONTACT

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ADOPTIONS BY REFERENCE

We adopt by reference the national Coordinated Multi-state Research Framework for fulfillment of our obligations to the AREERA's multi-state, multi-disciplinary and integrated activities. More details are available on the WWW at

http://www.agnr.umd.edu/users/NERA/workshop/RPAFramework.html

Reporting of Station accomplishments from formula funded research programs will be through annual reports of multi-state projects and institutionally integrated AD-421s. Financial statements of expenditures will come directly from the Wisconsin station as AD-419s.

ORGANIZATION OF WISCONSIN EXPERIMENT STATION

The Director of the Experiment Station is Dean Elton Aberle of the College of Agricultural and Life Sciences (CALS) who has designated an Executive Director, Margaret Dentine (Associate Dean, Research Division, CALS) to be responsible for research operations. The CALS Research Division is responsible for reviewing proposals, making funding decisions and administering grants in cooperation with the University of Wisconsin-Madison School of Veterinary Medicine, the University of Wisconsin-Madison School of Human Ecology and the University of Wisconsin-Stevens Point College of Natural Resources.

CALS is composed of 21 departments with a large number of intra-college and inter-college centers, institutes and programs. CALS' mission is to improve the quality of life by discovering, critically analyzing and sharing knowledge in food and agriculture, the life sciences, natural resources and environmental stewardship, and rural community development and to offer strong, research-based education that is responsive to public needs and social, economic and environmental concerns (see Appendix A for a mission and vision statement). We seek to advance students' technical competence, problem-solving skills and intellectual growth and to broaden their appreciation of cultural diversity and environmental stewardship. Additional information on the organization and personnel of UW-CALS is available on the college website at

http://www.cals.wisc.edu/

The CALS total research expenditures in state fiscal year 1998 was $75.4 million -- 65 percent of CALS total budget. Of the research budget, 42 percent came from federal competitive grants, 7 percent from federal formula funds, 30 percent from the state, and 21 percent from nonfederal gifts and grants and sales receipts. Of the federal competitive grants funds, 55 percent came from the National Institutes of Health, 20 percent from the Agency for International Development, 10 percent from the National Science Foundation, 10 percent from the U.S. Department of Agriculture, and 5 percent from other federal agencies. Many of the research projects do not fall under the Experiment Station activities, but contribute technical expertise, graduate training and an intellectual community that strengthens those projects supported by formula funds.

Federal formula funds remain an essential part of the College's overall research portfolio and need to be sustained in the future. The 7 percent increase in formula funds last year was greatly welcomed. These stable funding resources are used nearly exclusively to support research projects (not permanent salary) at Wisconsin; to complement the more basic research projects funded through competitive grants; and are widely used to fund multi-disciplinary, applied, problem-solving research projects that now lack adequate funding from all sources.

The College of Agricultural and Life Sciences also has 13 agricultural research stations located throughout the state. These stations serve as outdoor classrooms, extension and outreach education centers, as well as living laboratories. They are used by researchers in virtually every discipline, including those in fundamental biological sciences, social sciences, natural resources, and, of course, agricultural production. At several stations, county Extension agents are housed with station personnel, strengthening the extension-research linkages. The state of Wisconsin Department of Natural Resources houses water basin educators at three of the stations. One station is devoted entirely to natural resource issues. Field days are held at stations on a year-round basis and feature topics relating to agriculture, natural resources, home gardening, and special topic areas such as wildlife conservation and turfgrass maintenance. More details on the Agricultural Research Station's mission and field day schedules are available on the WWW at

http://www.cals.wisc.edu/research/stations/index.html

Within the College of Agricultural and Life Sciences, the Research Advisory Committee, a faculty committee of 12 members appointed by the Associate Dean for Research with ex-officio members of the Assistant Dean for Research and the Director of the School of Natural Resources meets regularly to discuss research issues. This committee recommends research policy guiding distribution and use of formula funds and is the primary peer review committee for Hatch and McIntire-Stennis proposals (see Appendix B). The committee requires policies and procedures that have been implemented to distribute formula funds on a competitive process.

OPERATING PHILOSOPHY

The Wisconsin Experiment Station is committed to the concept of investigator-driven and peer-reviewed research activities. The general philosophy in allocating formula funds is to provide support for specific reviewed projects rather than to distribute block amounts to faculty or departments. At the University of Wisconsin, faculty appointments are funded with state appropriations thus releasing nearly all formula funding for project support. Expenditures are allowed under a series of guidelines annually reviewed by a faculty committee (see Appendix C). Matching funds come primarily from state support of salaries for investigators and research staff.

Formula funds are distributed to approved projects with yearly budgets. Approximately 200 projects are funded with formula funds each year with budgets that include personnel (mainly graduate students) and supplies. Funding of capital equipment items, some of which may be shared by several projects, are prioritized by departments and funded in a separate exercise. Travel to multi-state research meetings is provided for the official representative from a central pool of funds.

Extension has its own Chancellor and is a separate "campus" within the University of Wisconsin System. CALS faculty with Extension specialist appointments as specialists are housed at the Madison campus with an annual transfer of funding for portions of their appointments. These faculty are fully integrated into departmental teaching and research programs and can apply for research project support under the formula-funded competitions listed above. County-based Extension faculty members are participants in research teams, but are not principal investigators for projects supported by formula funds. Thus the funding of joint research-extension efforts is accomplished largely through salary support of Extension faculty and project support from competitive awards of research formula funds.

PEER AND MERIT REVIEW PROCESS

Colleges at the various University of Wisconsin System campuses utilize faculty committees to advise on research policies and to provide review of proposals. Committees are asked to review proposals using criteria that include both merit (appropriateness to program guidelines and importance of research to state needs) and scientific peer review of the approach and methods (see Appendix D, Call for Proposals for Formula Funds, for further detail on review criteria and procedures). Within the Hatch and McIntire-Stennis call for proposals, a separate call for interdisciplinary work invites joint proposals from several scientists. Separate committees are used for separate funding which include: Hatch and McIntire-Stennis proposals at the UW-Madison are reviewed by a Faculty Advisory Committee appointed by the Wisconsin-AES Executive Director, Margaret Dentine; Animal Health proposals are reviewed by a faculty committee appointed by Norm Wilsman, Associate Dean for Research, UW-Madison School of Veterinary Medicine; and McIntire-Stennis proposals at UW-Stevens Point are reviewed by a committee appointed by Victor Phillips, Dean, College of Natural Resources.

Proposals for Hatch and McIntire-Stennis funding on the UW-Madison campus are reviewed by a 12 person faculty committee. Each proposal receives two reviews from outside the committee using established experts in the field from the Madison campus, other UW campuses, WI state agencies, non-governmental organizations and occasionally from scientists from other states. Panel reviews are discussed by a primary and secondary reviewer from the campus committee and the entire group ranks the proposals using three criteria that include merit, quality of science and ability of the researchers to complete the project (see Appendix D for more detail).

Proposals for research grants from Animal Health Formula Funds are reviewed by the Research Committee of the School of Veterinary Medicine (SVM) in a dual peer review process. After receiving and reading all proposals, the Research Committee first meets to select two peer reviewers, experts in the area of each proposal. These experts are asked to comment both on the scientific merit as well as the relevancy to animal

health and specifically to health of livestock in Wisconsin. The Associate Dean for Research of the School of Veterinary Medicine together with the Research Committee from the SVM reviews the overall portfolio of research projects sponsored by the Animal Health Formula Funds make sure that the portfolio of projects is representative of the livestock health issues in Wisconsin.

At UW- Stevens Point, the McIntire-Stennis Proposal Review Panel consists of five members, three from the College of Natural Resources and two from the forestry community in Wisconsin. Each review panel member was asked to rank the proposals using the following criteria:

- Scientific and technical merit
- Ability of the principal investigators to perform the research
- Potential for publishable results
- Recommended research topics by the UWSP Forestry Advisory Committee

Multi-state efforts are peer-reviewed by the regional committees in the North Central region using a several stage process. Committees of departmental chairs and heads from pertinent departments review the proposals and make recommendations to the subcommittee of the North Central Region Administrators (NCRA) Committee. Some Wisconsin faculty are also cooperators in multi-state committees in the Northeast Region, Southern Region, Western Region and a few National (NRSP) projects. Each region has a review process with slight modifications. Details on North Central projects, guidelines, review process and links to other regions are available on the WWW at

http://www.wisc.edu/ncra/

STAKEHOLDER INPUT PROCESS

Stakeholders' input for the development and conduct of research relating to state needs is accomplished in a tiered system. Many departments, centers and institutes maintain advisory committees that meet periodically with researchers in the units. The College of Agricultural and Life Sciences has a central Advisory Board (see Appendix E) that meets twice a year with the Dean and Associate Deans. Members of this committee (see Appendix E for current list) are selected from a wide range of producers, industry, consumer, environmental groups and state agencies.

In addition to advisory groups, the Dean of CALS has been meeting with focus groups representing organizations within Wisconsin (see Appendix F). Some of these meetings have already occurred and others are planned for the near future. Focus groups include traditional and non-traditional stakeholders. Input from these stakeholders and from those who are performing the research is used to help highlight areas of research need.

Faculty regularly attend national scientific conferences and are members of national and international scientific committees. Many attend national forums for research priority setting such as the FAIR 2002 (Food Animal Integrated Research Symposium) and CROPS 99 (Coalition for Research on Plant Systems). These national conferences include stakeholders and representatives from federal agencies. Research priorities are reached using a consensus process.

Wisconsin Cooperative Extension has developed 15 system and issue teams comprised of University research and Extension professionals, other agency personnel and producers to develop educational programs directed at both farm and industry clientele. System teams conduct applied research and educational programming that address issues and problems specific to commodities (dairy, beef, swine, sheep, grain crops, forages, vegetable crops, fruit crops and urban agriculture/horticulture). Issue teams deal with integrated issues across the agricultural systems (marketing and risk management, farm business management, nutrient management, land use and agriculture, food safety and quality, and new and emerging farm and agricultural markets). Principal investigators with Hatch, McIntire-Stennis and Animal Health grants are members of both system and issue teams.

Implementation of research priorities in the formula funding process is accomplished through a compilation of research priorities within departments based on their interactions with stakeholders. Department chairs were asked to provide a small number of research topics from each unit of CALS for use in annual Hatch and McIntire-Stennis calls for proposals. The Dean and Associate Deans assembled a list of common themes from this set that is included in this year's call for proposals (see Appendix D).

For the Animal Health process, every two years, the Association of American Veterinary Medical Colleges (AAVMC), with numerous cosponsors organize a two-day listening conference entitled "Critical Issues in Animal Health Research Conference." Representatives from major and minor commodity groups present their positions on the most critical area for research investment. The Associate Dean of the SVM attends and helps organize this national conference. The School of Veterinary Medicine has a Board of Visitors that meets twice a year with SVM administration and faculty to provide input on critical research issues. Faculty reviewers of proposals attend annually a meeting of a variety of stakeholder groups such as the American Veterinary Medical Association, the National Pork Producers, the Bovine Practitioners Association, and the National Turkey Growers Association.

At UW-Stevens Point, concurrent with the distribution of request for proposals, members of the UWSP Forestry Advisory Committee were contacted and asked to

submit priority areas of forestry-related research needs in Wisconsin. The committee consists of 21 members who are recognized as leaders in the forestry and conservation community in the State of Wisconsin.

PROGRAM AND PROJECT DURATIONS

Programs in this Plan of Work are composed of a number of projects with individual review and reporting. Program duration may be extended for multiple years, but the contributing projects are a constantly shifting portfolio that can be quickly redirected. Projects are approved for periods of one to five years with the majority on a four-year cycle. Proposals for new projects require a discussion of the results from previous formula fund support which is used as part of the criteria for ranking proposals and for evaluating the ability of the team to complete the research project successfully (see Appendix D). Although some multi-state projects have been continuing for more than 10 years, revised proposals are required for review and approval at least every 5 years. Each year, approximately 25 percent of the research portfolio is shifted in new directions.

This process of continual re-examination of our portfolio allows us to address short-term, intermediate term and long-term issues. A small number of approved projects may be started at mid-year as new faculty members are hired or emerging problems trigger an early start at the discretion of the Associate Dean for Research. These processes ensure that projects are pertinent to the CSREES national goals and focus on current state research needs.

Specific Plans:

GOAL 1.

Through research and education, empower the agricultural system with knowledge that will improve competitiveness in domestic production, processing, and marketing.

An agricultural system that is highly competitive in the global economy.

Statement of Issue:

Wisconsin is among the top 10 agricultural states in the nation in terms of its cash farm receipts – $5.8 billion is sales in 1997. Food production and processing industries have had an enormous impact on the state's overall economy. A 1995 analysis showed that agriculture generated more than a fifth of Wisconsin's business revenue, a sixth of its income and more than a million jobs. This analysis took into account the rippling economic effect of dollars spent throughout the economy by agricultural enterprises and their employees.

Unfortunately, income from on-farm production is showing little evidence of growth and significant evidence of instability. On-farm employment was steady through the 1970s but since then has decreased. This retraction of the on-farm component of Wisconsin's economy mirrors a national pattern.

The number of farms in the state has stabilized in recent years at about 79,000, and average farm size grew slightly to 213 acres. The 1997 dairy herd in Wisconsin totalled 1.39 million head, the lowest since 1910. Milk receipts and receipts from sale of dairy cattle and calves totalled $3.8 billion and accounted for about 63 percent of total cash farm receipts. Wisconsin leads the nation in cheese production (29 percent of U.S. total), but no longer tops the nation in milk production. Wisconsin ranks first in the nation in production of corn silage, beets for canning, cranberries, cabbage for kraut, and snap beans for processing. It also ranks among the top five in production of oats (1), potatoes (4), maple syrup (5), mint for oil (5), carrots (4), sweet corn for processing (3), and green peas for processing (3).

As Wisconsin looks to the future, its food and fiber production, processing and marketing sectors face substantial challenges:

- Stiff competition from other areas of the nation and the world are putting increased pressure on Wisconsin food and fiber producers to be low-cost producers. The traditional farm units in Wisconsin are struggling to make a transition that will meet these low-cost production demands.
- Wisconsin's smaller dairy farms are going out of business or are in transition (primarily to larger, confined operations or to intensively managed grazing systems) in an attempt to meet low price pressures. Similar pressures and transitions face other Wisconsin livestock producers, with pork and beef producers and cash grain farmers under intense economic pressure at this time.
- As changes in food and fiber production have occurred, new pressures have been brought on input suppliers, food processors and marketers. The production and marketing infrastructure can be maintained only if the underlying production units are financially successful and sustainable.
- Global and domestic competition for food and fiber markets is growing increasingly intense. This competition places greater importance on genetic approaches to develop new crops and animal species, and to adapt existing crops and animals to fit new and unique market needs.

Green Industry: In addition to Wisconsin's food production, processing and marketing sector, the Wisconsin Agricultural Experiment Station serves other large economic sectors, including the Wisconsin green industry. This industry includes the turfgrass industry, which now is valued at nearly $1 billion a year and employs more than 30,000 workers. There are more than 280,000 acres of turfgrass on Wisconsin yards, parks, roadsides, golf courses and athletic fields. This is a rapidly expanding industry in Wisconsin. Beyond turfgrass is the substantial industry that addresses all landscaping issues around home, commercial, athletic and recreational facilities. It is a rapidly growing economic sector that works closely with the Wisconsin Agricultural Experiment Station. It is seeking more research and technical support as concerns such as pesticide use in urban environments are elevated.

Science Status: New technologies for characterizing the genetic structure of organisms and for characterizing the function of genes have been developed. Knowledge of genomics, marker-assisted selection for improved traits, and genetic engineering have changed the type of organisms that are available in agriculture and the production systems that must be utilized. Understanding the relationships of genetics and environment on plant and animal function will be important to designing the crops and livestock and retaining U.S. competitiveness in germplasm. New methods of examining the functions of genes within organisms will provide understanding of the mechanisms by which plants and animals cope with environmental stresses and pests. Understanding of these processes will be the basis of strategies to breed better crops and livestock and manage agricultural production more efficiently. This knowledge

would also offer possibilities to genetically engineer organisms for improved nutritional characteristics or modified products such as vaccines or pharmaceuticals.

Target Audiences:

- Owners and operators of Wisconsin's dairy, livestock, grain, vegetable, fruit, seed and forage farms
  - Consultants and suppliers of farm inputs and advice
  - Owners of ornamental horticultural and turfgrass enterprises
  - County Extension agents
  - Bank and loan officers dealing with agricultural communities
  - Consumers of Wisconsin farm products
  - Citizens of Wisconsin

Key Program Components:

Program 1A. Major crop and animal production systems

Wisconsin Project No.	Principal Investigator(s)	Title of Project
WIS00726	Bitgood, J. J.	ADVANCED TECHNOLOGIES FOR THE GENETIC IMPROVEMENT OF POULTRY
WIS01892	Palmer, R. W.	MANAGEMENT SYSTEMS FOR IMPROVED DECISION MAKING AND PROFITABILITY OF DAIRY HERDS
WIS02363	Wiltbank, M. C.	METHODS TO INCREASE REPRODUCTIVE EFFICIENCY IN CATTLE
WIS03113	Tracy, W. F.	PLANT GERMPLASM AND INFORMATION MANAGEMENT AND UTILIZATION
WIS03648	Dentine, M. R.	GENETIC IMPROVEMENT OF CATTLE USING MOLECULAR GENETIC INFORMATION
WIS03919	Kaeppler, S.	MOLECULAR, GENETIC AND AGRONOMIC ANALYSIS OF SEED SIZE IN MAIZE
WIS04019	Coors, J. G.	GENETIC EFFECTS IN SELECTED MAIZE POPULATIONS
WIS04020	Casler, M. D.	CELL WALL CONCENTRATION AND COMPOSITION IN REGULATING BROMEGRASS NUTRITIONAL VALUE AND FUNGAL DISEASE
WIS04027	Hoffman, P. C.	THE EFFECT OF FORAGE SPECIES ON MILK PROTEIN PRODUCTION IN LACTATING DAIRY COWS
WIS04028	Shaver, R. D.	INFLUENCE OF THE PHYSICAL FORM OF CORN SILAGE ON UTILIZATION BY LACTATING DAIRY COWS
WIS04029	Combs, D. K.	PREDICTING DIGESTION KINETICS OF FORAGES BY NEAR INFRA RED REFLECTANCE SPECTRASCOPY
WIS04177	Lauer, J.	IMPROVEMENT OF SILAGE YIELD AND QUALITY IN WISCONSIN CORN PRODUCTION SYSTEMS
WIS04180	Gianola, D.	BAYESIAN ANALYSIS OF LONGITUDINAL MODELS FOR PRODUCTION, DISEASE AND PROLIFICACY DATA IN ANIMAL BREEDING
WIS04194	Clayton, M.	APPLICATION OF STATISTICS TO AGRICULTURE: ANALYSIS OF SPATIALLY AUTOCORRELATED CATEGORICAL DATA
WIS04241	Benevenga, N.	QUANTITATIVE ASPECTS OF LYSINE METABOLISM IN THE PIG

WIS04310	Masson, P. H.	CHARACTERIZATION OF AN *ARABIDOPSIS THALIANA* GENE INVOLVED IN ROOT AND SHOOT MORPHOGENESIS

Wisconsin Project No.	Principal Investigator	Title of Project
WIS04311	Nienhuis, J.	CHARACTERIZATION AND UTILIZATION OF GENETIC RESOURCES IN PHASEOLUS VULGARIS
WIS04302	Thomas, D. L.	COMPARISON OF EAST FRIESIAN AND LACAUNE DAIRY SHEEP

Program 1B. Low-input production systems and non-traditional enterprises

Wisconsin Project No.	Principal Investigator	Title of Project
WIS02366	Roper, T. R.	ROOTSTOCK AND INTERSTEM EFFECTS ON POME AND STONE FRUIT TREES
WIS02756	Smith, R. R.	FORAGE CROP GENETICS AND BREEDING TO IMPROVE YIELD AND QUALITY
WIS03270	Albrecht, K. A.	FORAGE PROTEIN CHARACTERIZATION AND UTILIZATION FOR CATTLE
WIS03843	Roper, T. R.	MULTIDISCIPLINARY EVALUATION OF NEW APPLE CULTIVARS
WIS03876	Douglah, M.	THE ADOPTION OF SUSTAINABLE FARMING SYSTEMS: IMPLICATIONS TO AGRICULTURAL EDUCATION
WIS03897	Maxwell, D. P.; Nienhuis, J.	GENETIC IMPROVEMENT OF BEANS (PHASEOLUS VULGARIS L.) FOR YIELD, DISEASE RESISTANCE AND FOOD VALUE
WIS03911	Bamberg, J. B.; Spooner, D. M.; Simon, P.	INTRODUCTION, PRESERVATION, CLASSIFICATION, DISTRIBUTION AND EVALUATION OF SOLANUM SPECIES
WIS04018	Oplinger, E. S.	IMPROVEMENT OF SOYBEAN PRODUCTION EFFICIENCY IN A REDUCED-TILLAGE ENVIRONMENT
WIS04035	Connell, T. R.	DEVELOPMENT OF BIOLOGICALLY BASED SITE-SPECIFIC MANAGEMENT SYSTEMS FOR VEGETABLE CROP PRODUCTION
WIS04165	Young, R. A.	ENHANCED UTILIZATION OF WOOD FIBERS AND POLYMERS THROUGH PLASMA MODIFICATION
WIS04178	Osborn, T.	ALFALFA POPULATION IMPROVEMENT USING NOVEL GERM PLASMA
WIS04181	Wentworth, B.	REPRODUCTIVE EFFICIENCY OF TURKEYS
WIS04185	Amasino, R.	MODIFICATION OF FLOWERING TIME IN HIGHER PLANTS
WIS04190	Stier, J.	MECHANISMS OF COLD TOLERANCE IN TURFGRASSES
WIS04222	Fricke, P.	IMPROVING REPRODUCTIVE EFFICIENCY IN GRAZING-BASED DAIRY SYSTEMS
WIS04223	Cooperband, L.	EFFECTS OF COMPOST ON SOIL CHEMICAL/PHYSICAL/BIOLOGICAL PROPERTIES IN FIELD NURSERY CROP PRODUCTION
WIS05091	Tracy, W.	GENETIC MANIPULATION OF SWEET CORN QUALITY AND STRESS RESISTANCE
WIS05222	Straub, R.	ADOPTION OF ALFALFA BIOFARMING TO ENHANCE RURAL ECONOMIC DEVELOPMENT
WIS04290	Bohnhoff, D. R.	LOAD DISTRIBUTION IN METAL-CLAD WOOD-FRAME DIAPHRAGMS
WIS04292	Shinners, K. J.	INTEGRATION OF HAY AND FORAGE EQUIPMENT INTO SITE SPECIFIC FARMING SYSTEMS

Program 1C. Biological mechanisms of development and function

Wisconsin Project No.	Principal Investigator	Title of Project
WIS02229	Greaser, M. L.	MOLECULAR MECHANISMS REGULATING SKELETAL MUSCLE GROWTH AND DIFFERENTIATION
WIS03170	Armentano, L. E.	METABOLIC RELATIONSHIPS IN SUPPLY OF NUTRIENTS FOR LACTATING COWS
WIS03204	Duke, S. H.	REGULATION OF PHOTOSYNTHETIC PROCESSES
WIS03717	Palta, J. P.	FREEZE DAMAGE AND PROTECTION OF FRUIT AND NUT CROPS
WIS03933	Barton, M. K.	MOLECULAR GENETIC ANALYSIS OF GROWTH CONTROL IN THE SHOOT APICAL MERISTEM OF ARABIDOPSIS THALIANA
WIS03935	Jiang, J.	MOLECULAR CYTOGENETIC ANALYSIS OF THE POTATO GENOME
WIS03936	Vierstra, R. D.	IDENTIFICATION OF FACTORS RESPONSIBLE FOR SELECTIVE PROTEIN DEGRADATION IN PLANTS
WIS03937	Yandell, B. S.	MARKOV CHAIN MONTE CARLO (MCMC) INFERENCE FOR MULTIPLE QTLS IN PLANT AND ANIMAL GENOMES
WIS04021	Kirkpatrick, B. W.	BOVINE-HUMAN COMPARATIVE MAPPING THROUGH RADIATION HYBRID MAPPING
WIS04022	Landick, R. C.	RECOGNITION OF PAUSE AND TERMINATION SIGNALS BY DIVERSE BACTERIAL RNA POLYMERASES
WIS04183	Gourse, R.	PROMOTER IDENTIFICATION AND CHARACTERIZATION IN DIVERSE BACTERIA
WIS04184	Reznikoff, W.	C-TERMINAL ANALYSIS OF TRANSPOSON TN5 TRANSPOSASE
WIS04186	Sheffield, L.	CELL SIGNALING IN MAMMARY GLAND DEVELOPMENT
WIS04189	Kermicle, J.	GENE ACTION IMPRINTING IN CORN
WIS04221	Groblewski, G.	A PHOSPHORYLATION-DEPENDENT ROLE FOR CRHSP-28 IN PANCREATIC EXOCRINE SECRETION
WIS04237	First, N. L.	CELLULAR & GENOMIC REPROGRAMMING OF VARIOUS CELL TYPES OF BOVINE BY DIFFERENT METHODS OF NUCLEAR TRANSFER
WIS05220	Sheffield, L.; Armentano, L.	LEPTIN AND FEED INTAKE IN DAIRY CATTLE
WIS04304	Attie, A. D.	BIOCHEMISTRY AND GENETICS OF INSULIN RESISTANCE AND DIABETES
WIS04293	Bavister, B. D.	MAINTENANCE OF MEIOTIC ARREST IN CATTLE OCOCYTES BY PHYSIOLOGICAL MECHANISMS
WIS04305	Clagett-Dame, M.	VITAMIN A AND SYMPATHETIC NEURONAL DEVELOPMENT
WIS04308	Culbertson, M. R.	ROLE OF mRNA DECAY IN GENE EXPRESSION
WIS04309	Laughon, A. S.	CIS-ELEMENT SELECTION: A TOOL FOR FUNCTIONAL GENOMICS
WIS04314	Lunn. D. P.	REGULATION OF EQUINE IMMUNE RESPONSES TO VIRAL RESPIRATORY INFECTION
WIS04301	Parrish, J.	EFFECT OF SCROTAL INSULATION ON THE ABILITY OF BOVINE SPERM TO PENETRATE AND ACTIVATE OCCYTES, AND SUPPORT EMBRYO DEVELOPMENT
WIS04312	Sussman, M. R.	GENETIC MANIPULATION OF PLASMA MEMBRANE PROTEINS INVOLVED IN MINERAL TRANSPORT

Programs under Goal 1 include 61 Hatch projects, 1 McIntire-Stennis project and 1 Animal Health project. Of these, 16 investigators are partially or wholly Extension faculty with joint research-extension activities. Two projects include investigators from the University of Wisconsin at River Falls; one project includes investigators from the University of Wisconsin at Platteville. Eighteen of the projects are funded multi-state projects within regional approval processes with an additional 28 multi-state technical or coordinating committees where Wisconsin investigators are members. A multi-state project to look at educational needs for small scale, low input systems is an example of a project that meets the needs of underserved populations.

Performance Goals:

Increase profitability and sustainability of Wisconsin agricultural and agribusiness enterprises.

Output Indicators:

- New approaches and systems that improve efficiency of food and fiber production harvesting, storage and handling
- Improved cultivars and breeds of crops and livestock
- Recommendations for alternate crops and livestock for diversified farming enterprises
- Increased knowledge to support reduced-input food and feed production approaches and systems
- Improved understanding of basic biological processes, which in turn will form the foundation for more efficient and predictable food, feed and fiber production systems
- Improved management strategies for gardens, golf courses, and open urban space

These outputs will include peer reviewed research publications; other scholarly reports and patents, extension/outreach publications, plant variety releases, presentations to scientific and consumer audiences, organized extension and outreach programs, public field days and demonstrations; and website information.

Outcome Indicators:

- Wisconsin farms better able to compete in national and international markets
- More profitable and viable Wisconsin food, feed and fiber production units
- Improved husbandry of recreational land and urban open space

Internal and External Linkages:

- University of Wisconsin System researchers and Extension specialists in the departments of:

• Agricultural & Natural Resources, UW-System Consortium for • Agricultural Journalism • Agronomy • Animal Health & Biomedical Sciences • Animal Sciences • Bacteriology • Biochemistry • Biological Systems Engineering • Dairy Science • Engineering, College of • Entomology	• Genetics • Horticulture • International Agriculture • Natural Resources, School of • Plant Pathology • Soil Science • Veterinary Medicine, School of • Wildlife Ecology • University of Wisconsin- Platteville • University of Wisconsin – River Falls • University of Wisconsin – Stevens Point

- Interdepartmental programs in institutions and agencies affiliated with CSREES multi-state research committees and projects: NC-168, NC-119, NC-113, NC-7, NC-209, NC-140, NC144, NC-189, NE-183, NC-216, W-150, IR-1, S-285, NE-124, NC-131, NC-185, NC-142 and W-130.

- Cooperators in centers, programs and institutes on the UW-Madison campus:

• Agribusiness Institute • Agricultural & Natural Resources, UW-System Consortium for • Agricultural Safety & Health • Agricultural Technology & Family Farm Institute • Agricultural Technology Studies, Prog. on • Animal Waste Program • Babcock Institute • Biology Education, Center for • Biotechnology Center • Cell & Molecular Biology Program • Computing & Biometry • Cooperatives, Center for • Dairy Profitability, Center for • Endocrinology-Reproductive Physiology Program • Farm & Home Assessment Program • Industrial & Economic Development Research Program	• Integrated Agricultural Systems, Center for • Integrated Pest Extension Management Program • Land Information & Computer Graphics Center • Land Tenure Center • Muscle Biology, Institute of • Nutrient & Pest Management Program • Pest & Pathogen Management, Institute for • Plant Breeding & Plant Genetics Program • Research Animal Resources Center • Space Automation & Robotics, Wisconsin Center for • USDA Dairy Forage Research Center • Waste/Manure Management Program • Wisconsin Foundation Seeds • Wisconsin Seed Potato Certification Program

- Local, state and federal agencies:

• U.S. Agency for International Development • U.S. Department of Agriculture • U.S. Department of Energy • U.S. National Academy of Sciences. • U.S. National Aeronautics & Space Administration • U.S. National Institutes of Health	• U.S. National Science Foundation • Wisconsin Dept. of Agriculture, Trade & Consumer Protection • Wisconsin Dept. of Commerce • Wisconsin Dept. of Justice • Wisconsin Dept. of Natural Resources

- Producer and consumer groups and non-governmental organizations (including those providing funding for projects):

• ABS Global, Inc. • Abbott Laboratories • Accelerated Genetics • Ag Lime Association, Wisconsin • AgSource Cooperative Services • Agribusiness Council, Wisconsin • Agricultural & Natural Resources, UW-System Consortium for • Agricultural & Trade, Institute for • Alfa Laval Flow, Inc. • Alliant Services Company • American Cancer Society • American Chemical Society • American Cyanamid Company • American Diabetes Association • American Farm Bureau • American Heart Association • American Jersey Cattle Association • American Lung Association of Wisconsin • American Malting Barley Association • American Meat Institute Foundation • American Meat Science Association • Amoco Chemical Company • Animal Health Institute Foundation • Arthritis Foundation • Asgrow Seed Company • Badger State Chickery • Beef Council, Inc., Wisconsin • Boyce Thompson Institute for Plant Research Inc. • Canners & Freezers Association, Wisconsin • Cargill Hybrid Seeds • Cattleman's Association, Wisconsin	• Clarion Pharmaceuticals • Corn Growers Association, Wisconsin • Corn Promotion Board, Wisconsin • Council of Great Lakes Governors • Crop Improvement Association, Wisconsin • D & D Seed Co. • Dairy Farmers of America • Dairy Management Inc. • Dow Agrisciences • East Central Select Sires Cooperative • Electric Cooperative Association, Wisconsin • Electrical Contracting Foundation, Inc. • Eli Lilly & Co. • Energy Center of Wisconsin • Equity Cooperative Livestock Sales Assoc. • Farm Bureau Federation, Wisconsin • Farm Foundation • Farmers Union, Wisconsin and National • Fats & Proteins Research Foundation • Federation of Cooperatives, Wisconsin • Fields (Michael) Agricultural Institute • Fine Lawn Research Inc. • Food & Agriculture Organization of the United Nations • Forage Council, Wisconsin • Foremost Farms USA • Golf Course Superintendent's Association, Wisconsin • Grange, Wisconsin State • Grazing Network, Wisconsin • Great Lakes Grazing Network • Great Lakes Wool Growers Association • Great Salt Lake Minerals Corp.

- Chemical Industry, Society of
- Church & Dwight Co., Inc.
- CIBA Geigy Corporation
- Grounds Management Assoc. of Wisconsin
- Growmark FS Coop
- Harris Moran Seed Co.
- Harvestore Systems Inc.
- Hay Dealers Association, Wisconsin
- Hoard (W. D.) & Sons Co.
- Hoffman-Laroche, Inc.
- Holstein-Friesian Association of America
- Howard Hughes Medical Institute
- Institute of Medicine
- International Livestock Research Institute
- International Potato Center
- Iowa Soybean Promotion Board
- Jackson (Henry M.) Found. for the Advance. of Military Medicine
- John Deere Foundation
- Kellogg (W. F.) Foundation
- Kraft Dairy Producers/Trust (Kraft Foods)
- Land O'Lakes, Inc.
- Leukemia Society of America
- March of Dimes
- McKnight Endowment Fund for Neuroscience
- McKnight Foundation
- Menomin Seed, Inc.
- Merck Research Laboratories
- Midwest Equipment Dealers Association
- Midwest Food Processors Association
- Midwest Pickle Association
- Midwest Poultry Consortium
- Midwest Poultry Federation
- Milk Marketing Board, Inc., Wisconsin
- Mint Board, Inc., Wisconsin
- Missouri Soybean Merchandising Council
- Monsanto Company
- Muck Farmers Association, Wisconsin
- Mycogen Corporation
- National Academy of Engineering
- National Agricultural Biotechnology Council
- National Association of Animal Breeders
- National Cattlemen's Beef Association
- National Council of Commercial Plant Breeders
- National Farm Medicine Center
- National Farmers Organization
- National Farmers Organization, Wisconsin
- National Pork Producers Association
- National Potato Council
- New Holland North America Inc.
- Noer (O. J.) Research Foundation
- North Central Soybean Research Program
- Novartis Seeds, Inc.
- Oscar Mayer Foods
- Pfizer, Inc.
- Pharmacia
- PIG Improvement Co., Inc.
- Pork Producers Association, Wisconsin
- Potato Board, Wisconsin
- Proctor & Gamble Co.
- Professional Dairy Producers of Wisconsin
- Purebred Dairy Cattle Association, Wisconsin
- Rockefeller Foundation
- Rural Development Center, Inc., Wisconsin
- Seed Potato Improvement Association, Wisconsin
- Soil Conservation Service
- Soybean Association, Wisconsin
- Soybean Marketing Board, Wisconsin
- Sybron Chemicals Inc.
- Turfgrass Association, Wisconsin
- Twenty-First (21st) Century Genetics
- U.S. Dairy Genetics Council
- U.S. Golf Association (green section)
- United Soybean Board
- University of Wisconsin Foundation
- Upjohn
- Veal Growers Association, Wisconsin
- Vita Plus Corporation
- West Agro, Inc.
- Winrock International Institute for Agricultural Development
- Wisconsin Agri-Service Association, Inc.
- Wisconsin Crop Improvement
- Wisconsin Farm Progress Days, Inc.
- Wisconsin Fertilizer & Chemical Association
- Wisconsin Hatcheries Association
- Wisconsin Power & Light Co.
- Wisconsin Sod Producers Association
- Women for Agriculture, Wisconsin

• National Foundation for Cancer Research • National Honey Board • National Peanut Foundation	• World Bank (The) • World Dairy Expo, Inc. • Zeneca Ag Products

Program Duration:

As stated above, program duration is expected to be ongoing. Projects are approved for one to five year terms with approximately 25 percent of portfolio being available each year for redirection.

Allocated Resources ($, (SY)):

FFY00	FFY01	FFY02	FFY03	FFY04
3,886,008 (21.7)	3,983,000 (21.7)	4,083,000 (21.7)	4,185,000 (21.7)	4,289,000 (21.7)

FY 00 is projected on the baseline of FY99 funding levels. Projected expenditures for FY 01 to 04 include a 2.5 percent increase in formula funds for each year for Hatch, McIntire-Stennis and Animal Health rounded to the nearest thousand. Matching funding is included in the totals.

GOAL 2.

To ensure an adequate food and fiber supply and food safety through improved science based detection, surveillance, prevention, and education.

A safe and secure food and fiber system.

Statement of Issue:

- Consumers are increasingly concerned about threats to their food safety. Perceived chemical and real microbial threats imperil not only consumers' health, but also the economic well being of producers and processors. Outbreaks of emerging disease and pests require new management strategies and preventative measures. Approaches that use genetic resistance or incorporate natural resistance mechanisms are needed to decrease the reliance on pesticides and antibiotics.

- Increasing global trade and travel have brought new threats to agriculture and forestry. New pest and pathogen management strategies are integral to agriculture and forestry, and to sustaining the natural resource base that is essential for tourism and superior quality of life.

Target Audiences:

- Owners and operators of Wisconsin's dairy, livestock, grain, vegetable, fruit, seed, tree, turf and forage enterprises
  - Private and state veterinarians
  - County Extension agents
  - Consumers of Wisconsin products
  - Citizens of Wisconsin

Key Program Components:

Program 2A. Disease resistance mechanisms

Wisconsin Project No.	Principal Investigator	Title of Project
WIS03928	Grummer, R.	THE ROLE OF MICROSOMAL TRIGLYCERIDE TRANSFER PROTEIN IN THE ETIOLOGY OF FATTY LIVER IN DAIRY CATTLE
WIS03094	Czuprynski, C. J.	BOVINE RESPIRATORY DISEASE: RISK FACTORS, PATHOGENS, DIAGNOSIS AND MANAGEMENT
WIS03920	Kaeppler, H. F.	INCORPORATION OF RUST RESISTANCE GENES INTO OAT (AVENA SATIVA L.) VIA GENETIC TECHNIQUES

WIS03921	McManus, P. S.	BIOLOGICAL CONTROL OF MONILINIA OXYCOCCI, CAUSAL AGENT OF COTTONBALL DISEASE OF CRANBERRY
Wisconsin Project No.	**Principal Investigator**	**Title of Project**
WIS03927	Barclay, S. L.	CELL SURFACE ANTIGENS OF CRYPTOSPORDIUM THAT ARE ESSENTIAL FOR ESTABLISHING INFECTION
WIS03948	Letchworth, G. J.	CYTOKINES REQUIRED FOR SWITCH RECOMBINATION OF IGA IN THE BOVINE MUCOSAL IMMUNE RESPONSE
WIS03949	Palmenberg, A. C.	CARDIOVIRUS-INDUCED ANTIGENIC RESPONSES AS REPLICATION INDICATORS FOR LIVE, ATTENUATED VACCINES
WIS03987	Darien, B. J.; Backstrom, L.	PRIMING AND CHANGE IN RESPIRATORY TRACT OF PIGS AFTER EXPOSURE TO DUST, ENDOTOXIN AND B-1,3-GLUCAN
WIS03995	Andrews, J. H.	ADHESION OF YEASTS TO LEAF SURFACES
WIS04037	Allen, C.	DEVELOPING POTATO SOMATIC HYBRIDS RESISTANT TO BROWN ROT CAUSED BY PSEUDOMONAS SOLANACEARUM
WIS04038	Handelsman, J.	RESISTANCE TO ZWITTERMICIN A
WIS04130	Shook, G. E.; Weigel, K. A.	GENETIC ENHANCEMENT OF HEALTH AND SURVIVAL FOR DAIRY CATTLE
WIS04171	Czuprynski, C. J.	INVESTIGATION OF GROWTH HORMONE AND PROLACTIN ON THE INTRACELLULAR MULTIPLICATION OF MYCOBACTERIUM
WIS04244	Grau, C. R.	ENDOPHYTIC MICROORGANISMS AND LATENT PATHOGENS AS POSSIBLE AGENTS MODIFYING SOYBEAN HEALTH AND PRODUCTIVITY
WIS05218	Casler, M.; Stier, J.	SELECTION AND PRODUCTION OF TURFGRASS GERMPLASM FOR RESISTANCE TO SNOW MOLD
WIS05223	Shook, G.E.; Collins, M. T.	GENETIC RESISTANCE TO PARATUBERCULOSIS IN DAIRY CATTLE
WIS04313	Czuprynski, C. J.	BHV-1 ENHANCEMENT OF CD11A/CD18 EXPRESSION; A POTENTIAL NEW MODEL FOR INCREASED SUSCEPTABILITY TO BOVINE PASTEURELLOSIS
WIS04303	Downs, D. M.	THE ROLE OF YgfF IN THE METABOLISM OF SALMONELLA TYPHIMURIUM
WIS04316	German, T. L.	EXPLOITING THE SPECIFICITY OF TOSPOVIRUS-THRIPS INTERACTIONS TO CONTROL VIRUS DISEASE AND INSECT DAMAGE
WIS04319	Nibert, M. L.	RECOATING REOVIRUS AND BLUETONGUE VIRUS PARTICLES W/BACULOVIRUS-EXPRESSED VIRAL PROTEINS
WIS04294	Splitter, G.	BRUCELLA GENES INDUCED OR SUPPRESSED WITH INTRACELLULAR INVASION
WIS05229	Stanosz, G. R.; Kruger, E. L.	PLANT AND PATHOGEN INFLUENCES ON VARIATION IN SHADE TOLERANCE AMONG SPECIES IN NORTHERN HARDWOOD FORESTS
WIS04299	Tracy, W. F.	RUST RESISTANCE IN SWEET CORN: VEGETATIVE PHASE CHANGE AND SOURCES OF RESISTANCE
WIS04300	Triplett, E. W.	ANALYSIS OF A TRIFOLITOXIN RESISTANCE MECHANISM CONFERRED BY RHIZOBIUM

Program 2B. Pest and pathogen management

Wisconsin Project No.	Principal Investigator	Title of Project
WIS03442	Harvey, R. G.	BIOLOGICAL AND ECOLOGICAL BASIS FOR WEED MANAGEMENT DECISION SUPPORT SYSTEMS TO REDUCE HERBICIDE USE
WIS03455	Wedberg, J. L.	ECOLOGY AND MANAGEMENT OF EUROPEAN CORN BORER AND OTHER STALK-BORING LEPIDOPTERA
WIS03601	Goodman. R. M.	BIOCONTROL OF SOIL-BORNE PLANT PATHOGENS
WIS03900	Binning, L. K.	EVALUATION AND DEVELOPMENT OF PLANT PATHOGENS FOR BIOLOGICAL CONTROL OF WEEDS
WIS03909	MacGuidwin, A. E.	OVERWINTER SURVIVAL OF HETERODERA, PRATYLENCHUS AND ASSOCIATED NEMATODES IN THE NORTH CENTRAL REGION
WIS03910	Wedberg, J. L.	A NATIONAL AGRICULTURAL PROGRAM TO CLEAR PEST CONTROL AGENTS FOR MINOR USES
WIS03926	Harvey, R. G.	USING INTEGRATED SYSTEMS TO PREVENT DEVELOPMENT OR SPREAD OF HERBICIDE TOLERANT OR RESISTANT WEEDS
WIS03929	Strand, M. R.	IN VITRO REARING OF PARASITIC INSECTS FOR AUGMENTATIVE BIOLOGICAL CONTROL
WIS03930	Jeanne, R. L.	AN ANALYSIS OF ATTRACTION TO FOODS BY THE GERMAN YELLOWJACKET
WIS03931	Lindroth, R. L.	PHYTOCHEMICAL RESISTANCE MECHANISMS IN ASPEN-GYPSY MOTH INTERACTIONS
WIS03934	Binning, L. K.	SHADING EFFECTS OF VEGETABLE CROPS ON COMMON ANNUAL WEEDS
WIS03938	Stanosz, G. R.	MANNER OF PERSISTENCE AND RELEASE FROM LATENCY OF AN AGGRESSIVE CONIFER PATHOGEN
WIS03939	Rouse, D. I.	IMPACT OF ALFALFA MOSAIC VIRUS ON ALFALFA PERSISTENCE
WIS04025	Nibert, M. L.	HOW DO MAMMALIAN REOVIRUSES SELECTIVELY PACKAGE AND REPLICATE THEIR 10 RNA GEONOME SEGMENTS.
WIS04054	Raffa, K. F.	EFFECTS OF PLANT DEFENSE CHEMISTRY ON BIOLOGICAL CONTROL OF CHEMICALLY DEFENDED/UNDEFENDED PESTS
WIS04056	Young, D.	A COMPREHENSIVE STUDY OF THE SCARABAEOID BEETLES OF WISCONSIN (COLEOPTERA: SOARABAEOIDEA)
WIS04166	McCown, B.	DEFINITION AND APPLICATION OF PEST RESISTANCE MECHANISMS IN THE TREE GENUS BETULA
WIS04179	Doll, J.	WIRESTEM MUHLY BIOLOGY AND COMPETITION
WIS04182	Goodrich-Blair, H.	THE ROLE OF SURFACE ATTACHMENT IN XENORHABDUS NEMATOPHILUS/NEMATODE SYMBIOSIS AND INSECT PATHOLOGY
WIS04187	Goodman, W. G.	MOLECULAR REGULATION OF HEMOLYMPH JUVENILE HORMONE BINDING PROTEIN EXPRESSION
WIS07110	Chu, F. S.	FUSARIUM MYCOTOXINS IN CEREAL GRAINS
WIS04297	Boerboom, C. M.	VARIABLES INFLUENCING WEED INTERFERENCE ON CORN AND SOYBEAN YIELD
WIS04318	MacGuidwin, A. E.	POPULATION ATTRITION OF THE SOYBEAN CYST NEMATODE IN

		THE ABSENCE OF A HOST
Wisconsin Project No.	**Principal Investigator**	**Title of Project**
WIS04320	Splitter, G.	BOVINE HERPESVIRUS-1 TEGUMENT PROTEINS
WIS04307	Wyman, J. A.	BIOLOGICAL REGULATION OF APHID POPULATIONS IN WISCONSIN POTATOES

Programs under Goal 2 include 41 Hatch projects, three McIntire-Stennis projects and five Animal Health projects. Of these, 10 investigators are partially or wholly Extension faculty with joint research-extension activities. Nine of the projects are funded multi-state projects within regional approval processes with an additional 19 multi-state technical or coordinating committees where Wisconsin investigators are members. A national project to examine pest control options for minor crops is an example of a project that meets the needs of underserved small farms.

Performance Goals:

Lower the input of pesticides and the losses associated with disease and pest damage while minimizing the impact of agriculture and forestry on the environment.

Output Indicators:

- Improved and integrated biological systems for pest and pathogen management that reduce reliance on chemical inputs
- Improved understanding of food and fiber production and processing risks that impair quantity and quality of desired products
- New production, harvesting and storage approaches and systems that reduce food, feed and fiber losses, especially those resulting from pests and pathogens
- Increased understanding of the basic biological mechanisms and systems that lead to food and fiber losses at all points in the production, processing and marketing sectors

These outputs will include peer reviewed research publications; other scholarly reports and patents, extension/outreach publications, plant variety releases, presentations to scientific and consumer audiences, organized extension and outreach programs, public field days and demonstrations; and website information.

Outcome Indicators:

- Less reliance on pesticides and reduced losses from insects and disease
- Improved consumer access to quality food and fiber products
- Continued affordability of quality food and fiber products, especially for families on limited incomes

Internal and External Linkages:

- University of Wisconsin System researchers and Extension specialists in the departments of:

• Agricultural & Natural Resources, UW-System Consortium for • Agricultural Journalism • Agronomy • Animal Health & Biomedical Sciences • Animal Sciences • Biochemistry • Biological Systems Engineering • Dairy Science • Entomology • Food Microbiology & Toxicology • Food Science	• Forest Ecology & Management • Horticulture • International Agriculture • Natural Resources, School of • Plant Pathology • Soil Science • University Research Park, UW-Madison • Veterinary Medicine, School of • University of Wisconsin – Platteville • University of Wisconsin – River Falls • University of Wisconsin – Stevens Point

- Interdepartmental programs in institutions and agencies affiliated with CSREES multi-state research committees and projects: NC-107, NC-202, NC-205, NC-125, S-268, NC-215, NRSP-4, and NC-129.

- Cooperators in centers, programs and institutes:

• Agribusiness Institute • Agricultural Safety & Health • Agricultural Technology Studies, Prog. on • Animal Waste Program • Aquaculture Program • Babcock Institute • Biology Education, Center for • Biotechnology Center • Cell & Molecular Biology Program • Computing & Biometry • Dairy Profitability, Center for • Endocrinology-Reproductive Physiology Program • Farm & Home Assessment Program • Fiber Crop Program • Industrial & Economic Development Research Program	• Integrated Agricultural Systems, Center for • Integrated Pest Extension Management Program • Land Information & Computer Graphics Center • Land Tenure Center • Nutrient & Pest Management Program • Pest & Pathogen Management, Institute for • Plant Breeding & Plant Genetics Program • Research Animal Resources Center • Urban Horticultural Ecology Program • USDA Dairy Forage Research Center • Waste/Manure Management Program • Wisconsin Crop & Pest Management • Wisconsin Foundation Seeds • Wisconsin Seed Potato Certification Program

- Local, state and federal agencies:

• U.S. Agency for International Development • U.S. Department of Agriculture • U.S. Department of Defense • U.S. Department of Energy • U.S. Environmental Protection Agency • U.S. National Academy of Sciences • U.S. National Institutes of Health	• U.S. National Science Foundation • Wisconsin Dept. of Agriculture, Trade & Consumer Protection • Wisconsin Dept. of Commerce • Wisconsin Dept. of Justice • Wisconsin Dept. of Natural Resources

- Producer and consumer groups and non-governmental organizations (including those providing funding for projects):

• ABS Global, Inc. • Accelerated Genetics • AgSource Cooperative Services • Agribusiness Council, Wisconsin • Agricultural & Natural Resources, UW-System Consortium for • Agricultural & Trade, Institute for • Alf Christianson Seed Co. • Alfa Laval Flow, Inc. • American Cyanamid Company • American Diabetes Association • American Farm Bureau • American Floral Endowment • American Jersey Cattle Association • American Malting Barley Association • American Peanut Council • American Society for Microbiology • Aquaculture Association, Inc., Wisconsin • Asgrow Seed Company • Badger State Chickery • Beet Sugar Development Foundation • Boyce Thompson Institute for Plant Research Inc. • Canners & Freezers Association, Wisconsin • Cargill Hybrid Seeds • Chemical Industry, Society of • Cherry Board, Inc., Wisconsin • Church & Dwight Co., Inc. • CIBA Geigy Corporation • Corn Growers Association, Wisconsin • Corn Promotion Board, Wisconsin • Council of Great Lakes Governors	• Dairy Management Inc. • Dairy Research International • Dow Agrisciences • East Central Select Sires Cooperative • Eli Lilly & Company • Equipment Manufacturers Institute • Farm Bureau Federation, Wisconsin • Farm Foundation • Farmers Union, Wisconsin and National • Federation of Cooperatives, Wisconsin • Fields (Michael) Agricultural Institute • Food Research Institute (IIT Institute) • Friday (Fritz) Canning Company • General Microbiology, Society for • Gerber Products Company • Ginseng Growers Association, Wisconsin • Golf Course Superintendent's Association, Wisconsin • Grange, Wisconsin State • Grazing Network, Wisconsin • Great Lakes Grazing Network • Growmark FS Coop • Harris Moran Seed Company • Harvest of Hope, The • Harvestore Systems Inc. • Hoard (W. D.) & Sons Company • Hoffman-Laroche, Inc. • Honey Producers Association, Wisconsin • Horticultural Research Institute • Integrated Pest Management, Center for • International Livestock Research Institute • International Potato Center

• Cranberry Board, Inc., Wisconsin • Cranberry Institute • Crop & Pest Management, Wisconsin • Crop Improvement Association, Wisconsin • D & D Seed Company	• Jackson (Henry M.) Found. for the Advance. of Military Medicine • Kellogg (W. F.) Foundation • Land O'Lakes, Inc.

• Master Brewers Association • McKnight Foundation • Menomin Seed, Inc. • Midwest Poultry Consortium • Milk Marketing Board, Inc., Wisconsin • Mint Board, Inc., Wisconsin • Monsanto Company • Muck Farmers Association, Wisconsin • Mycogen Corporation • National Agricultural Biotechnology Council • National Council of Commercial Plant Breeders • National Farm Medicine Center • National Farmers Organization • National Farmers Organization, Wisconsin • National Honey Board • National Peanut Foundation • National Pork Producers Association • National Potato Council • Noer (O. J.) Research Foundation • North Central Soybean Research Program • Novartis Seeds, Inc. • Ocean Spray Cranberries, Inc. • Ohio Floriculture Foundation • Organic Growers/Consumer Supported Agriculture • Pfizer, Inc. • PIG Improvement Co., Inc. • Pioneer Hi-Bred International Inc. • Potato & Vegetable Growers Association, Wisconsin • Potato Board, Wisconsin • Proctor & Gamble Co. • Professional Dairy Producers of Wisconsin • Quaker Oats Company	• Ralsten Purina Co. • Rockefeller Foundation • Rural Development Center, Inc., Wisconsin • Seed Potato Improvement Association, Wisconsin • Seminis Vegetable Seeds, Inc. • Shippo Seed Co., Ltd. • Small Potatoes Inc. • Soil Conservation Service • Soybean Association, Wisconsin • Sybron Chemicals Inc. • Turfgrass Association, Wisconsin • Twenty-First (21st) Century Genetics • U.S. Dairy Genetics Council • U.S. Golf Association (green section) • United Soybean Board • University of Wisconsin Foundation • Upjohn • Veal Growers Association, Wisconsin • Veterinary Medical Association, Wisconsin • Vita Plus Corporation • Wallace Genetic Foundation • West Agrow, Inc. • Winrock International Institute for Agricultural Development • Wisconsin Agri-Service Association, Inc. • Wisconsin Apple Growers Association • Wisconsin Carrot Growers Association • Wisconsin Crop Improvement • Wisconsin Farm Progress Days, Inc. • Wisconsin Hatcheries Association • Women for Agriculture, Wisconsin • World Bank (The) • World Dairy Expo, Inc. • Zeneca Ag Products

Program Duration:

As stated above, program duration is expected to be ongoing. Projects are approved for one to five year terms with approximately 25 percent of portfolio being available each year for redirection.

Allocated Resources ($, (SY)):

FFY00	FFY01	FFY02	FFY03	FFY04
2,596,414 (14.9)	2,661,000 (14.9)	2,727,000 (14.9)	2,796,000 (14.9)	2,866,000 (14.9)

FY 00 is projected on the baseline of FY99 funding levels. Projected expenditures for FY 01 to 04 include a 2.5 percent increase in formula funds for each year for Hatch, McIntire-Stennis and Animal Health rounded to the nearest thousand. Matching funds are included in the totals.

GOAL 3.

Through research and education on nutrition and development of more nutritious foods, enable people to make health promoting choices.

A healthy, well-nourished population.

Statement of Issue:

- In addition to a safe food supply, consumers want tasty, attractive, nutritious foods that promote health and well-being. Through new genetic approaches and improved management and processing, foods can be tailored to give consumers more of what they want.

- New discoveries about the interrelationships of lifestyle and health emphasize the importance of nutrition to longevity, mental health and disease resistance. Knowledgeable consumers can distinguish between healthy choices, unsupported claims, and dangerous dietary advice.

- Distancing of the consumer from the source of food results in additional need for safe handling and processing, testing for contamination, labeling considerations and storage guidelines.

Target Audiences:

- Nutrition consultants and dieticians
  - Public health teachers and professionals
  - Food processors and distributors
  - Consumers of Wisconsin farm products
  - Citizens of Wisconsin

Key Program Components:

Program 3A. Enhancement of food quality and safety

Wisconsin Project No.	Principal Investigator	Title of Project
WIS01599	Hartel, R. W.	IMPROVEMENT OF THERMAL PROCESSES FOR FOODS
WIS03932	Damodaran, S.	ELUCIDATION OF MOLECULAR FACTORS AFFECTING EMULSIFYING PROPERTIES OF FOOD PROTEINS
WIS04031	Johnson, E. A.; Brehm-Stecher, B. F.	RAPID DETECTION OF SALMONELLA BY FLOW CYTOMETRY

WIS04032	Parkin, K. L.	LIPID MODIFICATRION MEDIATED BY POTATO LIPOLYTIC ACYL HYDROLASE (PATATIN)
Wisconsin Project No.	**Principal Investigator**	**Title of Project**
WIS04033	Steele, J. L.	TYRAMINE ACCUMULATION IN CHEDDAR CHEESE: MECHANISM OF CONTROL
WIS04034	Wendorff, W. L.	DEVELOPMENT OF THE PROCESS TECHNOLOGY FOR IMPROVED SHEEP MILK PRODUCTS
WIS04036	Goldman, I. L.	ONION PHYTOPHARMACEUTICAL ACTIVITY: GENETIC CONTROL, AND TEMPORAL MORPHOLOGICAL DISTRIBUTION
WIS04188	Wong, A.	GENOTYPIC DIVERSITY IN HEMOLYSIN BL, A DIARRHEAL ENTEROTOXIN FROM BACILLUS CEREUS
WIS04291	Gunasekaran, S.	RHEOLOGIC AND THERMAL PROPERTIES OF MIXED BIPOLYMERS GEL SYSTEMS

Program 3B. Outcome and rationale for food choices

Wisconsin Project No.	**Principal Investigator**	**Title of Project**
WIS02656	Elson, C. E.	ROLE OF N-3/N-6 POLYUNSATURATED FATTY ACIDS IN HEALTH MAINTENANCE
WIS03951	Eisenstein, R. S.	ROLE OF LIVER REGULATORY PROTEIN AS A SENSOR OF IRON STATUS DURING INDUCTION AND RECOVERY FROM IRON
WIS03967	Nitzke, S. A.	USING STAGES OF CHANGE MODEL TO PROMOTE CONSUMPTION OF GRAINS, VEGETABLES AND FRUITS BY YOUNG ADULTS
WIS04089	Gould, B. W.	FOOD DEMAND, NUTRITION AND CONSUMER BEHAVIOR
WIS04192	Ney, D.	ANABOLIC EFFECTS OF INSULIN-LIKE GROWTH FACTOR-I AND GROWTH HORMONE DURING PARENTERAL NUTRITION
WIS04193	Schoeller, D.	EFFECTS OF EXERCISE ON THE UTILIZATION OF DIETARY FAT
WIS04306	Ntambi, J. M.	CONJUGATED LINOLEIC ACID (cla) IN FAT CELL DIFFERENTIATION AND METABOLISM
WIS04315	Smith, S. M.	FUNCTIONS OF VITAMIN A IN CARDIAC DEVELOPMENT AND FUNCTION

Programs under Goal 3 include 17 Hatch projects. Of these, two investigators are partially or wholly Extension faculty with joint research-extension activities. Three of the projects are funded multi-state projects within regional approval processes with an addition three multi-state technical or coordinating committees where Wisconsin investigators are members. One project addresses processing of sheep milk from small operations and one project addresses improving the consumption of more nutritious foods by young adults as examples of programs benefiting underserved populations.

Performance Goals:

Enhance human health and nutritional status; assure the safety and quality of the food supply.

Output Indicators:

- Improved knowledge of human nutritional requirements and means to meet those requirements
- Enhanced understanding of basic biological principles related to new approaches for solving human nutritional problems and ways to enhance nutritional properties of foods
- Better methods of detecting and controlling harmful biological and chemical contaminants in all phases of food production, processing, marketing and preparation.

These outputs will include peer reviewed research publications; other scholarly reports and patents, extension/outreach publications, presentations to scientific and consumer audiences, organized extension and outreach programs; and website information.

Outcome Indicators:

- Increased consumer confidence in the safety of the food supply
- A better nourished and healthier population
- Fewer human health problems from spoiled or contaminated foods

Internal and External Linkages:

- University of Wisconsin System researchers and Extension specialists in the departments of:

• Agricultural & Natural Resources, UW-System Consortium for • Agricultural Journalism • Agronomy • Animal Sciences • Bacteriology • Biochemistry • Biological Systems Engineering • Dairy Science • Engineering, College of	• Food Microbiology & Toxicology • Food Science • Genetics • Horticulture • International Agriculture • Nutritional Sciences • Plant Pathology • University of Wisconsin – Platteville • University of Wisconsin – River Falls • University of Wisconsin – Stevens Point

- Interdepartmental programs in institutions and agencies affiliated with CSREES multi-state research committees and projects: NC-136, NC-167, NC-219 and S-278.

- Cooperators in centers, programs and institutes:

• Aquaculture Program • Biology Education, Center for • Biotechnology Center • Cell & Molecular Biology Program • Computing & Biometry • Dairy Profitability, Center for • Dairy Research, Center for • Endocrinology-Reproductive Physiology Program	• Environmental Toxicology Center • Food Research Institute • Industrial & Economic Development Research Program • Muscle Biology, Institute of • Plant Breeding & Plant Genetics Program • USDA Dairy Forage Research Center

- Local, state and federal agencies:

• U.S. Department of Defense • U.S. Department of Education • U.S. Environmental Protection Agency • U.S. Food & Drug Administration • U.S. Department of Health & Human Services • U.S. National Academy of Sciences • U.S. National Institutes of Health	• Wisconsin Dept. of Agriculture, Trade & Consumer Protection • Wisconsin Dept. of Commerce • Wisconsin Dept. of Health & Family Services • Wisconsin Dept. of Justice • Wisconsin Dept. of Natural Resources

- Producer and consumer groups and non-governmental organizations (including those providing funding for projects):

• AgSource Cooperative Services • Agricultural & Natural Resources, UW-System Consortium for • Agricultural & Trade, Institute for • American Cancer Society • American Chemical Society • American Farm Bureau • American Heart Association • American Lung Association of Wisconsin • American Meat Institute Foundation • American Meat Science Association • American Society for Microbiology • Animal Health Institute Foundation • Aquaculture Association, Inc., Wisconsin • Beef Council, Inc., Wisconsin • Bongards' Creamery • Cattleman's Association, Wisconsin • Cherry Board, Inc., Wisconsin • Council of Great Lakes Governors • Cranberry Board, Inc., Wisconsin • Cranberry Institute	• Dairy Farmers of America • Dairy Research International • Dietetic Association, Inc., Wisconsin • Drug Information Association • Eli Lilly & Company • Farm Bureau Federation, Wisconsin • Fats & Proteins Research Foundation • Federation of Cooperatives, Wisconsin • Fields (Michael) Agricultural Institute • Food Research Institute (IIT Institute) • Foremost Farms USA • Friday (Fritz) Canning Company • East Seal Society of Wisconsin, Inc. • General Microbiology, Society for • Gerber Products Company • Ginseng Growers Association, Wisconsin • Grange, Wisconsin State • Great Salt Lake Minerals Corporation • Growmark FS Coop

• Holstein-Friesian Association of America • Hoard (W. D.) & Sons Company • Horticultural Research Institute • Howard Hughes Medical Institute • Hunt Wesson, Inc. • International Dairy-Deli-Bakery Association, Inc. • International Food Policy Research Institute • International Minerals & Chemical Corporation • Iowa Soybean Promotion Board • Johnson & Johnson • Kellogg (W. F.) Foundation • Kraft Dairy Producers/Trust (Kraft Foods) • Land O'Lakes, Inc. • March of Dimes • Master Brewers Association • McKnight Endowment Fund for Neuroscience • McKnight Foundation • Midwest Food Processors Association • Midwest Pickle Association • Milk Marketing Board, Inc., Wisconsin • National Association of Animal Breeders • National Cattlemen's Beef Association • National Cheese Institute • National Confectioners Association • National Farm Medicine Center • National Foundation for Cancer Research	• National Peanut Foundation • National Pork Producers Association • National Potato Council • North Central Soybean Research Program • Nutrasweet • Ocean Spray Cranberries, Inc. • Organic Growers/Consumer Supported Agriculture • Oscar Mayer Foods • Pfizer, Inc. • Pork Producers Association, Wisconsin • Potato & Vegetable Growers Association, Wisconsin • Proctor & Gamble Co. • Professional Dairy Producers of Wisconsin • Purebred Dairy Cattle Association, Wisconsin • Quaker Oats Company • Ralsten Purina Company • Rockefeller Foundation • Schreiber Foods Inc. • Society for Nutrition Education • Soybean Association, Wisconsin • Soybean Marketing Board, Wisconsin • Twenty-First (21st) Century Genetics • United Soybean Board • University of Wisconsin Foundation • Wallace Genetic Foundation • Women for Agriculture, Wisconsin

Program Duration:

As stated above, program duration is expected to be ongoing. Projects are approved for one to five year terms with approximately 25 percent of portfolio being available each year for redirection.

Allocated Resources ($, (SY)):

FFY00	FFY01	FFY02	FFY03	FFY04
928,784 (5.4)	952,000 (5.4)	976,000 (5.4)	1,000,000 (5.4)	1,025,000 (5.4)

FY 00 is projected on the baseline of FY99 funding levels. Projected expenditures for FY 01 to 04 include a 2.5 percent increase in formula funds for each year for Hatch,

McIntire-Stennis and Animal Health rounded to the nearest thousand. Matching funding is included in the totals.

GOAL 4.

Enhance the quality of the environment through better understanding of and building on agriculture's and forestry's complex links with soil, water, air and biotic resources.

An agricultural system which protects natural resources and the environment.

Statement of Issue:

Balancing needs for improved supply and quality of food and fiber and economic opportunity with enhancing environmental quality presents complex challenges. Concerns about loss of biological diversity, contamination of soil, water and air resources coupled with concerns about loss of agriculture's and forestry's land base point to a need for research that optimizes production from the land with its protection. Investigation of structure and function of components of natural and managed ecosystems is essential to improve fundamental understanding of biotic and abiotic processes. Similarly, conducting interdisciplinary research that improves sustainability of forest and agricultural management practices while minimizing their adverse impacts on surrounding ecosystems, is essential to address the multiple demands that are placed on our natural resources.

The state's large forest industry is also served by the Wisconsin Agricultural Experiment Station. Forests cover nearly 45 percent of the state's total land area, and represent more than 50 percent of the land used in 22 northern counties. Wisconsin leads or is among the leaders in production of fine papers, sanitary products, juvenile furniture, and millwork. It also is the leading manufacturer of papermaking machinery. There are an estimated 94,000 workers in the state's primary wood industries – equal to about one in every six Wisconsin manufacturing jobs. The annual payroll for workers in primary wood industries is nearly $3 billion a year. An additional 200,000 workers are in wood related industries and activities. Forest manufacturing is the largest job provider in 11 Wisconsin counties. Like agriculture, Wisconsin's forest-related industries are facing stiff competition from other areas of the nation and the world.

The state's natural-resource-based industries (agriculture, turf and forestry) all contribute to and greatly impact Wisconsin's outdoor recreation and tourism industries. Farms, forests and marshes produce wildlife that attracts large numbers of viewers and hunters. The 27,000 miles of rivers, 15,000 inland lakes and numerous wetlands create some of the best fishing and recreational waters in the world. Guarding the state's

ground and surface water quality through better farming practices, erosion control, wetland preservation and other initiatives is essential for sustaining not only the tourist industry, but also the water supplies for communities and rural homesites throughout the state. Together, this natural resource system contributes to a large Wisconsin tourism industry, consistently valued at near $6 billion a year.

Wisconsin agricultural producers are looking for strategies that will allow them to sustain production and profitability while also protecting the natural resource base and the overall environment. While educational and incentive programs remain as perhaps the most effective change strategies, the regulatory approach looms large. Siting of larger livestock rearing units and nutrient cycling are now major environmental issues in Wisconsin.

Environmental problems have grown because Wisconsin agriculture is now operating in an increasingly urbanized or non-farm, rural residential environment. Land use issues are extremely complex and beg for greater information input that will lead to workable and wise public policy decisions.

Target Audiences:

- Local, state and federal agencies involved in policy decisions for public lands and land-use planning
- Forest industry groups including forest landowners
- Farmers and consumers of farm goods
- Conservation groups and those concerned with biodiversity, wildlands and farmland preservation
- Tourists and recreation industries
  - County Extension agents and water basin educators
  - State agencies involved in environmental health issues
  - Citizens of Wisconsin

Key Program Components:

Program 4A. Conservation and management of natural resources

Wisconsin Project No.	Principal Investigator	Title of Project
WIS04023	Chambliss, G. H.	MICROBIAL DEGRADATION OF NITROGLYCERIN
WIS04047	Kung, K.; Samuel, J.	QUANTIFYING THE IMPACT OF PORE SIZE SPECTRUM ON FIELS-SCALE PREFERENTIAL FLOW
WIS04050	Nordheim, E. V.	USE OF INTERVENTION ANALYSIS FOR TIME SERIES DATA AS APPLIED TO LARGE-SCALE ECOLOGICAL STUDIES
WIS04052	Gower, S. T.; Mackay, D. S.	COUPLING FOREST ECOSYSTEM MODELS TO GROUNDWATER MODELS:GUIDE TO NATURAL RESOURCE MANAGEMENT IN WISCONSIN

Wisconsin Project No.	Principal Investigator	Title of Project
WIS04167	Lorimer, C.	MANAGEMENT OF EASTERN HEMLOCK FORESTS BY SINGLE TREE AND GROUP SELECTION METHODS
WIS04168	Guries, R.	FOREST TENURE DYNAMICS AT THE PUBLIC/PRIVATE LANDS INTERFACE
WIS04169	Bockheim, J.; David, C.	TIMBER HARVEST IN A SOIL COMPACTION AND ASPEN GROWTH IN THE UPPER GREAT LAKES REGION
WIS05216	Ventura, S. J.; Summers, G.; Davis, T.	IMPLEMENTATION OF A MULTIPURPOSE LAND INFORMATION SYSTEM IN A COMPLEX INSTITUTIONAL AND CULTURAL SETTING
WIS05224	Shepard, R. L.; Madison, F.	AN EVALUATION OF NUTRIENT MANAGEMENT PLANNING IN WISCONSIN
WIS04323	Thomas, C.; Houghton, J.	ASSESSING THE EDUCATIONAL NEEDS OF WOMEN WHO OWN NON-INDUSTRIAL PRIVATE FOREST LAND IN WISCONSIN
WIS04324	Rogers, R.; David C.; Harms, J.	FEASIBILITY OF USING A NEW TYPE OF BIODEGRADABLE CONTAINER FOR FOREST SEEDLING PRODUCTION
WIS04325	Haney, A.	EVALUATION OF OAK SAVANNA RESPONSES TO RESTORATION AT SIX SITES IN WISCONSIN

Program 4B. Interactions of agriculture and forestry with natural ecosystems

Wisconsin Project No.	Principal Investigator	Title of Project
WIS02846	Lowery, B.	IMPACT OF ACCELERATED EROSION ON SOIL PROPERTIES AND PRODUCTIVITY
WIS03879	Bundy, L. G.	CHARACTERIZING NITROGEN MINERALIZATION AND AVAILABILITY IN CROP SYSTEMS TO PROTECT WATER RESOURCES
WIS03940	Helmke, P. A.	MINERALIZATION OF SOIL ORGANIC PHOSPHORUS BY PHOSPHATASES AND ITS RELATION TO PLANT NUTRITION
WIS03942	Ribic, C. A.	EFFECT OF ROTATIONAL GRAZING ON THE TERRESTRIAL BIRD COMMUNITY IN RIPARIAN ZONES OF SW WISCONSIN
WIS03954	Bland, W. L.	EFFECTIVENESS OF CLIMATE AND LANDSCAPE BASED MANAGEMENT TO REDUCE THE RISK OF PHOSPHORUS RUNOFF
WIS03973	Sarmadi, M.	DEVELOPMENT OF TEXTILE MATERIALS FOR ENVIRONMENTAL COMPATIBILITY AND HUMAN HEALTH AND SAFETY
WIS03996	Converse, J. C.; Powell, J. M.; Holmes, B. J.	ANIMAL MANURE AND WASTE UTILIZATION, TREATMENT, AND NUISANCE AVOIDANCE FOR A SUSTAINABLE AGRICULTURE
WIS04045	Bockheim, J. G.	SOIL ACIDIFICATION, BASE-CATION CYCLING, AND SUSTAINABILITY OF NORTHERN MESIC FOREST ECOSYSTEMS
WIS04046	Barak, P. W.	MICROSCALE ANALYSIS AND MODELING OF AGRICULTURAL LIMING
WIS04048	Bleam, W. F.	OXIDATION AND REDUCTION PROCESSES IN SOILS AFFECTING THE SOLUBILITY OF CHROMIUM AND MERCURY.
WIS04049	Kruger, E. L.	USE OF TREMBLING ASPEN AS A BIOINDICATOR OF OZONES

		POTENTIAL TO INJURE WISCONSIN FORESTS
Wisconsin Project No.	**Principal Investigator**	**Title of Project**
WIS04072	Powell, J. M.	MANURE MANAGEMENT EFFECTS ON NUTRIENT CYCLING
WIS04195	Norman, J. M.	CHARACTERIZING NITROGEN MINERALIZATION AND MICROBIAL ACTIVITY TO IMPROVE FERTILIZER APPLICATION
WIS04196	Field, D. R.	CREATING A SOCIAL-DEMOGRAPHIC LAYER FOR LANDSCAPE SCALE ANALYSIS IN UPPER MISSISSIPPI RIVER FLYWAY
WIS04197	Mathews, N	VERTEBRATE SPECIES MODELING: TESTING SENSITIVITY OF VERTEBRATE DISTRIBUTION MODELS IN UPPER MIDWEST
WIS05168	Albrecht, K. Schaefer, D.	INTEGRATED CROP, SOIL, AND ANIMAL MANAGEMENT SYSTEMS FOR UPPER MIDWEST UNGLACIATED SOILS
WIS05221	Powell, J.; Kelling, K.	MEASUREMENT OF PHOSPHORUS & NITROGEN AVAILABILITY FROM REPEATED MANURE APPLICATION
WIS05225	Bland, W. L.; Barham, B. L.	INGEGRATED ASSESSMENT MODELING OF THE CENTRAL SANDS IRRIGATED VEGETABLE AGRICULTURAL SYSTEM
WI05230 and WIS05226	Cooperband, L.; Stone, A.; Stevenson, W. R.; MacGuidwin, A.E.; Staub, J.; Harrison, H.	VEGETABLE PRODUCTION WITH RAW OR COMPOSTED PAPER MILL SLUDGE: EFFECTS ON SOIL QUALITY IN WISCONSIN'S CENTRAL SANDS
WIS04317	Goodman, R. M.	ANALYSIS OF A TRIFOLITOXIN RESISTANCE MECHANISM CONFERRED BY RHIZOBIUM
WIS04289	Hickey, W. J.	MICROBIOLOGICAL AND BIO-PHYSICAL FACTORS CONTROLLING BIOAVAILABILITY AND BIODEGREDATION OF POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)
WIS04322	Karasov, W. H.	HYDROPHILIC TOXIN ABSORPTION BY MAMMALS AND ITS MODULATION
WIS04298	Stoltenberg, D. E.	ECOPHYSIOLOGICAL CHARACTERIZATION AND MODELLING OF WEED-CROP COMMUNITIES

Programs under Goal 4 include 28 Hatch projects and eight McIntire-Stennis projects. Of these, seven investigators are partially or wholly Extension faculty with joint research-extension activities. Five of the projects are funded multi-state projects within regional approval processes with an additional 18 multi-state technical or coordinating committees where Wisconsin investigators are members. Examples of projects working with underserved populations include:

- One Hatch project joint with the College of the Menominee Nation (a tribal college of Wisconsin) working on Geographic Information Systems for forest management on tribal lands.
- One McIntire-Stennis project examining the needs of women owners of forest lands.

Performance Goals:

Preserve and protect the managed and natural ecosystems of Wisconsin as a source of natural products and ecosystem services (e.g., clean air and water, soil conservation), recreation and quality of life.

Output Indicators:

- Improved and integrated biological systems for pest and pathogen management that reduce reliance on chemical inputs
- New, integrated systems approaches to nutrient cycling, and waste handling, storage and application that are economically feasible, better protect agriculture's and forestry's natural resource base, and preserve the ambient environment of nearby homes and communities
- More effective development models and improved information strategies to help guide local units of government in their efforts to build effective and fair land use plans
- Improved forestry management and harvesting approaches that better protect the multiple uses made of Wisconsin's public and private forests
- Greater understanding of complex ecological and underlying basic biological principles that will lead to better management and conservation systems

These outputs will include peer reviewed research publications; other scholarly reports and patents, extension/outreach publications, presentations to scientific and producer audiences, organized extension and outreach programs; public field days and demonstrations; and website information.

Outcome Indicators:

- Fewer harmful chemicals in food supply, and more robust, diverse and dynamic biotic community in which farming and forestry are practiced
- Better protected air, water and soil resources, and a more favorable living environment for farmers and rural residents
- Less contentious land use planning processes, and more thoughtful and workable land use plans
- More productive forests that not only support Wisconsin's vast paper and lumber industries, but also are attractive to wildlife and the state's burgeoning tourist and outdoor industries

Internal and External Linkages:

- University of Wisconsin System researchers and Extension specialists in the departments of:

• Agricultural & Applied Economics • Agricultural & Natural Resources, UW-System Consortium for • Agronomy • Bacteriology • Biological Systems Engineering • Dairy Science	• Entomology • Forest Ecology & Management • Horticulture • International Agriculture • Landscape Architecture • Natural Resources, School of • Plant Pathology

• Rural Sociology • Soil Science • Space Automation & Robotics, Wisconsin Center for • University Research Park, UW-Madison	• Urban & Regional Planning • Wildlife Ecology • University of Wisconsin – Platteville • University of Wisconsin – River Falls • University of Wisconsin – Stevens Point

- Interdepartmental programs in institutions and agencies affiliated with CSREES multi-state research committees and projects: NC-174, NC-218, S-272, S-275, and NC-157.

- Cooperators in centers, programs and institutes:

• Agricultural Safety & Health • Agricultural Technology Studies, Prog.on • Animal Waste Program • Biology Education, Center for • Biotechnology Center • Computing & Biometry • Environmental Resources Center • Environmental Studies, Institute for • Environmental Toxicology Center • Fiber Crop Program • Industrial & Economic Development Research Program • Integrated Agricultural Systems, Center for	• Integrated Pest & Pathogen Management Program • Integrated Pest Management Program • Land Information & Computer Graphics Center • Land Tenure Center • Nonpoint Pollution Control Project • Nutrient & Pest Management Program • Pest & Pathogen Management, Institute for • Plant Breeding & Plant Genetics Program • Research Animal Resources Center • Small Scale Waste Management Project • Waste/Manure Management Program

- Local, state and federal agencies:

• Dane County Land Conservation Dept. • Dane County Parks Commission • Forestry Advisory Committee – University of Wisconsin-Stevens Point • Land Conservation Departments of Wisconsin • U.S. Agency for International Development • U.S. Department of Agriculture • U.S. Army • U.S. Department of Defense • U.S. Department of Energy • U.S. Environmental Protection Agency • U.S. Fish & Wildlife Service • U.S. Forest Products Laboratory - USFS • U.S. Forest Service • U.S. Department of Interior	• U.S. National Academy of Sciences • U.S. National Aeronautics & Space Administration • U.S. National Endowment for Humanities • U.S. National Oceanic & Atmospheric Administration • U.S. National Science Foundation • U.S. Natural Resources Conservation Service (OSDA) • Wisconsin Dept. of Agriculture, Trade & Consumer Protection • Wisconsin Dept. of Commerce • Wisconsin Dept. of Justice • Wisconsin Dept. of Natural Resources • Wisconsin Dept. of Transportation

- Producer and consumer groups and non-governmental organizations (including those providing funding for projects):

- Ag Lime Association, Wisconsin
- Agricultural & Trade, Institute for
- AgSource Cooperative Services
- Alliant Services Company
- American Agricultural Economics Association
- American Chemical Society
- American Farm Bureau
- American Society for Microbiology
- American Standard, Inc.
- Amoco Chemical Company
- Audubon Society Inc., Madison
- Becoming an Outdoors Woman, Wisconsin
- Chemical Industry, Society of
- Cherry Board, Inc., Wisconsin
- Christmas Tree Producers Association, Wisconsin
- Consolidated Papers Inc.
- Corn Growers Association, Wisconsin
- Corn Promotion Board, Wisconsin
- Council of Great Lakes Governors
- County Forests Association, Wisconsin
- Cranberry Board, Inc., Wisconsin
- Cranberry Institute
- Crop Improvement Association, Wisconsin
- CUNA Mutual Group Foundation
- Electric Cooperative Association, Wisconsin
- Electrical Contracting Foundation, Inc.
- Energy Center of Wisconsin
- Environmental Education Board, Wisconsin
- Farm Bureau Federation, Wisconsin
- Farm Foundation
- Farmers Union, Wisconsin and National
- Federation of Cooperatives, Wisconsin
- Fertilizer Research Council, Wisconsin
- Fields (Michael) Agricultural Institute
- Fluid Fertilizer Foundation
- Food & Agriculture Organization of the United Nations
- Forage Council, Wisconsin
- Forest Products Society
- Forestry Productivity Council, Wisconsin
- Georgia Pacific Corporation
- Grange, Wisconsin State
- Great Salt Lake Minerals Corporation
- Growmark FS Coop
- Humane Society of the United States (The)
- Ice Age Park & Trail Foundation, Inc.
- International Crane Foundation
- Kellogg (W. F.) Foundation
- Land & Water Conservation Association, Wisconsin
- Landscape Architects, Wisconsin Chapt of the Amer Society of
- Landscape Architecture Foundation
- Leopold (Aldo) Foundation
- Lincoln Institute of Land Policy
- Linden Group (The)
- Lodholz North Star Acres Inc.
- Lumberjack Resource Conservation & Development Council Inc.
- McGraw Foundation/McGraw Wildlife Foundation
- McKnight Foundation
- National Academy of Engineering
- National Center for Resource Innovations
- National Council of Commercial Plant Breeders
- National Council of the Paper Industry for Air & Stream Improve.
- National Farmers Organization
- National Farmers Organization, Wisconsin
- National Fish & Wildlife Foundation
- National Potato Council
- Nature Conservancy (The)
- North Central Forest Experiment Station
- North Central Soybean Research Program
- Organic Growers/Consumer Supported Agriculture
- Ornithology, Wisconsin Society for
- Potash & Phosphate Institute
- Potato & Vegetable Growers Association, Wisconsin
- Potato Board, Wisconsin
- Professional Dairy Producers of Wisconsin
- Rockefeller Foundation

• Golf Course Superintendent's Association, Wisconsin • Governor's Council on Forestry, Wisconsin	• Ruffed Grouse Society • Rural Development Center, Inc., Wisconsin

• Sand County Foundation • Santa's Trees • Sierra Club - John Muir Chapter • Soil Conservation Service • Superior Wilderness Action Network • Terra Institute, LTD • Turfgrass Association, Wisconsin • University of Wisconsin Foundation • Welder (Rob & Bessie) Wildlife Foundation • Wetland & Waterfowl Research Institute	• Wildlife Management Institute • Winrock International Institute for Agricultural Development • Wisconsin Electric Power Company • Wisconsin Fertilizer & Chemical Association • Woodland Owners Association, Wisconsin • World Wildlife Fund • Zoological Society of Milwaukee County

Collaboration with Non-governmental organizations (NGOs) such as The Sierra Club and The Audubon Society has become as increasingly important element of the planning, conduct and delivery of research.

Program Duration:

As stated above, program duration is expected to be ongoing. Projects are approved for one to five year terms with approximately 25 percent of portfolio being available each year for redirection.

Allocated Resources ($, (SY)):

FFY00	FFY01	FFY02	FFY03	FFY04
2,103,032 (11.0)	2,156,000 (11.0)	2,209,000 (11.0)	2,265,000 (11.0)	2,321,000 (11.0)

FY 00 is projected on the baseline of FY99 funding levels. Projected expenditures for FY 01 to 04 include a 2.5 percent increase in formula funds for each year for Hatch, McIntire-Stennis and Animal Health rounded to the nearest thousand. Matching funding is included in the totals.

GOAL 5.

Empower people and communities, through research-based information and education, to address the economic and social challenges facing our youth, families, and communities.

Enhanced economic opportunity and quality of life for Americans.

Statement of Issues:

- Wisconsin farm units are making progress in adoption of improved business management practices. More needs to be done. Business planning, financial and risk management, personnel relations and a host of other business management skills are now being developed.

- The transition to new farming structures is raising a myriad of social, economic and environmental concerns. Assisting farm families and rural communities through the change is a major task. At the core of this challenge are quality of life issues for farm and other rural non-farm residents.

- As government commodity price support programs wind down, Wisconsin producers are facing increased price volatility and risk. Both producers and processors need to learn and apply new strategies for dealing with these increased market challenges.

- Policy decisions on agricultural price supports, natural resource management and social costs of various strategies are constantly under revision and require better tools and knowledge for sound decision-making.

- Individual decisions about life choices, applications of new technology, and implications for citizens require access to sound sources of scientific information.

Target Audiences:

- Local, state and federal elected officials and agencies involved in policy decisions, agricultural pricing and marketing
- Farmers, processors, marketers and consumers of farm goods
- Conservation groups and those concerned with biodiversity, wildlands and farmland preservation
- Tourists and tourism recreation industries

- Families and communities
  - Citizens of Wisconsin

Key Program Components:

Program 5A. Agricultural and natural resource economics

Wisconsin Project No.	Principal Investigator	Title of Project
WIS03820	Buttel, F.	IMPACT ANALYSES AND DECISION STRATEGIES FOR AGRICULTURAL RESEARCH
WIS03828	Zeibarth, A.	RURAL LABOR MARKETS IN THE GLOBAL ECONOMY
WIS03946	Buongiorno, J.	FOREST PRODUCTS TRADE MODELING AND POLICY ANALYSIS
WIS03972	Barham, B. L.; Jackson-Smith, D.	IMPACTS OF STRUCTURAL CHANGE IN THE DAIRY INDUSTRY
WIS04043	Tigges, L. M.	THE REORGANIZATION OF LABOR PRACTICES IN THE FOOD PROCESSING SECTOR
WIS04098	Deller, S. C.	RURAL ECONOMIC DEVELOPMENT: ALTERNATIVES IN THE NEW COMPETITIVE ENVIRONMENT
WIS04164	Stier, J.	THE ROLE OF FORESTLAND TAX PROGRAMS IN PROMOTING ECOSYSTEM MANAGEMENT
WIS04173	Bishop, R.	INVESTIGATION OF THEORETICAL FOUNDATIONS OF COST SHARING: APPLICATION TO WISCONSIN WATERSHED PROGRAM
WIS04174	Cox, T.	ANALYSIS OF THE INTERREGIONAL IMPACTS OF CHANGES IN U.S. AND WORLD DAIRY POLICY ON THE WISCONSIN AND U.S. DAIRY SECTORS
WIS04175	Deller, S. C.	MODELING THE STRUCTURAL CHANGES OF WISCONSIN'S RURAL ECONOMY
WIS04176	Dobson, W.	AN ANALYSIS OF STRATEGIES FOR EXPANDING U.S. DAIRY EXPORTS
WIS04288	Chavas, J. P.	A DYNAMIC ANALYSIS OF ASSET PRICES IN AGRICULTURE
WIS04321	Provencher, R. W.	THE ECONOMIC VALUE OF PRESERVING NATURAL AMENITIES IN REMOTE AREAS: LAKE SHORE

Program 5B. Human dimensions of agriculture and natural resources

Wisconsin Project No.	Principal Investigator	Title of Project
WIS03858	Jasper, C. R.; Goebel, K.	FAMILY BUSINESSES: INTERACTION IN WORK AND FAMILY SPHERES
WIS03865	Voss, P. R.	BEYOND TIGER: THE LINKS BETWEEN THE HUMAN LAYER AND NATURAL RESOURCE LAYERS IN A GIS ENVIRONMENT
WIS03974	Douthitt, R.	PRIVATE STRATEGIES, PUBLIC POLICIES, AND FOOD SYSTEM PERFORMANCE
WIS04040	Freudenburg, W.R.	POVERTY, PROSPERITY AND NATURAL RESOURCES IN WISCONSIN
WIS04041	Green, G. P.	EVALUATING THE OUTCOMES AND IMPACTS OF GROWTH MANAGEMENT EFFORTS IN NONMETROPOLITAN WISCONSIN

WIS04042	Heberlein, T. A.	THE SOCIAL PSYCHOLOGY OF SOCIAL CHANGE: CONTESTED MEANING OF PLACE IN NORTHERN WISCONSIN
Wisconsin Project No.	**Principal Investigator**	**Title of Project**
WIS04044	Slesinger, D. P.	THE IMPACT OF HEALTH INSURANCE ON HEALTH STATUS & MEDICAL UTILIZATION AMONG WISCONSIN FARMERS
WIS04051	Kloppenburg, J. R.; Stevenson, G. W.	COMMODITIES, CONSUMERS, AND COMMUNITIES: LOCAL FOOD SYSTEMS IN A GLOBALIZING ENVIRONMENT
WIS04053	Field, D. R.	LANDOWNERS AND LANDUSE PRACTICES ADJACENT TO THE KICKAPOO RESERVE.
WIS04093	Lee, M.	INDUSTRIAL CHANGE AND LABOR FORCE UTILIZATION IN WISCONSIN LABOR MARKETS
WIS04296	Hitchon, J. C.	COSTLY CHARITY OR SMART STRATEGY? IMPACT ON CONSUMERS AND MANAGERS OF ADVERTISING WITH A SOCIAL DIMENSION

Program 5C. Science literacy and information access

Wisconsin Project No.	**Principal Investigator**	**Title of Project**
WIS04017	Pingree, S.	CHILDREN AND THE NEW MEDIA ENVIRONMENT
WIS04170	Ray, R. O.	INTENTIONS AND OUTCOMES: EDUCATION AND LEARNING IN STATE AND NATIONAL FORESTS IN WISCONSIN
WIS04240	Trumbo, C.	CLAIMS-MAKING AND POPULAR EPIDOMIOLOGY IN THE EXPRESSION OF COMMUNITY CONCERN OVER CANCER
WIS04243	Trumbo, J.	VISUALIZATION AND VISUAL LITERACY IN SCIENCE COMMUNICATION
WIS04295	Gunther, A. C.	THE HOSTILE MEDIA EFFECT AND ITS CONSEQUENCES FOR SCIENTIFIC ISSUES

Programs under Goal 5 include 24 Hatch projects and five McIntire-Stennis projects. Of these, four investigators are partially or wholly Extension faculty with joint research-extension activities. Seven of the projects are funded multi-state projects within regional approval processes with an additional 15 multi-state technical or coordinating committees where Wisconsin investigators are members. Examples of projects working with underserved populations include:

- A Hatch project looking at health insurance issues for farmers.
- A Hatch project examining the use of new media for information access by children.
- A Hatch project looking at poverty issues involving natural resources in Northern WI.

Performance Goals:

Enhance the level and equality of opportunities of Wisconsin rural and urban populations.

Output Indicators:

- Technologies, systems and management tools that improve opportunities for business success of Wisconsin food and fiber producers, processors and marketers.
- Improved understanding of the social systems operating in rural Wisconsin and the impacts of stress on rural families and societies.
- Improved informational and educational technologies that assist citizen access to scientific knowledge, and help people understand strengths and limitations of scientific approaches.
- Greater understanding of constraints that impede less advantaged members of our society, and more effective approaches for helping individuals and society overcome such constraints.

These outputs will include peer reviewed research publications; other scholarly reports and patents, extension/outreach publications, presentations to scientific and consumer audiences, organized extension and outreach programs; public field days and demonstrations; and website information.

Outcome Indicators:

- A stronger Wisconsin economy with more successful farms, food processing and marketing businesses, forest industries, and rural communities
- A better trained workforce with greater opportunities for employment
- Economically enhanced and socially strengthened rural and urban communities
- Better chances for individual and community attainment of the quality of life desired, especially for underserved and disadvantaged groups within our society

Internal and External Linkages:

- University of Wisconsin System researchers and Extension specialists in the departments of:

• Agricultural & Applied Economics • Agricultural & Natural Resources, UW-System Consortium for • Agricultural Journalism • Agronomy • Forest Ecology & Management • Horticulture • Human Ecology, School of • International Agriculture	• Natural Resources, School of • Nutritional Sciences • Plant Pathology • Rural Sociology • University Research Park, UW-Madison • Urban & Regional Planning • University of Wisconsin – Platteville • University of Wisconsin – River Falls • University of Wisconsin – Stevens Point

Interdepartmental programs in institutions and agencies affiliated with CSREES multi-state research committees and projects: NC-208, S-259, NE-177, NE-162, NE-167, NE-165, and NE-185.

- Cooperators in centers, programs and institutes:

• Agribusiness Institute • Agricultural Safety & Health • Agricultural Technology Studies, Prog. on • Babcock Institute • Biology Education, Center for • Biotechnology Center • Community Economic Development, Center for • Computing & Biometry • Cooperatives, Center for • Dairy Research, Center for • Environmental Resources Center • Environmental Studies, Institute for • Environmental Toxicology Center • Farm & Home Assessment Program	• Food Research Institute • Industrial & Economic Development Research Program • Integrated Agricultural Systems, Center for • Integrated Pest & Pathogen Management Program • Integrated Pest Management Program • Land Information & Computer Graphics Center • Land Tenure Center • Pest & Pathogen Management, Institute for • Plant Breeding & Plant Genetics Program • Resource Policy Studies • Small Scale Waste Management Project • USDA Dairy Forage Research Center

- Local, state and federal agencies:

• Agency for International Development • Agriculture, Department of • Defense, Department of • Education, Department of • Environmental Protection Agency • Forest Products Laboratory - USFS • Health & Human Services, Department of • Interior, Department of • Labor, Department of • National Academy of Sciences • National Aeronautics & Space Administration • National Endowment for Humanities • National Institutes of Health	• National Oceanic & Atmospheric Administration • Natural Resources, Department of • U.S. Fish & Wildlife Service • U.S. Forest Service • Wisconsin Dept. of Agriculture, Trade & Consumer Protection • Wisconsin Dept. of Commerce • Wisconsin Dept. of Health & Family Services • Wisconsin Dept. of Justice • Wisconsin Dept. of Natural Resources • Wisconsin Dept. of Transportation

- Producer and consumer groups and non-governmental organizations (including those providing funding for projects):

- Agribusiness Council, Wisconsin
- Agricultural & Natural Resources, UW-System Consortium for
- Agricultural & Trade, Institute for
- Alfa Laval Flow, Inc.
- American Agricultural Economics Association
- American Farm Bureau
- American Malting Barley Association
- American Peanut Council
- American Standard, Inc.
- Amoco Chemical Company
- Aquaculture Association, Inc., Wisconsin
- Boyce Thompson Institute for Plant Research Inc.
- Christmas Tree Producers Association, Wisconsin
- Consolidated Papers, Inc.
- Council of Great Lakes Governors
- CUNA Mutual Group Foundation`
- Dairy Farmers of America
- Drug Information Association
- East Seal Society of Wisconsin, Inc.
- Environmental Education Board, Wisconsin
- Equipment Manufacturers Institute
- Exxon Education Foundation

- Farm Bureau Federation, Wisconsin
- Farm Credit Services, Badgerland
- Farm Foundation
- Farmers Union, Wisconsin
- Federation of Cooperatives, Wisconsin
- Fertilizer Research Council, Wisconsin
- Fields (Michael) Agricultural Institute
- Food & Agriculture Organization of the United Nations
- Foremost Farms USA
- Forest Products Society
- Forestry Productivity Council, Wisconsin
- Governor's Council on Forestry, Wisconsin
- Grange, Wisconsin State
- Growmark FS Coop
- Harvest of Hope, The
- Hay Dealers Association, Wisconsin
- Horticultural Research Institute
- Humane Society of the United States (The)
- Hunt Wesson, Inc.
- Ice Age Park & Trail Foundation, Inc.
- International Crane Foundation
- International Food Policy Research Institute
- International Potato Center
- John Deere Foundation
- Kellogg (W. F.) Foundation
- Kraft Dairy Producers/Trust (Kraft Foods)
- Land & Water Conservation Association, Wisconsin
- Landscape Architects, Wisconsin Chapt of the Amer Society of
- Landscape Architecture Foundation
- Lincoln Institute of Land Policy
- Lumberjack Resource Conservation & Development Council Inc.
- McGraw Foundation/McGraw Wildlife Foundation
- McKnight Foundation
- Midwest Equipment Dealers Association
- Milk Marketing Board, Inc., Wisconsin
- Missouri Soybean Merchandising Council
- National Center for Resource Innovations
- National Crop Insurance Services
- National Farmers Organization
- National Farmers Organization, Wisconsin
- National Fish & Wildlife Foundation
- National Honey Board
- National Pork Producers Association
- National Potato Council
- New Holland North America, Inc.
- North Central Soybean Research Program
- Organic Growers/Consumer Supported Agriculture
- Potash & Phosphate Institute
- Professional Dairy Producers of Wisconsin
- Rockefeller Foundation
- Ruffed Grouse Society
- Rural Development Center, Inc., Wisconsin
- Sierra Club - John Muir Chapter
- Society for Nutrition Education
- Southwest Wisconsin Workforce Development Board, Inc.
- Soybean Association, Wisconsin
- Study of World Politics, Institute for the
- Superior Wilderness Action Network
- Twenty-First (21st) Century Genetics
- U.S. Dairy Genetics Council
- United Nations Scientific & Cultural Organization
- University of Wisconsin Foundation
- Veterinary Medical Association, Wisconsin
- Winrock International Institute for Agricultural Development
- Wisconsin Art Board
- Wisconsin Center for Academically Talented Youth, Inc.
- Wisconsin Farm Progress Days, Inc.
- Wisconsin Fertilizer & Chemical Association
- Wisconsin Power & Light Company
- Wisconsin Rural Opportunities Foundation, Inc.
- World Bank (The)

Program Duration:

As stated above, program duration is expected to be ongoing. Projects are approved for one to five year terms with approximately 25 percent of portfolio being available each year for redirection.

Allocated Resources ($, (SY)):

FFY00	FFY01	FFY02	FFY03	FFY04
1,507,136 (7.8)	1,545,000 (7.8)	1,583,000 (7.8)	1,623,000 (7.8)	1,664,000 (7.8)

FY 00 is projected on the baseline of FY99 funding levels. Projected expenditures for FY 01 to 04 include a 2.5 percent increase in formula funds for each year for Hatch, McIntire-Stennis and Animal Health rounded to the nearest thousand. Matching funding is included in the totals.

SUMMARY OF ALLOCATED RESOURCES ($, (SY)):

Goal 1:

FFY00	FFY01	FFY02	FFY03	FFY04
3,886,008 (21.7)	3,983,000 (21.7)	4,083,000 (21.7)	4,185,000 (21.7)	4,289,000 (21.7)

Goal 2:

FFY00	FFY01	FFY02	FFY03	FFY04
2,596,414 (14.9)	2,661,000 (14.9)	2,727,000 (14.9)	2,796,000 (14.9)	2,866,000 (14.9)

Goal 3:

FFY00	FFY01	FFY02	FFY03	FFY04
928,784 (5.4)	952,000 (5.4)	976,000 (5.4)	1,000,000 (5.4)	1,025,000 (5.4)

Goal 4:

FFY00	FFY01	FFY02	FFY03	FFY04
2,103,032 (11.0)	2,156,000 (11.0)	2,209,000 (11.0)	2,265,000 (11.0)	2,321,000 (11.0)

Goal 5:

FFY00	FFY01	FFY02	FFY03	FFY04
1,507,136 (7.8)	1,545,000 (7.8)	1,583,000 (7.8)	1,623,000 (7.8)	1,664,000 (7.8)

Total (Hatch, McIntire-Stennis and Animal Health combined, including matching):

FFY00	FFY01	FFY02	FFY03	FFY04
11,021,374 (60.8)	11,297,000 (60.8)	11,578,000 (60.8)	11,869,000 (60.8)	12,165,000 (60.8)

Within the total Hatch allocations, at least 25 percent of these funds will be spent on joint extension-research projects and at least 25 percent will be spent on multidisciplinary, multi-state projects approved through the four regional experiment station committees. Specific projects will be identified in the annual reporting.

Certification:

_____ _____

Dr. Elton Aberle Date
Dean, College of Agricultural and Life Sciences
and Director, Wisconsin Agricultural and Forestry Experiment Station

Appendices:

Mission and Vision Statement (Appendix A)
Description of CALS Research Advisory Committee (Appendix B)
Guidelines for Expenditures on Projects (Appendix C)
Call for Proposals for Formula Funds Fall 1999 [for FY01 Funding] (Appendix D)
College Advisory Committee Description and Membership (Appendix E)
Focus Group Lists (Appendix F)

APPENDIX A. MISSION AND VISION STATEMENT

College of Agricultural and Life Sciences
University of Wisconsin- Madison

Mission

The College of Agricultural and Life Sciences improves quality of life by discovering, critically analyzing and sharing knowledge in food and agriculture, the life sciences, natural resource and environmental stewardship, and rural community development.

As a partner in the University of Wisconsin System, the College offers strong research-based education that is responsive to public needs, and sensitive to social, economic and environmental concerns. The College places great emphasis on the discovery of knowledge, with a commitment to the application of knowledge for the betterment of society. The College advances the technical skills and the intellectual growth of undergraduate and graduate students, and all who seek knowledge. It broadens their appreciation of cultural diversity, promotes environmental stewardship and helps them solve problems and take advantage of opportunities.

Our Vision

A College known for its quality education, preparing students for life-long learning and effective citizenship in a global community.

A College known for its superb science, spanning knowledge generation from fundamental discovery through problem-solving applications.

A College known as the premier global land-grant College, because it responds to societal needs and is a positive force for change.

The College is Committed to Fulfilling its Vision, by:

- Maintaining a community of scholars committed to excellence.
- Promoting individual creativity and initiative that are promoted and applied to broader University and societal goals.

- Encouraging the free flow of ideas, cooperation and programs across departmental and college boundaries.
- Enriching education through research, outreach and Extension.

- Interacting with constituents, adapting to change and addressing society's complex problems through multidisciplinary teamwork founded on disciplinary strength.

- Cultivating intellectual, cultural, ethnic and gender diversity in its students, faculty, staff and visitors.

- Pursuing its land-grant mission and the integration of that mission into the intellectual environment of the Madison campus and the University of Wisconsin System.

- Opening itself to the rich variety of ideas and viewpoints present in society, and providing a forum for discussion and debate of public issues and concerns.

- Forming partnerships among faculty, public sector entities, and private citizens and organizations in planning and supporting research and educational programs.

- Integrating teaching, research and outreach on the Madison campus in:

    - molecular, cellular and organismal biology, and the ecology of biological systems;
    - stewardship of natural resources and the environment;
    - sustainability of ecosystems;
    - agricultural sustainability, profitability, and environmental protection;
    - global economic and environmental interdependence;
    - international agricultural development;
    - rural, community and economic development; and
    - nutrition, health, and the food and fiber system.

From: *An Update of College Plants to Recognize New Realities, Oct. 10, 1996*

APPENDIX B. DESCRIPTION OF CALS RESEARCH ADVISORY COMMITTEE

Function/Charge: The Research Advisory Committee will provide a mechanism for continuing faculty participation in management of the funding that supports CALS research program. The committee will enrich the management and planning activities of CALS Research Division by making recommendations to, and responding to recommendations from the Office of the Dean. The committee will receive the ad hoc peer reviews of research proposals submitted to CALS Research Division and make funding recommendations based on scientific merit and programmatic priorities. The committee will also advise on the design and implementation of new research initiatives.

The committee will operate as a review panel in the management of the division's competitive grants program for allocating research funds. The review panel function will require intense effort. The committee will provide leadership and focus to the participation of CALS faculty in the master planning effort during the spring and summer of 1993. The committee will provide mechanisms for continuing participation of faculty and others in setting the research agenda for the college. The committee will participate in the formulation and review of policies that will govern the program and administration of the Research Division. The following are examples of the policy issues that the Research Advisory Committee will be called upon to address.

- Advise on the existing review process for distribution of formula funds.
- Assist in development of new multi-disciplinary/multi-principal investigator programs.
- Advise on the balance of allocation of funding for single- and multi-principal investigator projects.
- Advise on existing or future policies affecting involvement and funding of principal investigators with minor or no experiment station appointment and principal investigators with large extramurally funded programs.
- Advise on the allocation of formula funds for support of research infrastructure.
- Advise on the use of formula funds to support regional projects.
- Analyze and advise on the implementation of recommendations from other committees, including the Futures Planning Committee (1992), the Committee on Research Infrastructure Support, the Biological Facilities, and others such as will arise from the master planning process.
- Advise on policies dealing with the allocation of the 101-4 budget.
- Advise on the development of programmatic units that can position the college to tap new sources of funds to support research and research infrastructure.
- Advise on strategies to enhance the visibility, stature, and strength of the experiment station.

Membership: The committee membership will be appointed by the Dean and will rotate by a mechanism and process to be determined in consultation with the Dean. At present, there are twelve faculty members on the committee.

Meetings: The committee will meet frequently and regularly with the Executive Director and staff of the Research Division. The agenda for these meetings will be set consultatively.

APPENDIX C. GUIDELINES FOR EXPENDITURES ON PROJECTS

POLICIES AND PROCEDURES - FORMULA (142) FUNDS
HATCH, MCINTIRE-STENNIS & ANIMAL HEALTH[1]

PROJECT PERIODS/BUDGET PERIODS:
Formula funded projects may be approved for a project period up to four years. Hatch Multi-State projects are approved for five years. However, funding is provided on an annual basis and may change from year to year. Budget periods are based on the federal fiscal year and run from October 1 to September 30. No expenditures may be incurred before the starting date or after the termination date of the budget period. Unused funds from one budget period may not be carried forward to the next budget period. In addition, to insure prompt and appropriate closure of each fiscal year and meet the reporting requirements set forth by the U.S. Department of Agriculture, the Research Division has established cutoff dates for the expenditure of funds.

FISCAL RESPONSIBILITY:
Formula funded projects are subject to the provisions of the "Uniform Federal Assistance Regulations 7 CFR Part 3015 " and "OMB Circular a-21". Copies of these documents are available upon request to the Research Division Office. In addition, formula funds must be spent in accordance with the rules and regulations set forth by the University of Wisconsin and by the State of Wisconsin.

Requisitions and all other forms of requests for expenditures of funds require prior approval from the Director of the WI Agricultural Experiment Station and/or an appointed designee. This includes any forms of direct billings such as Xerox, RARCA services, etc. Please send all requisitions and requests for expenditures to Sue Diericks, 136 Agricultural Hall. (e-mail: sue.diericks@ccmail.adp.wisc.edu)

USE OF ASSIGNED FUNDS TO A PROJECT:
Principal Investigators should use formula funds assigned to their approved projects for necessary direct costs related to the project and as outlined in their approved budget sheet they receive from the Research Division.

REBUDGETING:

1. Research Assistants
Unused RA salary savings and associated fringe benefits will be pulled back to the Research Division's administrative control on a quarterly basis. Exceptions must be made in writing with justification by the principal investigator and approved by the Research Division.

2. Hourly labor, supplies, travel and computing
Principal Investigators may rebudget within the hourly labor, supply, travel and computing budget categories (accounting for differences in fringe benefit rates within current budget). Rebudgeting requests must be requested in writing with justification and must be approved prior to expending the funds. Requests for rebudgeting should be sent to Sue Diericks.

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[1] As approved by CALS Research Advisory Committee, Spring 1999

TRAVEL:
Travel funds assigned to projects may be used for **INSTATE** travel for the collection of research data only. The Research Division will provide funding for travel to approved Regional Research meetings for one appointed WI representative only.

PAGE CHARGES AND REPRINTS:
Page charges of publications that are a direct result of a project can be charged to supplies and expenses. Acknowledgement of the funding for the project must also appear in the published article. The cost of reprints is not an allowable expense.

DIRECT CHARGES:
Direct charges are allowed if detailed documentation can be provided which includes dates of service and a description. Direct charges must be submitted for approval prior to processing.

TELEPHONE CHARGES:
ONLY telephone charges relating to the Hatch project are allowable. Telephone charges must be processed via a nonsalary payment transfer request and a copy of the phone bill with the telephone calls relating to the project highlighted must be provided before approval of the expenditure can be made.

CAPITAL EQUIPMENT:
The Dean of the Research Division and/or an appointed designee must approve a request to purchase capital items. The letter should include a request to rebudget with justification and identify any matching funds for the purchase. Equipment purchases cannot be made in the last year of a project.

COMPUTER / PRINTER PURCHASES:
The Associate Dean of the Research Division and/or designee must approve all requests to use formula funds to purchase computers/printers. One computer and printer may be purchased over the life of a project if required to conduct the research. Formula funds can be used to fund one-half the purchase price. A letter of request should include a justification of need, a request to rebudget if required and identification of matching funds for the purchase. Upon approval, a requisition can be processed. Computer/printer purchases cannot be made in the last year of a project.

COPY COSTS:
A maximum of $200/yr can be used for related research copy costs (debitcards, copy chargebacks) unless survey costs were included and approved in the original proposal.

OFFICE SUPPLIES:
Research related costs for copy paper, toner cartridges, and other items generally considered office supplies, must be accompanied by a letter of request and justification if total costs exceed $200/yr. General office supplies are not allowable expenses (unless related to direct research costs approved in the original proposal) and are subject to disallowance.

APPENDIX D. CALL FOR PROPOSALS FOR FORMULA FUNDS FALL 1999 (FOR FY01 FUNDING).

DATE: July 26, 1999

TO: CALS and AHABS Faculty
School of Human Ecology Faculty

FROM: Margaret Dentine
Associate Dean, Research
Executive Director, WI Agricultural Experiment Station

SUBJECT: CALL FOR PROPOSALS (FY 2000-2001)

I. Hatch and McIntire-Stennis Projects (includes interdisciplinary)
II. Animal Health Projects

The Research Advisory Committee has suggested that the Research Division realign the dates for proposal submission and review so that PIs are notified earlier about funding decisions. This earlier date would allow for more effective recruitment of new graduate students for these projects. Accordingly, we announce the Call for Proposals so that proposal submission and review can occur during the Fall and early Winter for projects that will begin October 1 of the following year (beginning of the federal fiscal year).

We are under new guidelines on the spending of federal formula funds as a result of the recent Farm Bill. Please see the CSREES goals and original Hatch and McIntire-Stennis legislation starting on p. 3. Reviewers will be considering the appropriateness of proposals for this funding source using this language. Our formula fund allocations require a plan of work addressing these CSREES goals.

The **deadline** for receipt of these proposals is **Monday, September 27, 1999.**

For additional forms or more information, please contact Research Division at 2-2397.

Special Note: Please also note that this year there will be a combined call for proposals and review for individual investigator grants and for multiple investigator or interdisciplinary grants for Hatch and McIntire-Stennis projects. The CALS Research Advisory Committee has requested an open call so that proposals can be compared by the same panel and that awards can be allocated based on relative merits of individual and interdisciplinary proposals.

Hatch and McIntire-Stennis (M-S) Projects

As in the past, the Hatch and M-S competition will continue to support a wide range of research with goals consistent with the respective Congressional Acts and the new CSREES statements of goals. The former mindset was to write a project that could be accomplished by a graduate student over a 4-year timeframe. While graduate training is central to use of formula funds, and encouraged as the usual request, some exceptions may be possible. Different research goals might require shorter timeframes of support. Every proposal will be judged on the appropriateness of its goals for formula funding, the quality of the science proposed, and the likelihood of successful achievement of those goals. As available funds continue to remain tight, we will continue to favor Assistant Professors and junior faculty over more senior faculty.

Interdisciplinary proposals with multiple investigators will be considered in the open competition with the following considerations:

- High quality of research work proposed.
- Special emphasis on problem-solving for Wisconsin.
- Realistic budgets (although these may be larger than for single investigator projects). Budgets should specify separate budgets for each investigator with explicit division of work to be done by each team member.
- Evidence that team has worked together on proposal including signatures of all involved. Include a section on how team will function and mechanisms for joint coordination.
- Plans to link the research to extension or outreach activities should be clearly indicated.
- Demonstration of productivity from past and current formula funding from all collaborators.

Faculty of other colleges and universities may be collaborators on a project; however, it should be demonstrated that the needed expertise does not exist within the College and that an appropriate matching commitment of resources is evident. Where external funding sources are available, proposals should reflect this fact.

Types of support that can be requested

In general, these funds support graduate student training and a small supply budget with most awards in the range of $10,000 to 18,000/yr. A four-year RA line plus supplies is not appropriate for all situations. Alternative staffing requests will be considered, although requests for larger total amounts of funding will require proportionately stronger justification. The PIs should address these issues under the "justification" section.

Please use the following excerpts original Congressional Acts and goals used in justifying our formula allocations as guidelines for appropriateness of proposals for formula funding:

Hatch Act

Act of March 2, 1887, ch.314, 24 Stat. 440 7 U.S.C. 361a et seq.
As amended August 11, 1955, ch. 790, 68 Stat.671
Excerpt from Section 2

"… It shall be the object and duty of the State agricultural experiment stations through the expenditure of the appropriations hereinafter authorized to conduct original and other researches, investigations, and experiments bearing directly on and contributing to the establishment and maintenance of a permanent and effective agricultural industry of the United States, including researches basic to the problems of agriculture in its broadest aspects, and such investigations as have for their purpose the development and improvement of the rural home and rural life and the maximum contribution by agriculture to the welfare of the consumer, as may be deemed advisable, having due regard to the varying conditions and needs of the respective States."

McIntire-Stennis Act

Act of October 10, 1962, Public Law 87-788, 76 Stat. 806, 16 U.S.C. 582a, et seq.
Excerpt from Section 7

" The term "forestry research" as used in this Act shall include investigations relating to " (1) Reforestation and management of land for the production of crops of timber and other related products of the forest; (2) management of forest and related watershed lands to improve conditions of waterflow and to protect resources against floods and erosion; (3) management of forest and related rangeland for production of forage for domestic livestock and game and improvement of food and habitat for wildlife; (4) management of forest lands for outdoor recreation; (5) protection of forest land and resources against fire, insects, diseases, and other destructive agents; (6) utilization of wood and other forest products; (7) development of sound policies for the management of forest lands and the harvesting and marketing of forest products; and (8) such other studies as may be necessary to obtain the fullest and most effective use of forest resources."

Animal Health and Disease Research Program

Section 1433 of Subtitle E (Sections 1429-1439), Title XIV of Public Law 95-113 (7 U.S.C. 3191-3201), as amended, 1981.

SEC. 1429. *"It is the purpose of this subtitle to promote the general welfare through the improved health and productivity of domestic livestock, poultry, aquatic animals, and other income-producing animals which are essential to the Nation's food supply and the welfare of producers and consumers of animal products; to improve the health of horses; to facilitate the effective treatment of, and, where possible, prevent animal and poultry diseases in both domesticated and wild animals which, if not controlled, would be disastrous to the United States livestock and poultry industries and endanger the Nation's food supply; to minimize livestock and poultry losses due to transportation and handling; to protect human health through control of animal diseases transmissible to humans; to improve methods of controlling the births of predators and other animals; and otherwise to promote the general welfare through expanded programs of research and extension to improve animal health."*

National Goals for Plans of Work

Five national goals have been established in the Research, Education, and Economics (REE) Mission Area and USDA Cooperative State Research, Education and Extension Service (CSREES) Agency strategic plans. (See *http://www.reeusda.gov)*

Goal 1. Through research and education, empower the agricultural system with knowledge that will improve competitiveness in domestic production, processing, and marketing.

An agricultural system that is highly competitive in the global economy.

Goal 2. To ensure an adequate food and fiber supply and food safety through improved science based detection, surveillance, prevention, and education.

A safe and secure food and fiber system.

Goal 3. Through research and education on nutrition and development of more nutritious foods, enable people to make health promoting choices.

A healthy, well-nourished population.

Goal 4. Enhance the quality of the environment through better understanding of and building on agriculture's and forestry's complex links with soil, water, air and biotic resources.

An agricultural system which protects natural resources and the environment.

Goal 5. Empower people and communities, through research-based information and education, to address the economic and social challenges facing our youth, families, and communities.

Enhanced economic opportunity and quality of life for Americans.

Areas of identified research need for Wisconsin:

Within these national goals, states are asked to use stakeholder input to help direct use of formula funding. In Wisconsin, faculty meet regularly with a number of College and departmental advisory groups, commodity organizations, state agencies, consumer groups, and private citizens. Input from these stakeholders and from those who are performing the research is used to help highlight areas of research need. Department chairs were asked to provide a small number of research topics from each unit of CALS for use in Hatch and McIntire-Stennis calls for proposals. The following is a compilation of common themes identified in this process. Research proposals from all topic areas will be considered and will be ranked according to the criteria provided in this call for proposals. This list is provided to draw attention to needs currently of interest within the state.

1. Mechanisms of pest and pathogen resistance and control that minimize effects on environmental quality and human health.
2. Effects of change in global climate, population pressures or public policy on agricultural production, natural resources and future land use.
3. Identification of socioeconomic forces that shape the viability of rural industries and employment including agriculture, forestry and other land uses.
4. Research on human perceptions and access to information on food choices, food safety, environmental protection and biotechnology .

5. Sustainable agricultural and forestry production and processing systems that provide improved food safety, environmental protection and human well-being.

Animal Health Proposals

We expect to have about $70,000 in Animal Health (Section 1433) Funds to support new projects for year 2000. Our target is to fund three projects at about $23,000 each. As always, the USDA requires that proposals relate specifically to disease of food animals and/or horses. Studies of normal structure, function and process cannot be considered for support by animal health funds, however worthy the science is, or important the studies may be as a basis for comparison with the disease state.

We have initiated a targeted call for proposals. In 2000, we will target problems caused by bacteria and problems that are of a non-infectious nature. In 2001, we plan to target problems caused by viruses and parasites. The reason for this targeted approach is related to our current low funding/submissions ratio. With this targeted approach, we realize that most faculty will be eligible to compete only every other year; however, the year faculty are eligible to compete, the probability of funding will increase from about 10% to about 20%. Our goal is to increase the productive use of faculty time in developing proposals.

A revised project continues some phase of the old work with new methods of work plans and will compete with new proposals. Revised and new projects will be limited to durations of no more than three years. For all revised projects, we must have new CRIS forms and an updated outline. An extended project continues with the same outline to allow completion of data collection and analysis or writing of technical paper or report. Extensions should be sought through a written request and no CRIS forms are required. Extensions will be limited to nine months. However, the budget will be limited to meet essential needs for analysis of the data and completion of the project. Funds to support RAs or other personnel will be limited to six months.

The award criteria for funding for Animal Health projects will be slightly different from that followed for Hatch or McIntire-Stennis proposals. The intent is that these limited funds go to support the very best science studying important problems of animal health in Wisconsin. Specifically:

There will be open competition within the Agricultural Experiment Station for these awards, regardless of department, extramural or intramural (Hatch) support being received. Although status as a new faculty member will be acknowledged and taken into account, it will not be the principal criterion for award of funding.

Proposals should discuss the significance of the disease process to be investigated, particularly as it related to animal health in Wisconsin.

The School of Veterinary Medicine (SVM) Research Committee will assign two reviewers on campus with expertise in the subject area of the proposal. Reviewers will be asked to review and rank the proposal according to published guidelines. The SVM Research Committee will sit as a panel to establish overall rankings of scientific merit and these recommendations will be forwarded to the SVM Associate Dean for Research (Assistant Director of the Agricultural Experiment Station) for final funding decisions.

Proposals will be recommended for funding in order of relative ranking with preference given

to projects of immediate importance to animal health in Wisconsin. Project duration is up to three years. Funding will start on October 1, 2000.

Proposal Submission

Instructions for preparing proposals for Hatch, McIntire-Stennis and Animal Health projects are included in this document. Proposal review will occur during November and December with funding decisions made by the Research Division by mid-December. Project start date will be October 1, 2000.

Please realize that your proposals will be reviewed by a panel of varying scientific backgrounds and expertise. The panel will endeavor to find experts as outside reviewers, but the panel discussion is very important to the ranking of proposals. A scientific summary that provides the necessary perspective for trained scientists who may not be experts in your area would be very helpful to the panel in understanding your proposed work.

At the present time it looks like the most likely prospects for formula funding in the FY01 budget will be under discussion until the last minute. Last year, we were able to fund about three-quarters of the proposals, but not all at full funding. The budget roller coaster ride we are on with respect to formula funds likely will continue. We know how important formula funds can be to your research program and we will keep you posted as new information becomes available.

Six copies of the proposal are due in the CALS Research Division office (136 Ag. Hall) by **September 24, 1999.**

Proposal Format: 2000 Fall Competition

The following format is intended to expedite proposal preparation and review as rapidly as possible, but still provides the information essential for identifying the best proposals. The PIs are urged to conform to format limits; reviewers will not be expected to read extended sections, addenda, and unpaginated sections. With rare exceptions, revised proposals will not be requested from PIs as part of the overall review process. Proposals should be prepared in a 12-point font and standard (0.5 to 1 inch) margins.

1. Cover page and 200 word summary (1 page): Please use the enclosed form (Proposal Cover Sheet). Provide an informative title; an indication of whether this proposal is submitted as Hatch, McIntire-Stennis or Animal Health; the names of the participating faculty; the amount for each of the years for which funding is requested; and a 200-word summary of the work to be undertaken. These summaries will be distributed to the panel as part of the review process.

2. Budget page: Please use the enclosed form for the budget with a separate page for each year.

3. Background page: A single page should be devoted to a description of the nature of the problem and other issues necessary for a reviewer to understand the issues and the approaches to be proposed.

4. Research justification (2 pages): Two separate, one-page justifications should be supplied. The first should justify the aims of the project in terms of the growth in new knowledge and the useful application of the results. If the proposal is primarily for the acquisition of knowledge, an argument must be made that the knowledge is important to some segment of the scientific community. If the primary focus is on application, then a clear problem should be identified, as well as a compelling case for why this research will help solve that problem. Because Hatch and M-S funds could be used to support proposals that bridge these two goals, both should be addressed in the proposal. The second justification should specify the budget by category and defend the amount and type of funding requested and the time frame. The amount of support requested, together with its justification, will be a significant factor in allocating scarce resources.

5. Proposal body: No more than six pages, including figures, should be used to detail the experiments or activities that will be performed to address the specific objectives. Methods to avoid obvious pitfalls should be noted. A brief description of likely results, and their interpretation or application is essential. An explanation should be provided as to how the appropriate audience will be informed of the results, whether that audience is other scholars, extension agents, farmers, etc. At the end of this section include a timetable for the completion of key elements.

6. Previous results (1 page): A predictive factor in deciding funding is the previous productivity of the PI. This will partly be addressed in the CV (see below), but it is also very important to determine productivity with previous Hatch or M-S awards. The PI should therefore provide a clear statement of the results of the current or most recent Hatch or M-S support. In the case of research that focuses primarily on "new knowledge", this is best documented by the citation of publications in peer-reviewed journals which have cited the Hatch support in the acknowledgments. Applied projects will also be judged by evidence of current or future impacts on society. An additional page can be used for each co-PI, if they have had recent Hatch or M-S support.

7. Management plan: For proposals with multiple investigators, include a plan for research coordination and a detailed allocation of the project activities and budget among the investigators. All investigators must sign the proposal cover page.

8. References: Provide a complete citation for each of the references cited in the proposal.

9. Curriculum vitae (CV): A two-page CV for each investigator, focusing on recent publications, applications, invention disclosures, and patents, should be provided.

10. "Other Funding" page: The PI should provide a summary of other current or pending funding. This should include PI(s), project title, funding source, dates of funding period, and direct costs per year. Where there is any conceivable overlap between these projects and the current proposal, the nature of the overlap should be explained here and justified in the appropriate "Justification" section. Discuss the potential for future or supplemental external funding for this project.

Nature of the Proposal Review
Hatch and McIntire-Stennis Proposals

Copies of the proposal will be sent to two members of the Faculty Review Panel (FRP) and at least two other reviewers. The Associate Dean for Research will choose the FRP itself, in consultation with RAC. No member of the FRP will have a proposal under review. Where possible, these reviewers will be CALS faculty, though other reviewers both on and off campus may be employed as necessary. The chair of RAC in consultation with RAC members will make the identification of ad hoc reviewers. The critical criteria for selection of ad hoc reviewers and FRP members will be scientific excellence, appropriate disciplinary expertise and overall balance. Applicants may request that certain individuals be excluded from being used as reviewers at the time of application.

The guidelines for reviewers are given below. Each reviewer will rate the proposal from 1-5 and write a critique. The two FRP reviewers will receive copies of all of the reviews prior to the FRP meetings.

In the discussion itself, the FRP reviewer who is "primary" will give a short description of the proposal, the PI's background, and his/her own critique. The secondary will make his/her own critique and raise any other points that have been overlooked. Where the FRP has insufficient expertise in the proposal area, an ad hoc member may be brought in as primary or secondary discussant. Finally, the external reviewer comments will be noted. Because of this process, an inappropriately negative external review will not condemn a proposal. After clarifying any confusing issues for the rest of the panel, an approximate placement will be made "on the board" with respect to proposals that have already been discussed. Obviously this placement will involve some degree of reconsideration of previously placed proposals. Reviews from internal and external reviewers will be returned to applicants as well as a summary based on written reviews combined with the panel discussion.

At the end of the process, FRP members will go over the list and look for any inappropriate placement. The prioritized list will be forwarded to the Associate Dean for Research. It is currently anticipated that over 50% of the proposals will be funded.

Review Criteria for Reviewers

Reviewers are asked to critique and evaluate proposals in a constructive way. Identify both the strengths and weaknesses of the proposal(s) you review. Please make your review concise and be sure to include comments addressing each of the following criteria:

1. An evaluation of the scientific significance of the objectives and appropriateness of the research approach as indicated in the original Congressional acts and CSREES goals.
2. A judgement of the potential usefulness to society of the research, in the short and/or long term. Problem-solving is a key feature of the formula funding guidelines.
3. An evaluation of the ability of the research team to accomplish the stated objectives and the match between the objectives and available resources. For teams with multiple investigators, please review the plan of coordination of the work across laboratories or departments.

Provide a final rating of the proposal from 1 (highest) to 5 (lowest). Your anonymous comments will be returned to the PI.

APPENDIX E: COLLEGE ADVISORY COMMITTEE DESCRIPTION AND MEMBERSHIP

BOARD OF VISITORS

Functional Statement: The Board of Visitors for the UW-Madison College of Agricultural and Life Sciences serves as an outside advisory group to the Dean of the College. Members will have attained prominence in agriculture, natural resources, life sciences, or rural development and are chosen because of their value in providing a sound external perspective to the Dean.

The Board has three primary objectives: 1) to provide an external perspective and important link between the agricultural, natural resources, life sciences and rural development communities and the College of Agricultural and Life Sciences; 2) to provide an advocacy network for the College; and 3) to assist in major fund-raising efforts.

The Board functions at the pleasure of the Dean. Meetings will be scheduled at least twice yearly. Detailed agenda and supporting materials will be provided for each meeting.

The total Board membership is 25. Membership on the Board shall be for a nonrenewable term of four years, with the following exceptions. Individuals appointed to less than a full four year term are eligible to be reappointed to a full four year term. Former Board members become eligible for reappointment to the Board one year after their four-year term expires.

Six to seven new members of the Board will be appointed annually in December by the Dean upon recommendations of the Executive Committee. The new members will be formally announced at the Spring Meeting.

In the selection of candidates for the Board, the following criteria will be considered. The candidate will: 1) be well known in his or her field of work, 2) have a commitment to the College, 3) have exhibited leadership in areas that relate to the work of the College, 4) add some area of expertise to the Board, and 5) have the ability to influence others on behalf of the College.

Members of the Board will become Emeritus Board members at the conclusion of their terms. Emeritus Board members will be formally recognized for their service at the Fall Meeting.

The officers of the board shall consist of the Chair, the Chair-Elect, and the Immediate Past Chair and shall serve as the executive committee of the board. Candidates for the position of Chair and Chair-Elect are recommended by a Nominating Committee appointed by the sitting Chair. Recommendations must be approved by the full board. The Chair and Chair-Elect serve two-year terms and are to be chosen from members of the Board who have been present for at least two meetings of the Board. The new Chair and Chair-Elect will be elected during the business session of the Fall meeting, even numbered years (1998, 2000, etc). Past chairs are eligible for a second consecutive four-year term on the Board. Chairs and Chairs-Elect are

eligible for reappointment for the duration of their tenure on the Executive Committee.

Membership on the Board of Visitors is a recognition of personal and professional achievement. The College acknowledges the need for active participation of Board members in all the Board's stated goals. Appointment should be considered among the highest distinctions given by the College.

CALS Board of Visitors – April 1999

Dr. Ken Barton Director, Ag Biotechnology Pipeline Monsanto	Mr. Stephen S. Becker Becker Food Company, Inc.
Dr. James R. Behnke Senior Vice President, Technology Pillsbury Corporation	Mr. Roger Biddick Trelay Farms (seed company)
Ms. Linda Bochert Michael Best & Friedrich LLP (environmental law firm)	Mr. Victor Brockmiller Mayville Limestone, Inc.
Mr. Ed Brooks (dairy farmer)	Mr. Steve Diercks Coloma Farms, Inc. (potato and vegetable grower)
Ms. Kay A. Finch Perry Creek Cranberry Co.	Mr. Fritz Friday Friday Canning Company
Mr. Guy Gottschalk Gottschalk Cranberry, Inc.	Mr. Paul Gunderson, Ph.D. National Farm Medicine Center
Mr. John Hansen Kwik-Trip (convenience stores)	Dr. Richard Heins Heins Business Group (insurance)
Mr. Gail E. Janssen F&M Bancorporation, Inc. (agricultural lending)	Mr. Ralph Kauten, President PanVera (biotechnology)
Dr. Chih-Ping Liu (C.P.) Pepgen Corporation (biotechnology company)	Mr. Thomas L. Lyon Cooperative Resources Int'l (dairy services cooperative)
Mr. Monroe S. Miller Blackhawk Golf Course	Mr. Paul E. Scharfman c/o Specialty Cheese Company, Inc.
Dr. Robert Sellars Robert L. Sellars & Assoc., Inc. (food technology)	Mr. Donald Storhoff, President Foremost Farms USA, Cooperative
Mr. Robert Tramburg Vita Plus Corporation (nutrition consultant)	Mr. Michael Wehler (pork producer)
Ms. Linda Wenck, President	

Morgan & Myers/The Barkin Group (advertising and marketing)	

APPENDIX F: FOCUS GROUP LISTS

Roundtables – June 1999

Purpose: The primary goal of the CALS Roundtable is to improve communication between the College and the people it serves. The Roundtable would provide periodic opportunities for leaders of user groups to interact informally with CALS administration and faculty to discuss: a) user group needs and opportunities; b) current CALS programs and program proposals; and c) ways to increase cooperation among user groups, the university, and state and federal agencies. Discussions would focus primarily on issues related to CALS research, education and extension/outreach programs.

Roundtables Held To Date

General Farm • Wisconsin Agribusiness Council • Wisconsin Federation of Cooperatives • Wisconsin Farmers Union • National Farmers Organization • Wisconsin Farm Bureau Federation • Wisconsin Women for Agriculture • Wisconsin State Grange	**Food Processing and Marketing** • Canned Vegetable Council, Inc. • Cheese and Specialty Food Merchants Assn. • DATCP - Division of Food Safety • Midwest Food Processors Assn. • Professional Dairy Producers of Wisconsin • Wisconsin Association of Meat Processors • Wisconsin Cheese Makers Assn. • Wisconsin Milk Marketing Board
Animal Agriculture • AgSource Cooperative Services • Agri-Services Assn. • Cattlemen's Assn. • Dairy 2020 • Pork Producers Assn. • Professional Dairy Producers of Wisconsin • Poultry Improvement Assn. Cooperative • Wisconsin Sheep Breeders Cooperative • Assn. of Professional Agricultural Consultants • Wisconsin Milk Marketing Board • Consortium of Animal Agriculture Resource Development	**Plant Group** • Corn Growers • Soybean Growers • Cranberry Growers • Forage Council • Potato and Vegetable Growers • Assn. of Professional Agricultural Consultants • Michael Fields Institute • Ag Lime Assn. • Fertilizer and Chemical Assn. • Ginseng Growers • Crop Improvement Assn.
Environmental and Natural Resources • Audubon Society • Citizens for a Better Environment • Citizens Natural Resources Association • Environmental Decade • Izzak Walton League of Wisconsin • John Muir Chapter - Sierra Club • Land and Water Conservation Association • Nature Conservancy • River Alliance of Wisconsin • Wildlife Federation	**Green and Forestry** • Wisconsin Chapter of the American Society of Landscape Architects • Governor's Council on Forestry • Wisconsin Landscape Federation • Natural Vegetation/Restoration • Wisconsin Paper Council • Professional Lawn Care Assn. • Wisconsin Seed Producers • Wisconsin Sod Producers Assn. • Wisconsin Turfgraff Assn.

• Wildlife Society • Wisconsin Strategic Pesticide Info. Project • Wisconsin Wetlands Association	• Wisconsin Woodland Owners Assn.

Roundtable Planned for Near Future

Biotechnology

- Agracetus
- Lab Safety Supply
- Novagen
- PanVera
- Promega
- Winston Brill & Associates
- Third Wave Technologies

Sustainable and Organic Food Producers

- Michael Fields Agricultural Institute
- Midwest Sustainable Agricultural Working Group
- Wisconsin Farmlands Conservancy
- Wisconsin Rural Development Center
- Madison Area Consumer Supported Agriculture Coalition
- Grassworks, Inc.
- Wisconsin Grazers Network
- Wisconsin Sustainable Farmers Network
- Wisconsin Women's Sustainable Farming Network
- Kickapoo Organic Resource Network
- Organic Valley CROPP Cooperative

Consumer and Non-Traditional Groups

- Urban League of Madison
  - State of Wisconsin Hispanic` and Migrant Services Coordinator
- Tsyuhekya/Oneida Nation of Wisconsin
- Community Action Coalition
- Midwest Anti-Hunger Network
- Rainbow Farm Corporation
- East High School Former Principal (Milton McPike)
- Second Harvest Food Bank of Southern Wisconsin
- Kellogg Project (Tom Lyon, Cooperative Resources International)
- Extension Homemakers
- Consumer Office of Wisconsin Department of Agriculture, Trade and Consumer Protection
- Consumers for Fair Trade
- United Refugee Services of Wisconsin