

# **Plan of Work**

## **The Ohio State University**

**College of Food, Agricultural, and Environmental Sciences**

**Ohio Agricultural Research and Development Center**

**and**

**Ohio State University Extension**

**Federal Fiscal Years**

**FY00 – FY04**



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**I. PLANNED PROGRAMS:**

<b>1862</b>	<b>Goal 1</b>	<b>Goal 2</b>	<b>Goal 3</b>	<b>Goal 4</b>	<b>Goal 5</b>
<b>Research</b>	Programs 1B through 1H	Programs 2Ar, 2Br & 2C	Programs 3Ar & 3B	Programs 4Ar, 4B, 4C, 4Dr & 4F	Programs 5A, 5Br, 5C & 5D
<b>Extension</b>	Programs 1A	Programs 2Ae & 2Be	Program 3Ae	Programs 4Ae, 4De, 4E, 4G & 4H	Programs 5Be, 5E through 5L

**1. An Agricultural System that is Highly Competitive in the Global Economy**

**Programs 1A. Summary of Extension Programs Supporting Goal 1**

**Statements of Issue**

- Ohio’s Commercial agriculture and horticulture industries depend upon Ohio State University Extension to provide timely, science-based, objective information that can be implemented within their management systems to remain competitive in our global economy
- A high priority for The Ohio State University Extension will be development and coordination of commodity/issue focused Teams consisting of State/District Extension specialists, County Agriculture and Natural Resource agents and research faculty from multiple disciplines to deliver high impact, science based information and educational programming that is timely and easily accessed by Ohio’s diverse commercial agriculture and horticulture industries.
- Ohio State University Extension and the Ohio Agricultural Research and Development Center currently have engaged 21 interdisciplinary self-directed Teams ranging from our “Swine Educators’ Team” to our “Watershed Management Network”. These faculty-led Teams will interact closely with respective state/national commodity organizations, state/federal agencies and environmental organizations to assist in developing our Extension led statewide programming and current communications structure.

- Team electronic communications are the keys to access strategic information for global competitiveness. Many of our Teams will continue to develop weekly/monthly electronic newsletters and research updates that will be evaluated for their economic impact. Our Team members develop newsletters following weekly tele-conferences such as: Amazin' Graze, Buckeye Yard and Garden Line (BYGL), Crop Observation and Recommendation Network (CORN), Grain Marketing Research and Innovative Strategies (GRAINS), Pesticide Update (Pep-Talk), Pork Pointers, Veg-Net and Vineyard Vantage, etc. Many newsletters are listed on our OSU Extension *Ohioline* web site, as well as many of our Team's individual web sites for easier access by our stakeholders.

### **Performance Goals**

- Creation of high impact, easily accessible Team developed Electronic Newsletters and educational Fact Sheets for Ohio's diverse clientele
- Formation and evolution of highly engaged OSU Extension/Research faculty-led Teams
- Continual evaluation and performance surveys of Team educational products/programs for respective Ohio economic and environmental impacts

### **Output Indicators**

- Number of high impact Team Newsletters, conferences, and symposiums presented and clientele numbers participating will be recorded
- Number of Newsletters and Team Fact Sheets/Bulletins that are accessed through *Ohioline's* web site will be recorded
- Qualitative evaluations and number of high impact Team initiated district/regional/statewide commodity and issue focused programs for Ohio's commercial agriculture and horticultural industries will be documented
- Strategic Team surveys will be conducted on programs/Electronic Newsletters for specific economic impacts with commercial industry stakeholders.

### **Outcome Indicators**

- Demonstrated local and statewide support for OSU Extension's state/county budget requests and commodity organization financial support of Team activities
- Acceptance and implementation of Best Management Practices (BMP's) that are preserved in Team products/programs
- Recognition by Ohio's commercial agriculture/horticulture industries that Ohio State University Extension is the state's premier educational network providing timely research based information

### **Key Program Components**

- Continue to foster the development of OSU Extension/Research interdisciplinary Teams
- These commodity/issue Teams will network closely with their respective commodity group organizations and state/federal agency partners to continually assess educational needs for high impact programs and efficient information delivery systems
- Many Teams will invite key stakeholders to join in Team membership or to meet regularly with Team members to provide strategic input on focus and Team direction
- Various Teams, (i.e. Sustainable Agriculture), will focus on serving/networking with undeserved farm audiences such as Ohio's organic, low-input, and smaller scale farm families

### **Internal and External Linkages:**

- Department of Horticulture and Crop Science
- Department of Food, Agriculture, and Biological Engineering
- Department of Agricultural, Environmental and Development Economics
- Department of Plant Pathology
- Department of Animal Sciences
- Department of Food Science
- School of Natural Resources
- Extension Specialists/County Ag and Natural Resource Agents
- Experiment Station Research Faculty
- Respective Private/Public Sector Commodity Organizations and Ohio Environmental Agencies and groups
- Ohio Farm Bureau
- Innovative Farmers of Ohio/Ohio Ecological Food and Farm Association (OEFFA)

See also Multi-State Activities.

### **Target Audience**

Each "Team" will be responsible for networking with their respective commercial agriculture/horticulture industry/stakeholder base. For example, Ohio Agronomic Crops Team will network closely with commercial grain farmers, Ohio Agribusiness Association, and our Certified Crop Advisors (CCA's).

### **Program Duration**

Intermediate and long-term: 1999-2004 Teams will continue to be fostered for continuation of interdisciplinary focus and to network with respective stakeholder and commodity organizations.

**Allocated Extension Resources:** (see Section V.)

## **Program 1B. Value Added Products**

### **Statement of Issue:**

The success of Ohio's agricultural production system, as a competitor in the global economy, is largely dependent on its ability to produce and deliver low cost - high quality food and feed ingredients and food products that are needed, wanted, and can be paid for by domestic and foreign users, processors, and consumers. Identifying the potential of and opportunities for adding value to the raw products of agricultural production for both food and non-food uses will improve the economic situation for producers.

Because agriculture is Ohio's leading industry, finding ways to add values to farm commodities will improve the income potential for producers and strengthen this segment of the state's economy. Finding higher value uses for underutilized by-products should reduce the waste streams that poses risk for the environment.

### **Performance Goals:**

- Assessing the utilization of agricultural by-products or other waste stream materials as potential feed ingredients.
- Assess potential higher value uses of farm commodities.
- Investigate the potential for modifying basic farm commodities to enhance value.
- Evaluate potential new uses of basic farm commodities.

### **Output Indicators:**

- Greater understanding of the by-product stream from processing of agricultural commodities.
- Better understanding of the properties of the agricultural products desired by processors.
- Greater understanding of new technologies needed to better utilize agricultural by-products.

### **Outcome Indicators:**

- Increased value of farm commodities.
- Increased uses of farm commodities.
- Increased value and demand for by-product from the processing of farm commodities.
- Increased research to identify novel approaches to enhance value of farm commodities.
- Enhanced environmental quality.



**Key Program Components:**

- Study methods to enhance the value of agricultural products to processors.
- Study the economic impact of new processes on the producers.
- Initiate new research to explore uses of the by-product stream from processing of agricultural commodities.
- Study the environmental impact of values added changes in agricultural products..

**Internal and External Linkages:**

- Department of Animal Sciences
- Department of Food, Agricultural and Biological Engineering
- Department of Food Science and Technology
- Department of Agricultural, Environmental, and Development Economics
- Department of Horticulture and Crop Science
- School of Natural Resources
- Department of Plant Pathology
- Extension Specialist and Agents
- Crop and Livestock Producers
- Processors
- Private industry

**Target Audiences:**

Farmers, producers, agricultural processors, general public, researchers.

**Program Duration:**

Five years

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 389,127	396,909	404,847	412,944	421,203
FTE's	7.3	7.3	7.3	7.3	7.3

## **Program 1C. Innovative Farming Techniques:**

### **Statement of Issue:**

Agriculture has changed dramatically during the twentieth century. The application of research discoveries in nutrition, genetics, physiology, management, and disease and pest control of plants and animals has enabled the U.S. producer to become the most productive in the world. Development of new technologies has permitted crop and livestock producers to make steady increases in productivity. Adoption of mechanization and automation has resulted in increased unit size. Often the new technologies have permitted producers to utilize practices and procedures that previously were infeasible. The continued development of innovative production and management techniques that will permit crop and livestock producers to continue to increase productivity within an ecological framework are crucial.

### **Performance Goals:**

- Determine innovative approaches to reduce production inputs.
- Determine application of new technologies.
- Alter production practices to minimize adverse impact on the environment.
- Determine economics of adoption of new technology.

### **Output Indicators:**

- Better understanding of the application of new technology to production agriculture.
- Enhanced methods to reduce production inputs.
- Enhanced methods of reducing the impact of production practices on the environment.
- Better understanding of methods of soil management.

### **Outcome Indicators:**

- Reduction of fertilizer and pesticides in the groundwater.
- Application of new technology to enhance production.
- Application of new technology to reduce impact of production agriculture on the environment.

### **Key Program Components:**

- Refined conservation tillage practices.
- Determine application of precision farming techniques.

- Elucidate tillage practices that enhance production and environmental quality.

**Internal and External Linkages:**

- Department of Horticulture and Crop Science
- Department of Food, Agricultural and Biological Engineering
- Department of Agricultural, Environmental, and Development Economics
- Department of Plant Pathology
- Department of Animal Sciences
- Department of Entomology
- School of Natural Resources
- Extension Specialist and Agents
- Agroecosystems Management Program
- Private Industry

**Target Audiences:**

Crop and animal producers, equipment companies, general public, researchers

**Program Duration:**

Five years

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 549,060	560,041	571,242	582,666	594,320
FTE's	9.6	9.6	9.6	9.6	9.6

**Program 1D. Increased Animal Production Efficiency:**

**Statement of Issue:**

Animal agriculture is of major economic importance in Ohio, provided approximately 36% of all cash receipts from farming in 1997. More so than most states, animal agriculture is very balanced in Ohio with virtually all major agricultural animal species contributing to the state's economy. Major thrusts of

animal research is increasing the efficiency of producing animal protein, animal well-being, and product quality. Understanding the basic properties of animal requires the application of a broad group of biochemical, molecular biological, physiological, genetic and nutritional techniques. Factors affecting animal product quality, disease status, and efficiency of production are genetically controlled. Physiology also impacts animal growth and reproduction. As plants and animals are modified, the factors regulating nutrient use and requirements, as well as regulatory role of cell function must be studied. It is becoming increasingly important for the disciplines to work collaboratively to address issues and enhance progress.

Technology and management practices have changed the way food animals are produced. Consideration of the need to maintain sustainable ecosystems necessitates that a holistic approach to reducing the potential impact of animal production on the environment be initiated. These practices must balance production and socioeconomic concerns within an ecological framework.

### **Performance Goals:**

- Determine genetic principles and practices that increase the production efficiency of protein from food animal.
- Determine factors regulating nutrient use in the production milk, meat, and eggs.
- Determine methods to increase reproductive efficiency of food animals.
- Alter production practices to minimize nutrients that must be recycle back to the land.

### **Output Indicators:**

- Better understanding of nutrient partition during growth of food animals.
- Better understanding of site of digestion of carbohydrates and protein in food animals.
- Better understanding of the physiological basis of growth and reproduction of food animals.
- Enhanced methods to identify genetically superior animals.

### **Outcome Indicators:**

- Improved breeding strategies.
- Identification of genetic markers for selecting food animals.
- Improved nutrition of the neonate.
- Strategies to enhance compensatory growth.
- Improved understanding of neuroendocrine factors that control development.
- Development of methods to enhance fertility.

### **Key Program Components:**

- Develop nutritional regimens that reduce the impact of animal production on the environment.

- Quantify the nutrient requirement of food animals.
- Elucidate mechanisms to enhance nutrient utilization.
- Determine factors that regulate growth and productivity of food animals.
- Determine hormonal mechanisms that enhance reproductive efficiency.
- Determine marker assisted selection or other genetic techniques to improve the performance and disease resistance of food animals.

**Internal and External Linkages:**

- Department of Animal Sciences
- Department of Food, Agricultural, and Biological Engineering
- Food Animal Health Research Program
- Department of Horticulture and Crop Science
- Extension specialist and agents
- Commodity group
- Private industry

**Target Audiences:**

Livestock and poultry producers, general public, and researchers.

**Program Duration:**

Greater than five years

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$2,749,092	2,804,073	2,860,155	2,917,358	2,975,705
FTE's	56.0	56.0	56.0	56.0	56.0

**1E. Increased Plant Production Efficiency**

**Statement of Issue:**

Economically the plant industry is the largest segment of agriculture in Ohio, providing approximately 64% of all cash farm receipts. The diversity of Ohio's plant agriculture is significant. From soybeans

and corn to fruits and vegetables plus other speciality crops. Ohio's plant industry face many challenges and opportunities in the future. Concern over the environment, while always of great importance, has become a top priority as the industry moves effectively to develop new and innovative ways to protect Ohio's natural resources. Concerns regarding global warming and water quality will require plant agriculture and society to use sound science to determine the best solutions to emerging issues. Because the livestock industry consumes many of the plant products produced in Ohio, plant agriculture is supportive of a viable and growing livestock industry and shares in the concerns and challenges it faces.

### **Performance Goals:**

- Support the development of plants more efficient in nutrient utilization.
- Improve germplasm to ensure genetic advances.
- Modify plants to increase stress tolerance.
- Modify plant for increased disease resistance.
- Develop enhanced weed management systems.

### **Output Indicators:**

- Greater understanding of nutrient use by plants.
- Greater understanding of factors influencing stress tolerance and disease resistance in plants.
- Enhanced understanding of crop and soil nutrient status on crop yield.
- Enhanced germ plasm sources.

### **Outcome Indicators:**

- More efficient conversion of sunlight to animal protein.
- Reduced usage of herbicides to control weeds.
- Improved plant yields.
- Availability of plant varieties and cultivars more resistant to climatic variation.
- Improved disease and insect resistance.

### **Key Program Components:**

- Weed management decision systems to reduce herbicide use.
- Biology and control of plant diseases.
- Plant germplasm studies and cultivar evaluation.
- Physiology of climatic stress on plant.
- Improve understanding of the biology of plants.

### **Internal and External Linkages:**

- Department of Horticulture and Crop Science

- Department of Plant Pathology
- Department of Entomology
- School of Natural Resources
- Ohio Department of Agriculture
- Ohio Soybean Council
- Ohio Corn Growers
- USDA

**Target Audiences:**

Crop and grain producers, general public, researchers.

**Program Duration:**

Greater than five years

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$1,916,962	1,955,301	1,994,407	2,034,295	2,074,981
FTE's	36.6	36.6	36.6	36.6	36.6

**Program 1F. Enhancement of Animal Health**

**Statement of Issue:**

Animal health issues are of major concern to the food animal industries. Approximately 10% of the animals raised are lost to mortality and losses due to morbidity and decreases in production efficiency could be substantial. Some of the major infectious disease problems have been brought under control. Nonetheless, a variety of economically significant diseases continue to plague the food animal industries. Combinations of mild pathogens that could cause significant health problems are common. In addition, new disease entities continue to emerge and diseases that were controlled reemerge.

Our research focus is on respiratory and enteric diseases which are the major disease of the different species of food producing animals.

**Performance Goal:**

- Reduce the incidence of diseases of food producing animals.
- Contribute to the welfare of food producing animals.
- Contribute to environmental safety.
- Insuring the availability of wholesome and safe foods at reasonable cost to the consumer and a reasonable profit of the producer.

**Output Indicators:**

- Reduction in mortality and morbidity of food producing animals
- New knowledge on epidemiology, pathogenesis, control and prevention of food animal diseases.

**Outcome Indicators:**

- Development of new technologies for diagnosis of diseases
- Development of new vaccines for control of diseases
- Improved quality of foods of animal origin.

**Key Program Components:**

- Understanding the epidemiology and pathogenesis of diseases.
- Development of new technologies for diagnostics and immunization.
- Improve the quality and safety of foods of animal origin.

**Internal and External Linkages:**

- Food Animal Health Research Program
- Department of Animal Sciences
- Department of Horticulture and Crop Science
- College of Veterinary Medicine
- Ohio Department of Agriculture

**Target Audiences:**

Livestock and poultry producers, public, researchers

**Program Duration:**



Greater than 5 years.

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 678,705	692,279	706,124	720,247	734,652
FTE's	14.9	14.9	14.9	14.9	14.9

**Program 1G. Enhancement of Plant Health**

**Statement of Issue:**

Plant diseases and insect pests represent a significant threat to the economic stability of the nation's agricultural industry and to the quality of life of the citizenry. On a global scale, plant diseases and insect pests are a significant threat to human and animal life because of a number of factors such as malnutrition, famine and microbial toxins. In Ohio, diseases and pests account yearly for significant losses in agricultural production and the value of landscape plants. Although some diseases and pests are well controlled, others are not and new diseases and pests emerge often. Changes in agricultural practices also have an important effect on the economic significance of certain plant diseases and pests. Methods used to control diseases and pests affect the costs of production and may impact the environment.

Plant disease and insect pest research in Ohio is focused in several primary areas: 1) Molecular biology of host-parasite interactions; 2) Biology and management of soilborne plant pathogens; 3) Biotechnology-based pathogen detection and diagnostics; 4) Maize virology; 5) Epidemiology; 6) Biology, ecology, and behavior of insects, mites, and other invertebrate plant pests; 7) Physiological, biochemical, and molecular basis for insect-pest/host-plant interactions; and 8) Biologically and ecologically based control strategies for pest species. Research, in any one of these areas can involve fungi, bacteria, viruses, phytoplasmas or nematodes that infect field, fruit, vegetable, ornamental, landscape or turf crops.

**Performance Goals:**

- Reduce the incidence of diseases and insect pests in crop and landscape plants.

- Develop new and improved methods of plant disease and insect management, which are environmentally sound and cost-effective.
- Promote responsible management of natural and renewable resources.
- Discover new knowledge about plant pathogenic microorganisms and insect pests and their interactions with plants and the environment in causing crop losses.

**Output Indicators:**

- Reduction in disease and insect pest losses of crop and ornamental plants.
- Improved use patterns and reduction in use of disease and insect control pesticides.
- Development of new technologies for diagnosis of diseases
- Discovery and implementation of new knowledge on epidemiology, pathogenesis, control and prevention of plant diseases and insect pests.

**Outcome Indicators:**

- Implementation of improved disease and insect pest control techniques
- Reduced disease and insect pest control production costs
- Enhanced environmental quality

**Key Program Components:**

- Understanding the epidemiology and pathogenesis of plant diseases and the ecology and distribution of insect pests.
- Development of new technologies for plant disease and insect pest management.
- Improved food safety and environmental quality as related to disease and insect pest control practices.

**Internal and External Linkages:**

- Department of Plant Pathology
- Department of Horticulture and Crop Science
- Department of Entomology
- Department of Food, Agricultural and Biological Engineering
- School of Natural Resources
- Ohio Department of Agriculture
- U.S. Department of Agriculture/Agricultural Research Service
- OSU Extension specialists and agents
- Plant industry producers and processors
- Ohio citizens

**Target Audiences:**

Commercial and amateur producers of crop and landscape plants, general public , students, peer research scientists

**Program Duration:**

Greater than 5 years.

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 857,563	874,714	892,208	910,052	928,253
FTE's	14.9	14.9	14.9	14.9	14.9

**Program 1H. Economic Competitiveness**

**Statement of Issue:**

United States agriculture has a productive land base, innovative producers, and variable but generally favorable growing conditions. The application of research output, from production to processing and marketing, has resulted in an agricultural system in the United States that is competitive in world markets. With growing affluence in the U.S. and around the world, there will be increased competition for land, water, and other resources. Increased affluence will lead to wider demand for high quality protein diets. This will require programs that focus on multiple production systems varying in size and complexity. Production systems in other regions of the world will also attempt to supply international markets. Competitiveness is influenced by regulations, trade barriers, local, regional, or national policies, and international agreements. United States agriculture must continue to adopt new technologies, explore new structures, and respond to policy changes if it is to remain competitive internationally.

**Performance Goals:**

- Conduct research on international competitiveness of Ohio producers.
- Conduct research on impact of regulations and policies on agriculture.
- Investigate agricultural trade opportunities for Ohio products.
- Investigate impact of farm information system on competitiveness.

**Output Indicators:**

- Greater understanding of the competitiveness of Ohio producers and products.
- Greater understanding of impact of regulations and policies on Ohio producers.
- Appreciation of factors that enhances competitiveness of Ohio’s producers.

**Outcome Indicators:**

- Programs to educate producers of their competitive position.
- Programs for producers and the public to understand implications of policies.
- Enhanced competitiveness of Ohio producers.
- Greater appreciation of trade opportunities for Ohio products.

**Key Program Components:**

- Studies of private strategies, public policies, and performance of the food system.
- Trade-offs and consequences of U.S. farm and food policy.
- Agricultural trade opportunities for Ohio and the nation.
- Financial markets in developing countries.
- International agreements.

**Internal and External Linkages:**

- Department of Agricultural, Environmental, and Development Economics
- Ohio Department of Agriculture
- U.S. Department of Agriculture
- Agricultural producers and processors
- Private industry

**Target Audiences:**

Crop and livestock producers, processors, general public, state legislature, researchers

**Program Duration:**

Five years

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 396,792	377,187	384,731	392,426	400,274

FTE's	4.4	4.4	4.4	4.4	4.4
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## 2. A Safe and Secure Food and Fiber System

### Program 2Ae. Pre Harvest Food Safety (extension)

#### Statement of Issues:

Food safety is an issue of growing national concern. Some of the most issues are chemical and antimicrobial residues, physical hazards such as broken needles, and microbes pathogenic to humans. Several federal initiatives have been implemented to assure the food we eat is not responsible for illness. In some food-borne illness outbreaks, the pathogen causing the illness can be traced back through the food supply continuum to the farm where food was raised. It also has been shown that, as the pathogen load in the live animal increases, so does the risk of contamination of the product harvested from that animal. The HACCP/Pathogen Reduction Act of 1996 is reforming the meat packing industry and has set performance standards that the packing industry must meet. To help themselves meet the new, stricter standards, packers are becoming more selective in the animals they process for slaughter. This means that producers are likewise under more scrutiny. To enable the producers to meet the production criteria established by the packers, educational programs are being developed and delivered to increase the knowledge and issue awareness on the part of the producers. Producers unable to provide packers with assurances that they know and follow good production practices will soon find that they have little or no market access.

In addition to the well-recognized pathogens of zoonotic potential (such as salmonella, trichina, E. coli O157:H7, listeria, cryptosporidia, and yersinia), there are other animal disease agents (such as Mycobacterium paratuberculosis) which may play a part in chronic human diseases. Control programs have been instituted by the Ohio Department of Agriculture, not only to protect the health of the animal population, but also to reduce the risk to the consumers of the state should a connection between these animal diseases and the human disease be substantiated.

It appears that the use of antibiotics in food animal production will become more restricted because of the concern about the development of antibiotic resistance. To counteract the loss of antibiotics,

improved management, known but little used technology, and new discoveries will be put into use to maintain production efficiency and health status.

By serving as an information resource for practicing veterinarians, we use the multiplier effect in information dissemination; one veterinarian with new information can carry it to their many client/producers.

Youth education: Not only are youth raising livestock today as vocational projects, some will remain with the livestock industry to become the mainstay of the industry tomorrow. Acquainting them with the issues today will allow them to better prepare participate in future safe food production.

### **Performance Goals:**

Outreach-oriented educational programs, based on discoveries and knowledge obtained through sound peer-reviewed research, are taken to the stakeholders including veterinarians, livestock and poultry producers; these educational programs will increase issue awareness and provide them with the foundation to design and implement the best management practices for producing food.

Our goal is to assist:

- Veterinarians by providing them with the best information to carry to their clients regarding animal health and food safety, and
- Producers by giving them the tools to:
  - a. Meet/exceed the specifications set by the customers (packers),
  - b. Assure market access for their products, and
  - c. Improve the quality and safety of the product they put into the food supply continuum.

### **Output Indicators:**

- The timely incorporation of research discoveries into new newsletters, fact sheets, and curriculums.
- The availability of new educational programs for youth and adult producers (training manuals, fact sheets, brochures, seminars) that address current issues such as residue prevention, judicious use of antibiotics, and pathogen reduction.
- Attendance and participation in scientific programs on the subject of food safety.

### **Outcome Indicators:**

- Increased percentage of producers that have been trained in quality assurance/food safety issues.

- Increased percentage of veterinarians aware of food safety issues as they provide services to livestock and poultry producers.
- Decreased pathogen loads in animals presented for harvest.
- Fewer food borne illnesses related to livestock and poultry products.
- Reduced rates of violative residues in livestock and poultry harvested for human consumption

**Key Program Components:**

- Development of educational materials: working both independently and with commodity groups, educational materials and curriculum will be developed to familiarize producers with:
  - a. The role and responsibility and food producers, and
  - b. Production practices that minimize/ eliminate food safety risks on the farm.
- Delivery of educational programs, using the educational programs that have been developed, producers will be afforded the opportunity to learn about management practices that can assure the wholesomeness of their product and the health of their animals.

**Internal and External Linkages:**

**Internal Linkages**

- The Ohio State University
- College of Veterinary Medicine - Department of Veterinary Preventive Medicine  
Collaboration and consultation with colleagues about the epidemiology of diseases which are known or have the potential to be transmitted to man from animals which are harvested for food.
- College of Food, Agricultural, and Environmental Sciences – Department of Animal Sciences  
Development of quality assurance training materials (skill -a- thons) for youth education.  
Collaboration on development of a multi -species curriculum emphasizing good production practices to assure a safe, wholesome product.  
Technical assistance in matters relating to animal health and production.
- College of Food, Agricultural, and Environmental Sciences – Department of Food, Agriculture, and Biological Engineering  
Collaboration on improving animal environments to improve the health of the animals.
- The Ohio State University Health Science Center – College of Medicine and Public Health
- Collaboration on zoonotic diseases and antimicrobial resistance by pathogens.

**External Linkages**

- Ohio Department of Agriculture – Division of Animal Industry
  - a. Development of a food safety guide for livestock producer
  - b. Egg Quality Program implementation
  - c. Johne’s Herd Certification Program
  - d. Cattle Health Advisory Committee
  - e. Sheep Health Advisory Committee
  - f. Scrapie Herd Certification Program
  - g. Swine Health Advisory Committee
  - h. Poultry Health Advisory Committee
  - i. Source of information about proper drug use
  
- Purdue University Extension
  - a. Expansion of a “virtual PQA laboratory” on the web.
  
- Ohio Veterinary Medical Association
  - a. Liaison to Agriculture Committee to promote safe food production
  - b. Public Health Committee to promote veterinary medicine’s role in pre-harvest food protection and community health in general.
  
- Private veterinary practitioners
  - a. Provide information on animal disease prevention, control and treatment to enhance the health status of the livestock population from which food will be harvested.
  - b. Provide information on judicious use of medications and withdrawal times.
  
- National Pork Producers Council
  - a. Support of the Pork Quality Assurance program by facilitating producer education
    - b. Development of a youth Pork Quality Assurance program curriculum
    - c. Education of 4-H/FFA youth producers/exhibitors through extension programs.
  
- Ohio Pork Producers Council
  - a. Pork Quality Assurance Level III informational meetings and training sessions.
  - b. Articles on HACCP and the impact on the pork producer.
  
- Ohio Poultry Association
  - a. Egg Quality Assurance Program



- American Association of Avian Pathologists
  - a. Food Safety Committee
- Livestock Conservation Institute
  - a. Collaboration in the development of policy affecting preharvest food safety at state and federal level Committee on Infectious Diseases
  - b. Development of Educational materials concerning preharvest food safety, livestock handling, and youth ethics and quality assurance
- National Cattlemen’s Beef Association
- American Dairy Federation
- American Sheep Industry Association

**Target Audiences**

- Practicing veterinarians
- County agricultural agents
- County 4-H agents
- State regulatory veterinarians/livestock inspectors
- Livestock and poultry producers
- Livestock and poultry commodity organizations
- Agri-business professionals
- Youth livestock producers

**Allocated Extension Resources:** (see Section V.)

**Program 2Ar. Pre Harvest Food Safety (research)**

**Statement of Issues:**

Safety of foods of animal origin has become an issue of national and international concern. Consumers demand a product that is consistently free of food-borne pathogens. Most food-borne pathogens are preharvest infectious emphasizing the need for control of these infections in the live animals.

A variety of food-borne pathogens reside in the gastrointestinal tract of food producing animals consistently an important source of human infections. The epidemiology and pathogenesis of these infections is not very clear which accounts for the lack of efficient control or prevention strategies for these infections. In addition, there is an urgent need of highly sensitive, specific, rapid, and reasonably priced tests to detect these infections.

Our research is focused on the above aspects of food-borne pathogens.

**Performance Goals:**

- Production of safe food
- Enhancement of public health

**Output Indicators:**

- Development of molecularly based, sensitive, specific, rapid, user friendly, easily automated, and reasonably priced technologies for detection of food-borne pathogens generate information on the epidemiology pathogenesis, prevention, and control of food-borne pathogens.
- Ultimate goal is a substantial decrease in cases of food-borne illnesses.

**Outcome Indicators:**

- Development of new technologies for detection of food-borne pathogens
- Generation of information on epidemiology, pathogen control, and prevention of food-borne pathogens.
- Availability of food free of food-borne pathogens.

**Key Program Components:**

- Molecular testing for detection of food-borne pathogens
- Generation of basic information on different facets of food-borne infections leading to control of these infections.
- Improve the safety of foods of animal origin.

**Internal and External Linkages:**

- Food Animal Health Research Program
- Department of Animal Sciences
- College of Veterinary Medicine
- Ohio Department of Agriculture

**Target Audiences:**

Livestock and poultry producers, meat and milk processors, public, and researchers.

**Program Duration:**

Greater than 5 years

**Allocated Research Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 579,454	591,043	602,863	614,921	627,219
FTE's	11.7	11.7	11.7	11.7	11.7

**Program 2Be. Post Harvest Food Safety (extension)**

**Statement of Issue:**

A safe food supply is paramount to public health and a growing, and stable economy. This safe food supply is vital to consumers who want to be assured that the foods they eat are safe; to processors, who must maintain a record of safe, quality foods in order to sell their products; distributors and food outlets who must demonstrate their ability to safely handle and distribute our food products; and home food preparers who must have the knowledge to handle their food in a safe and expeditious manner.

The United States has the safest food supply in the world, yet according to Centers for Disease Control and Prevention figures, microbiological pathogens in food cause an estimated 6.5 to 33 billion cases of human illness and up to 9,000 deaths annually. Government agencies, food processors, and the scientific community agree that these figures are unacceptable and that foodborne illness and death can be largely eliminated with the application of good science; thus, food safety has become a national priority. An

integrated approach involving all points along the farm to table food chain must develop. The Ohio State University is a leader in post-harvest food safety education, research and outreach.

In addition to severe public health consequences, unsafe food has critical economic ramifications. A report from USDA's Economic Research Service indicates that the annual cost of foodborne illnesses from six principle bacterial pathogens range from \$2.9 billion to \$6.7 billion dollars annually. Some feel these statistics are somewhat inflated on the negative side, but even a fraction of these totals is sufficient to cause alarm among food professionals. Cases of foodborne illnesses traced to commercial food processing facilities have been devastating to those companies. Examples abound, such as the Hudson Foods case where hamburger contaminated with *E. coli* 0157:H7 caused an outbreak of illness which led to a recall of 25 million pounds of hamburger. This incident put that company out of business. A non-lethal outbreak of foodborne illness that can be traced to an individual source can be lethal to the survival of a major food company. Ohio has over 800 food processing plants that generate nearly \$19 billion annually. While food safety is a public health issue, it is a crucial economic health issue as well.

Though we may feel rather smug about the quality and safety of our food products, these examples illustrate the importance and necessity of carrying on programs that will assist in reducing problems caused by contaminated food. The above examples merely illustrate problems associated with bacterial food contamination and do not address the other causative agents of molds, yeast, chemical and physical contaminants that may be as concerning as the bacteriological ones.

Food safety issues are a high priority in our college and the departments that impact food quality and safety. The food safety team at the Ohio State University is a collaborative multi-disciplinary effort by faculty and staff from the College of Food Agricultural and Environmental Sciences, Veterinary Medicine, School of Public Health, School of Allied Medical Professions and Human Ecology. Post-harvest food safety is primarily dealt with by our Department of Food Science and Technology and Department of Human Food and Nutrition.

### **Performance Goals:**

Activities for the post-harvest food safety program will be centered around three categories of activity of training, service and research.

- Training

We have provided, and will continue to provide, various forms of food safety training to a wide spectrum of audiences. The objective is to bring the latest knowledge concerning food safety issues to consumers and the food processing industry. In addition to present programs, as new food safety entities appear, appropriate responses will be generated to help keep our clientele informed on emerging food safety issues.

The College provides the following training programs, which will continue and expand over the next five years:

- a. The annual Better Process Control School for food processors. An intensive four-day event that fulfills a mandated FDA requirement and assists food processors in training personnel. For thirty years food processors have been attending this event to learn the basics of thermal processing and learn about innovative thermal processing technology and methods. Annual attendance averages approximately 100.
- b. HACCP training for meat processors. Based on three size categories, meat processors have been gradually implementing HACCP, with the last category “very small” (less than 10 employees) requiring implementation by February, 2000. A continuation of HACCP programs and training sessions will be required to keep processors current with HACCP programs and procedures. Monthly training sessions at locations around the state of Ohio are anticipated for the next several years to meet the demand for additional HACCP information in the meat industry. The Department of Food Science and Technology also produces a monthly HACCP newsletter which is sent to 350 Ohio meat and poultry processors.
- c. HACCP training for non-meat processors. At present, HACCP is not federally mandated for the majority of non-meat food processors, but many companies are taking the initiative to implement HACCP as a proactive food safety tool. Programs will be conducted to help provide this type of expertise to the food processing industry.
- d. An annual Food and Dairy Industries Conference has been held for over sixty years, and will continue to be held as a way of providing the latest technical information to food processors in all topic areas. Nationally recognized for its food safety program, this conference draws over 300 attendees from industry, academic and research communities.
- e. Numerous in-service programs will be held to provide the latest food safety information to district and county Extension people. These efforts will be multiplied as the county specialists provide leadership and conduct food safety meetings with consumers and local food purveyors.
- f. Looking ahead, it is anticipated that some new crisis situation will arise in the not-too-distant future, necessitating the development of new training programs to keep our clientele abreast of the latest food safety information. An example has been with the Ohio Cider industry in providing information to combat the presence of *E. coli* 0157:H7 in cider. Sessions have been held in cooperation with the Ohio Department of Agriculture and the Ohio Fruit Growers Society to train cider producers on what must be done from a regulatory and a food safety concern to provide cider to consumers that is free of contamination.

Current food safety training programs for the food service and consumer sectors will continue and expand:

- Food Service Industry:

- a. *Understanding Occupational Exposure to Hepatitis and HIV Train-the-Trainer Program*
- b. *Diner Detective Curriculum*
- c. *ServSafe Curriculum*
- d. *Sam and Ella Go to Work* video

- Volunteer Groups and Agencies:

- a. *Safe Food Handling for Occasional Quantity Cooks Curriculum*
- b. *Safe on Your Plate* Resource Packet

- Consumers:

- a. *Keep Food Safe Curriculum*
- b. *Safe Sack* Resource Packet
- c. *Healthy Kids: Germ Free*
- d. *Eating Right* is basic curriculum

- Service

Service has always been a hallmark at the College of Food, Agricultural and Environmental Sciences. Areas dealing with food safety have benefitted from that heritage, and plans are to maintain that type of rapport with our respective clientele. All faculty in the departments dealing with foods are involved with service activities. Those that aren't as heavily involved in Extension programs – such as teaching and research faculty, assist in service work by being participants in various training programs, backstopping to the extension faculty, talking directly with the clientele relative to food safety issues and concerns, and being of general assistance to the overall food safety program.

Examples of ongoing food safety services:

- A Food Safety Hotline has been in existence through the Food Industries Center for over ten years, and will continue to be a vital component of the food safety program. Over the next five years, the information line will continue to disseminate food safety information to both consumers and industry people. The vast majority of calls are consumer questions about safe food handling, storing and preparation procedures. Calls have averaged approximately 3,000 per year.
- The food faculty has been, and will continue to be, a primary source of food safety information for commercial food processors. The faculty work on an individual or group basis to solve processor problems as they arise.

- The Food Industries Center pilot plant has been, and will continue to be, used by food processors as a way of overcoming food safety problems within their processing plants. Processors come to the pilot plant to evaluate their own unit operations, processing procedures, packaging systems, and storage parameters that would have an impact on food safety issues. These evaluations are scheduled with individual processors as problems arise.
- Research

The faculty in the Department of Food Science and Technology has been increased and is continuing to expand with a number of faculty being involved in research dealing with food safety issues.

- Some of the exciting issues that are being researched and will continue to be of priority in our research program deal with new food preservation technologies. High voltage pulsed electric field (PEF) sterilization, ohmic heating, high pressure sterilization, and the use of biological agents are all areas that are receiving emphasis and substantial financial support. These projects are all ongoing, and will be major research areas for at least five years.
- The use of non-chlorine sanitizers, such as ozone, are being evaluated for use in cleaning and sanitizing food processing operations as well as for pasteurization-type processes of food products. These projects are of shorter duration, and generally are instituted because of specific food safety issues that arise on fairly short notice.
- Food microbiology is an area that is under continual evaluation and study as it relates to food safety issues. In order to control foodborne microbial hazards, a better understanding of the sources, virulence and perseverance of pathogens is needed. The College's microbiologists continue to research how microorganisms adapt to the stresses of food processing. Cutting edge research on bacteriocins, naturally occurring substances in food that inhibit pathogen growth, is also being conducted—three potent bacteriocins have been discovered to date. Faculty and graduate students often have research projects in this area that provide information that can immediately be used by the food processing industry.
- The research faculty are always reporting results through various technical journals, trade association publications and meetings, local industry programs, local and national media outlets, and information is widely disseminated by individual contacts with clientele.

**Output Indicators:**

The entire faculty and staff in the food area in the College of Food, Agricultural, and Environmental Sciences and the College of Human Ecology, Department of Foods and Nutrition, work as a team in the food safety area. Depending upon appointment percentages, people spend more or less time working specifically in this area. Presently there are four FTEs in the Extension Program, but many more cooperate in the training, service and research areas. We use team a multi-disciplinary team approach to accomplish the desired goals and objectives. We do bring in consumers and industry people to assist, observe and participate in these pilot plant activities; our pilot plant serves well to duplicate commercial and home food handling practices. This becomes a good hands-on educational tool, and is used to enforce lecture-type presentations.

### **Outcome Indicators:**

Outcome indicators are difficult to measure in program areas such as post-harvest food safety. Counting the number of food poisoning cases is not a qualitative review, as one or two large food poisoning outbreaks can be completely deceptive in evaluating that type of data. The individual questions received and the number of people attending our training sessions in various food safety presentations are well in excess of 4,500 people. Considering the multiplication effect and the fact that many of the people that we contact directly are in positions of responsibility and leadership, the overall impact is quite substantial. Some food processing segments, such as cider production, could have been completely wiped out without the assistance provided in the way of research data and technical training programs. Assistance given to new start-up companies is of vital importance for getting them off on the right foot, insuring that they follow good food production practices which certainly include proper food safety precautionary programs. Food processing is Ohio's third largest industry, with -value-added products being of major significance. Often smaller companies are associated with this type of production and are frequently in need of help in the area of food safety concerns. The Department of Food Science and Technology's assistance to Glorious Gourmet, a small Ohio specialty sauce company, typifies this situation. The department has been instrumental in assisting with development of the company's processing plant and development of safe products with excellent flavor and texture.

### **Key Program Components:**

Some of the key components to our post-harvest food safety program are the several major educational and training programs conducted each year, including:

- The Better Process Control School
- HACCP Training for Meat Processors
- HACCP Training for Non-Meat Processors
- Food and Dairy Industries Conference
- Specialized training programs conducted in areas of specific need. (e.g., Some of the County offices provide programs dealing with home canning which help to provide information to many who attempt this venture for the first time.)



- Food Safety Hotline -- a year-round service providing much needed information to consumers and the food industry.
- Radio and TV training programs
- Specific food safety programs associated with various state trade associations' "Means and Educational" programs.

### **Internal and External Linkages:**

The post-harvest food safety program involves a number of people from several different departments. Of prime importance are faculty and staff in the College of Food, Agricultural, and Environmental Sciences' Departments of Food Science and Technology, Animal Sciences, Horticulture and Crop Science, Food, Agricultural, and Biological Engineering, and the Department of Human Nutrition and Food Management of the College of Human Ecology. In addition, many other groups, including the following, are also linked into the overall program:

- The Ohio Department of Agriculture
- The Ohio Association of Meat Processors
- The Ohio Poultry Association
- Mid-American Food Processors Association
- The Ohio Fruit Growers Society
- The Ohio Vegetable Growers Society
- Ohio Grocers Association
- The National Science Foundation Industry/University Cooperative Research Center (composed of The Ohio State University, North Carolina State University, University of California, Davis, and fourteen national food processing companies). This multi-university partnership combines the strengths of three highly regarded food science programs to develop methods and technologies for the production of safe, high-quality processed food products. This program is known as CAPPs, the Center for Advanced Processing and Packaging Studies.
- Ohio Meat Industries Association

### **Target Audiences:**

Since every man, woman and child must eat, we consider Ohio's entire populace as our target audience. In this forthcoming five-year period, we aim to eliminate food safety concerns through our training, service and research programs. We need to provide the best information we can to food processors so that they can process their foods in a manner that will keep them safe from food safety concerns. Distributors and marketers need to be informed as to the proper handling, storage and marketing of products that are handled by their establishments. Temperature durations and proper container handling are factors that these people must be made aware of so that they can properly handle

the foods that go through their systems. Consumers must be made aware of how to select, handle, store, prepare, and restore foods so that they do not develop food safety concerns. The Food Safety Hotline, during its period of operation, has catalogued most of the calls that have been received. Initially, it was felt that agricultural chemicals would be the major area of question, but over the years, less than 3% of our calls have dealt with topics in this area. The major area of concern, representing over 60% of the calls, deals with the handling of foods in the home—the “hows” and the “whys” of food storage and preparation. Our target audiences certainly have to include food processors, and food distributors and marketers as the impact they have is great, considering the numbers of people who will handle and consume their efforts. But the ultimate audience has to be the consumer of the products they are providing.

### **Project Duration:**

All of these projects are planned on a long-term basis. There are, however, some situations that arise where training programs, service activities and research must be marshaled to handle a specific problem that can be dealt with in short order. The short-term projects are much fewer than the others that have been discussed above.

**Allocated Extension Resources:** (see Section V.)

### **Program 2Br. Post Harvest Food Safety (research)**

#### **Statement of Issue:**

Safety of foods is an issue of national and international concern. Food borne illness caused by microbial contamination can be especially dangerous to vulnerable populations. Even though food borne illness can arise from a multitude of causes, as few as seven types of bacteria were identified as the cause of one quarter of the food borne illness outbreaks reported. In this decade, *Salmonella enteritidis*, *Escherichia coli* 0157:H7, and *Listeria monocytogenes* have emerged as leading causes of food borne illness. It has been estimated that only a small portion of actual cases of food poisoning are reported as such. Whether reported or unreported, food borne illness is costly to the economy. In most instances, food produced and processed under hygienic conditions is relatively free of risk. However, constant vigilance from production to consumption is important in maintaining a safe food supply.

#### **Performance Goals:**

- Production and maintenance of a safe food supply.
- Enhancement of public health.
- Enhance understanding of risks to a safe supply.

**Output Indicators:**

- Greater understanding of epidemiology of pathogens including factors that favor their survival.
- New technologies for detection of pathogens.
- New strategies for controlling pathogens in the food supply.

**Outcome Indicators:**

- New methods of detecting food borne pathogens.
- New methods for controlling food borne pathogens.
- Enhanced consumer understanding of food safety issues and food handling procedures.

**Key Program Components:**

- Improved quality and safety of the food supply thru reduction or elimination of pathogens.
- Evaluate factors that favor the spread of pathogens.

**Internal and External Linkages:**

- Department of Food Science and Technology
- Department of Food, Agricultural, and Biological Engineering
- Food Industry Center
- Private Industry

**Target Audiences:**

Food industry, food processors, general public, researchers

**Program Duration:**

Greater than five years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 220,885	225,302	229,808	234,404	239,093

FTE's	3.4	3.4	3.4	3.4	3.4
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## **Program 2C. Functionality of Foods**

### **Statement of Issue:**

Consumers' lifestyles, hence their eating habits, are constantly changing. These changes bring about increased demand for high quality, value added, convenient foods. New frozen and convenience products must be developed to meet these demands. One of the most rapidly growing trends in the convenience food market is fresh, fully prepared items for take home consumption. Consumer desires for unprocessed and minimally processed foods require that the traditional thermal methods used to inactivate enzymes be replaced with ones that have less impact on flavor and texture. There exist the need to investigate procedures and methods to enhance the flavor, functionality, product quality, and consumer acceptance of processed foods. These procedures will also increase the value of the products and increase food safety.

### **Performance Goals:**

- Production of processes that enhance consumer acceptability of food products.
- Enhance understanding of factors affecting food flavor.
- Production of foods of higher quality.

### **Output Indicators:**

- New knowledge on the factors affecting food flavor.
- New knowledge of factors affecting functionality of foods.
- Increased knowledge of food processing methods.
- Greater understanding of quality control systems for improved food stability.

### **Outcome Indicators:**

- Development of new food processing methods.
- Development of quality control systems for improved food stability.
- Improved flavor of processed foods.

**Key Program Components:**

- Understanding of factors that affect food flavor.
- Understanding of factors that affect food functionality.
- Understanding of food process kinetics and automatic control.
- Understanding of food material physical properties.

**Internal and External Linkages:**

- Department of Food Science and Technology
- Department of Food, Agricultural, and Biological Engineering
- Department of Animal Sciences
- Department of Horticulture and Crop Science
- Food Industry Center
- Ohio Department of Agriculture

**Target Audiences:**

Producers, Food processors, general public, researchers

**Program Duration:**

Greater than 5 years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 61,961	63,200	64,464	65,753	67,068
FTE's	.9	.9	.9	.9	.9

**3. A Healthy, Well Nourished Population**  
**Program 3Ae. Human Nutrition/Health (extension)**

## **Statement of Issue:**

A healthy, well-nourished population starts with having food available in adequate amounts, which is addressed by Goal 2. Goal 2 also addresses the safety of the food supply, which is also important for improving the nourishment of the people of Ohio. After people have an adequate food supply they need to know how to improve the quality of their diets, the quality of their food, their food choices and their physical exercise practices to produce maximum health benefits. Ohioans are not optimally nourished and have less than desirable exercise practices.

Evidence gathered from a student's thesis that used the transtheoretical model of learning suggests that a lack of motivation is part of the reason for non-practice of certain good nutrition and health habits. A lack of knowledge of why one should change and how to do it is also a factor. Based on results of research, the public can be instructed on which foods to eat more and which foods to eat less, be given ways to keep that food safe, and be given practical ways to reach optimal eating.

Those who have no knowledge can become aware of the need for change and others can be advanced further through the stages of change by means of education until each targeted individual is practicing and maintaining the desired behavior.

Stakeholder input through the Food and Nutrition Extension Advisory Committee indicates a desire of specific population groups to acquire the information and knowledge necessary to improve nutritional health. Teens want the latest way to make food and its components their edge in sports competition. Teachers want resources to help them teach the in-school pregnant teen about the importance of good eating for themselves and later for their baby and toddler. School food service personnel need to know how to incorporate the Dietary Guidelines recommendations into school meals. The elderly want ways to keep their blood pressure under control and their blood cholesterol levels manageable. They are split between those elderly who are so busy that they have no time to cook, and need to learn the tricks of eating out healthfully, and those who have no desire to prepare food because of declining health. A study of changes made by EFNEP clientele in Virginia suggests that by delaying, shortening or eliminating specific risk factors for disease through diet and health changes clientele and/or taxpayers can realize a \$2 to \$17 savings in health costs for each dollar spent teaching them.

Ohio's low income population wants ways to make their food money go further, whether it is healthful or not, and the professionals and para-professionals servicing this population want to give money stretching ideas that are nutritious. The Food and Nutrition Advisory committee has also requested more help in advising target audiences about dietary supplements, changed recommended dietary allowances of specific nutrients (folate, calcium, etc) and how to incorporate them into a healthy diet, and the role of non-nutrients (fiber, antioxidants in food).

## **Performance Goals:**

- Annually increase consumer awareness and understanding of the role of nutrition in the management of health risk factors. At least 50% of the targeted individuals in the state of

Ohio each year will increase their knowledge of what foods to eat, 30% will plan on making changes and 20% will make a positive nutrition behavior change that will reduce their risk of a chronic disease.

- Annually increase consumer awareness and understanding of dietary guidelines and appropriate nutrition and consumer related practices. At least 50% of targeted individuals in the state of Ohio will increase their knowledge of dietary guidelines and appropriate nutrition and consumer related practices, 30% will plan on making changes, and 20% will actually make a positive change as a result of that teaching.

### **Output Indicators:**

- Number of program participants receiving nutrition and health information both individually and at group functions about how nutrition can help them control chronic disease risk factors.
- Number of program participants receiving information both individually and at group functions about the dietary guidelines and appropriate nutrition and consumer related practices.

### **Outcome Indicators:**

- Number of program participants who plan to adopt one or more recommended nutrition practices that would reduce that individual's risk of chronic disease.
- Number of program participants who actually adopt one or more recommended nutrition practices that would reduce that individual's risk of chronic disease
- Number of program participants who plan to adopt one or more ideas that implement the dietary guidelines or other recommended nutrition and consumer related practices
- Number of program participants who actually adopt one or more ideas that implement the dietary guidelines or other recommended nutrition and consumer related practices.

### **Key Program Components:**

Newsletter articles, in-services (face-to-face and electronic), workshops, talks to groups, television and radio appearances, satellite programs and one-on-one conversations will be methods used to convey key issues. These issues will include:

- Improving adherence to the Dietary Guidelines, especially improving fruit, vegetable and whole grain intake and having parents promote these foods with their children (through Team Nutrition, EFNEP, FNP, University Wellness program, 4H Food and Nutrition Projects, Culinary Techniques for School Food Service);
- Decreasing risk factors for chronic disease (decreasing hypertension and blood cholesterol levels and increasing activity level) (through EFNEP, FNP, University Wellness program, Senior Series, Culinary Hearts Kitchen);
- Promoting wellness to senior citizens (through Senior Series; Staying Well);

- Improving the diets of pregnant teens and their babies (through EFNEP, FNP, GRADS, and NEON - Nutrition Education ONline); and
- Promoting lifelong weight control through physical activity, healthy food choices, and portion control.

### **Internal and External Linkages:**

#### **Internal Linkages**

- The Ohio State University
  - College of Food, Agriculture, and Environmental Sciences
  - Ohio State University Extension programs:
    - EFNEP
    - FNP, Senior Series
    - Master Gardeners
    - 4H Youth Development programs
    - Community Development programs
    - Agriculture programs
  - College of Human Ecology
  - College of Medicine: School of Public Health

#### **External Linkages**

- State of Ohio
  - Department of Aging
  - Department of Education
  - Department of Human Services
  - Department of Health
  - Commodity groups
- Local level
  - Head Start
  - WIC (Women, Infants, and Children program)
  - GRADS (Graduation Reality And Dual role Skills - a state department of education program to keep pregnant and parenting teens in school until they graduate)
  - Food Stamp Office
  - Family and Consumer Science



- Other groups, including teachers, prison personnel, school food service personnel, commodity groups, local women's health groups, substance abuse treatment programs, homeless shelters
- Ross Laboratories
- **Regional**  
Ohio plans to link with all states in the North Central Region (Michigan, Indiana, Iowa, Missouri, Kansas, Nebraska, North Dakota, South Dakota, Wisconsin, Minnesota, and Illinois) to produce a satellite training session for Extension nutrition professionals on supervising nutrition para-professionals. OSU will be the lead state for up-linking the program.

**Target Audiences:**

Parents of young children, youth, pregnant teens and women, young adults, limited resource families with young children, health and family and consumer science professionals, adults, work site employees, food service managers and workers, day care providers, the elderly, minority audiences in all the above groupings.

Extension professionals and para-professionals teach nutrition to people in their homes, in community settings, over the phone, in groups, individually, in English and sometimes other languages, and at times of the day or week convenient to the audience.

**Program Duration:**

Principal efforts are long term. The NEON project is intermediate. The multi-state, multi-institution satellite training is short term.

**Allocated Extension Resources:** (see Section V.)

**Program 3Ar. Human Nutrition/Health (research)**

**Statement of Issue:**

A healthy well-nourished population starts with having food available in adequate amounts. People then need to know what to eat and how much to eat to produce maximum health benefits. While considerable information exists on the nutritional needs of the healthy, young adults, far less comprehensive information is available on the nutritional needs of children and youth, the elderly, and those with reduced resistance to infection. Many chronic diseases affecting people have a nutrition component, so that research into the effects of nutrients and food components on body metabolism is one of the first

steps needed in determining what foods are necessary for optimal health. A healthier population is achieved by thinking beyond nutrition. A healthier population is achieved by improving safety in the home and workplace and by creating health services in areas lacking them, improving those that exist, and matching individuals and groups with health services that already exist.

### **Performance Goals:**

- Improved understanding of nutritional needs of humans.
- Increased understanding of nutrient metabolism by humans.
- Determine relationship of various nutrients and chronic diseases.
- Improved understanding of an individual's knowledge of health risks associated with fat and fiber intake.
- Develop strategies for more effective nutrition education programs.

### **Output Indicators:**

- Greater understanding of nutritional value of foods.
- Enhanced understanding of individual's behaviors and perceptions in choosing foods.
- Strategies for developing foods that enhance human health.
- Research based educational information for consumers.

### **Outcome Indicators:**

- Improved health and nutritional status of individuals.
- Increased understanding of role of minerals in chronic diseases.
- Increased availability of foods that enhance human health.

### **Key Program Components:**

- Impact between chronic diseases and minerals
- Role of antioxidants in free radical mediated diseases
- Interaction of macronutrients and fat metabolism
- Research on behaviors and perceptions influencing consumption of various food groups.

### **Internal and External Linkages:**

- College of Human Ecology
- College of Medicine
- Department of Food Science and Technology
- Department of Animal Sciences
- Department of Horticulture and Crop Science
- Food processors
- Private industry

- State Specialist and Extension Agents

**Target Audiences:**

General public, food processors, researchers

**Program Duration:**

In excess of five years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 246,985	251,924	256,963	262,102	267,344
FTE's	3.9	3.9	3.9	3.9	3.9

**Program 3B. Nutraceuticals**

**Statement of Issue:**

Foods have become substantially more important than carriers of nutritional material. Naturally occurring components of foods may pose toxicological concern, but new research may reveal information that the same compounds have beneficial effects on animal and human health. For example the presence of lycopene isomers in biological samples and oxidized lycopene solutions suggest a possible link between its oxidation and isomerization mechanisms. A clearer understanding of these mechanisms will provide key insights into the relationship between lycopene in the diet, absorption into the bloodstream, deposition in tissues, and the corresponding reduced risk of certain cancer types. Epidemiological evidence from other studies indicate a high intake of fruits and vegetables decreases the risk of cancer in humans. Although interrelated with value added products and food safety, the search for and enhance of naturally occurring compounds in agricultural products that have beneficial effects on human health is a research interest of Ohio researchers.

**Performance Goals:**

- Assess the presence of nutraceuticals in agricultural products.
- Enhancement of human health.
- Increased level of nutraceuticals in foods.

**Output Indicators:**

- Enhanced understanding of the mode of action of nutraceuticals.
- Better understanding of methods to increase the level of beneficial compounds in agricultural products.
- Development of rapid method to quantify amount of nutraceutical in food products.

**Outcome Indicators:**

- New methods of detecting nutraceuticals in food products
- Methods of increasing level of beneficial compounds in food products.
- Identification of new nutraceuticals in agricultural products.

**Key Program Components:**

- Understanding of mode of action of nutraceuticals
- Modification to enhance levels in animal products
- Modifications to enhance levels in plant products
- Processing methods to maintain activity of nutraceuticals in foods.

**Internal and External Linkages:**

- Department of Food Science and Technology
- Department of Food, Agricultural, and Biological Engineering
- Department of Animal Sciences
- Department of Horticulture and Crop Science
- Piketon Research and Development Center
- College of Medicine
- Food Industry Center

**Target Audiences:**

Agricultural producers and processors, general public, and researchers

**Program Duration:**

Greater than five years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 51,699	52,732	53,787	54,863	55,960
FTE's	1.2	1.2	1.2	1.2	1.2

**4. An Agricultural System which Protects Natural Resources and the Environment**

**Program 4Ae. Agricultural Wastes and By-Products (extension)**

**Statement of Issue:**

Individuals are slowly becoming more aware of the effects human activity and consumption of goods has on the environment. These individuals need assistance understanding alternatives so they can select new behaviors.

**Performance Goals:**

- Waste reduction and refuse education
- Development of solid waste districts
- Development of watershed action plans

**Key Program Components:**

Education regarding recycling options.

- Provide information to local officials regarding establishment of programs.
- Provide information to solid waste, water and watershed boards regarding environmental issues.
- Seminars for residents regarding solid waste management.

**Internal and External Linkages:**

- Township and County Commissioners
- Citizens Organizations
- Waste Management Boards
- Watershed Districts
- Soil and Water Conservation Districts

**Target Audiences:**

- Board Members
- Citizens
- Youth

**Program Duration:**

Intermediate: 1-2 years

**Allocated Extension Resources:** (see Section V.)

**Program 4Ar. Agricultural Wastes and By-Products (research)**

**Statement of Issue:**

The strategic location of Ohio agriculture to the large Eastern US consumer market has resulted in significant growth of all sizes of new farm animal facilities. Some of these animal facility owners and operators are finding themselves in neighborhood conflicts over environmental quality and social acceptability. While Ohio has every reason to support economic growth in the agricultural sector, the citizenry must be sure that the quality of life is maintained or improved and that there is no long-term degradation of the environment.

Odors and dust from manure can create annoyances near the production and manure storage facilities and near fields where surface spreading is done. Added to the odor annoyances have been cases of neighborhood insect problems and overloading of soils with nutrients such as nitrates and phosphates. The nutrient overloading concern carries well beyond the production facilities and land application sights to water supplies, streams, and lakes.

The OARDC-OSU food animal production research facilities are equally vulnerable to creating environmental problems while potentially being exemplary models of appropriate technology and environmental stewardship. An OSU team of faculty and staff have since organized the Ohio Composting and Manure Management (OCAMM) Program with approximately 30 Ohio livestock producers, livestock facility designers and consultants, compost manufacturers, manure and compost users, equipment manufacturers and public agency technologists. The overall goal of OCAMM to

identify issues and technologies leading to safe, economic utilization of livestock manure with minimum odors and nutrient losses to water supplies.

**Performance Goals:**

- To develop, demonstrate, and teach the most economically, ecologically and environmentally appropriate approaches to animal manure management for both large and small Ohio producers.
- To help Ohio livestock producers and composting businesses achieve consistent production of high quality, diverse, stable, accurately labeled, and safe bio-products that include various levels of animal manures.
- To maintain and build on OSU's regionally, nationally, and internationally recognized capabilities through exemplary teaching, research, demonstration, and outreach activities in composting and livestock manure management.

**Output Indicators:**

- New and revised design standards and acceptable practices for animal production units as well as the policies and incentives necessary for implementation.
- On-farm studies of alternative methods of manure handling, storage, and recycling including anaerobic lagoons, solids separators, drying systems, spreading equipment, and value added processes such as composting and pelleting.
- Feeding trials to determine the effect of feed choices and feed additives on manure quality and quantity as well as on animal production and health.
- Improved methods to stabilize manure for land application and the availability of best management practice information related to crop yields, plant health, soil fertility, and soil sustainability.
- New methods of odor and dust removal from ventilation air by techniques such as biofiltering.
- Improved control methods for fly and other nuisance insects as well as information on acceptable distances from animal facilities for non-farm activities
- Economic and ecological benefit studies of competitive small-scale, family-farm, animal production systems in comparison to large scale operations including neighborhood acceptance and sustainability with technological inputs.
- A significant cadre of graduate students and summer undergraduate students working with livestock producers (stakeholders) to solve both long and short-term manure management problems.

**Outcome Indicators:**

- Notable, economic production of animal products in Ohio with a reputation for being environmentally responsible.

- Published policy options for acknowledging and protecting the rights of farmers, agribusinesses, and the general public based on costs, benefits and distributional characteristics.
- Regular Extension meetings and workshops with the latest research and best management practices being presented in at least four quadrants of the state and involving county agents, private consultants, NRCS and SWCD staff with manure management expertise as well as farmers, industry, regulatory, and guest experts in programs.

**Key Program Components:**

- Research faculty in the College of Food, Agricultural & Environmental Sciences of The Ohio State University who have a strong interest and coordinated involvement in animal production and related waste problems.
- A new Composting Research Center building on the Wooster campus was dedicated in 1988 for research on animal manure as well as dead animal composting.
- A Swank Chair in Agricultural Economics & Rural Sociology was filled in 1997 to study rural urban interface problems with a current special emphasis on large animal facilities.
- Modern, medium-scale animal research facilities that can be used to study the relationship between feeding and manure management practices.
- An interdisciplinary research and extension team was (since 1997) developing manure management plans for the OARDC-OSU campus facilities.
- An Agricultural Ecosystems Management Team (since 1996) and Organic Farming Management Team (since 1998) working to evaluate and utilize economic and environmentally acceptable uses of organic materials such as manure and compost.
- An OSU commitment to a high degree of stakeholder involvement in the planning, review, and implementation of research and Extension activities related to manure management.

**Internal and External Linkages:**

- Department of Food, Agricultural, and Biological Engineering
- Department of Animal Sciences
- Department of Plant Pathology
- Department of Agricultural, Environmental and Development Economics
- School of Natural Resources
- Department of Entomology
- Extension specialist and agents
- Food Animal Health Research Program
- Ohio Composter's Association
- Livestock and poultry producers

**Target Audiences:**

Livestock and poultry producers, compost operators, extension agents, public, researchers.



**Program Duration:**

Greater than five years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 317,573	323,924	330,402	337,011	343,751
FTE's	5.4	5.4	5.4	5.4	5.4

**Program 4B. Integrated Pest Management****Statement of Issue:**

The goals of Integrated Pest Management (IPM) are to promote minimized pesticide use, enhanced environmental stewardship, and sustainable systems. These goals are achieved by protection of commodities, homes, and communities with environmentally and economically sound practices that result in abundant, high quality supplies of food, fiber and ornamental products and improved quality of life.

Several forces in the United States today are intensifying the need for increasing the practice of IPM. The Food Quality Protection Act (FQPA) passed by Congress in 1996 may result in the removal of many traditional conventional pesticides from the marketplace. The Clinton administration has mandated a long-range goal of having 75% of farm acreage under IPM practice by the year 2000. Further, although Ohio has a strong agricultural base, it is a highly urban and suburban state that is undergoing strong growth in the urban pest control industry, with increasing interest in environmentally sound pest management. These mandates, as well as the increasing public concern with rural - urban interface issues involving agricultural practices, and intolerance toward toxic pesticides in food and in the environment, mean that alternative methods of pest control will need to be developed.

**Performance Goals:**

- Conduct research and education programs in integrated pest management that will improve Ohio agriculture, reduce rural-urban conflicts, protect soil, water, and environmental quality, and improve the quality of life for Ohio citizens in and around the home, workplace, neighborhood, and recreation areas.

**Output indicators:**

- Dissemination of integrated pest management research results that will help Ohio agriculture to be productive, profitable, and competitive while positioning it to meet the challenges of shifting consumer expectations.
- Dissemination of integrated pest management research results that will impact in a positive way the health, safety, and well being of Ohio citizens in and around their homes and communities.

**Outcome Indicators:**

- Increased technical sophistication in the approach used by pest management practitioners.
- Increased use of alternative pest management technologies and strategies.
- Greater safety for pest management practitioners, the public, and the environment.
- Increased economic efficiency in pest management.
- Reduction of pesticide residues in groundwater, soils and non agricultural areas.

**Key Program Components:**

- Development of detection, monitoring, and sampling systems that indicate the presence and abundance of pest species.
- Development of economic thresholds and models that provide guidance for taking action against pest populations.
- Development of novel, alternative technologies and strategies for reducing pest populations.
- Development of systems for improved monitoring, risk assessment and reduction of residues from traditional pesticides and their metabolites.
- Development of methods to reduce the resistance of pests to novel IPM technologies and strategies in order to optimize their sustainability.
- Develop and deliver customized IPM continuing education courses targeting professional and consumer audiences.
- Develop and implement improved methods of delivering IPM educational programs, including utilization of electronic and web-based formats.
- Develop improved pest diagnostic capabilities, including utilizing electronic communication where possible.

**Internal and External Linkages:**

- Department of Plant Pathology

- Department of Entomology
- Department of Horticulture and Crop Science
- Department of Food, Agricultural, and Biological Engineering
- Interdepartmental programs
- Extension field staff
- OSU Agroecosystems Management Program
- Regional research projects related to IPM
- Producers
- Certified crop advisors
- Seed company personnel
- Green industry personnel
- Public health officials
- Commodity groups

**Target Audiences:**

Farmers, agribusiness professionals, veterinarians, green industry professionals, pest control operators, public health professionals, teachers, students, and the general public.

**Program Duration:**

Five years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 601,601	613,633	625,905	638,423	651,192
FTE's	11.8	11.8	11.8	11.8	11.8

**Program 4C. Organic Agriculture**

**Statement of Issue:**

The needs of organic producers in Ohio have been largely under-served historically by OSU. Yet, organic agriculture is the fastest growing sector of American agriculture, growing by at least 20% per year over the last eight years nationally. In Ohio, applications for certification have grown approximately 20% per year for the last seven years. All farmers are being “squeezed” between increasing input and production costs and decreasing returns for the major commodities. Decreasing

farm profitability has effects beyond the farm gate, as is being seen in many of Ohio's rural communities. Expansion is the major option being offered to alleviate declining farm economies. While a degree of expansion may be inevitable, it triggers social and environmental concerns in the larger society. Another option is to decrease production costs by learning how to farm more ecologically. A well-managed organic farm is almost self-sustaining with minimal input costs and often with much higher prices received on commodities produced than by conventional practices. Furthermore, sound rotations, shallow tillage and little or no chemical input may be able to reduce environmental loading of agricultural chemicals and accrue social benefits beyond the farm.

### **Performance Goals:**

- Enhance long-term economic, environmental and social vitality of Ohio's agriculture and rural communities.
- Build understanding and capacity for organic agriculture in Ohio by providing scientifically based information.
- Serve the educational and research needs of Ohio's organic and transitional farmers.
- Provide useful information for conventional farmers who want to reduce fertilizer and pesticide use.
- Facilitate market development for organic and transitional farmers, both domestically and internationally.
- Study relationship between production methods and food quality.

### **Outcome Indicators:**

- Increase in number of sustainably profitable organic producers in Ohio who are able to enjoy a high quality of life with their families.
- Healthy, vital and aesthetically beautiful agricultural landscapes which support naturally productive soils protected from erosion, clean waterways full of fish and other aquatic life, plentiful and healthy ground water, and ample habitats for rich biodiversity in general.
- Economically and socially vital rural communities with ample local marketing opportunities for local producers.
- Excellent relationships between rural and urban citizens based on mutual respect and shared values about ecological health of the land and the importance of healthy food.
- Acceptance of organic agriculture as a valid and valuable component of Ohio's overall agriculture.

### **Key Program Components:**

- *On-station production research including economic analyses (field crops and vegetables):*
- Long-term interdisciplinary transition experiment, farming systems approach.

- Short term component experiments, eg., organic fertility trials, weed control studies, cover and living mulch screenings, varietal trials.
- *On-farm research:*
- Farmer initiated replicated trials.
- Researcher initiated trials.
- Case studies - whole farm, component; agronomic, economic and/or social.
- Marketing research and development; local, national and international.
- Food quality research - from field to table.
- *Outreach:*
- Development of educational manual for farmers and extension and NRCS personnel with both scientific research information and practical “how -to” information from successful organic producers.
- Whole farm planning workshops for transitional farmers and their families.
- Extension training.
- Surveys and in depth interviews with range of producers and consumers.
- *Classroom Education:*
- Graduate seminar course.
- Seminar series.
- OSU’s Agriculture Technical Institute course on organic agriculture.
- Development of a course or series of undergraduate courses for main campus.

**Internal and External Linkages:**

- Department of Entomology
- Department of Horticulture and Crop Science
- Department of Plant Pathology
- Department of Food, Agricultural, and Biological Engineering
- Department of Human and Community Development
- Department of Animal Sciences
- Department of Food Science and Technology
- Department of Agricultural, Environmental and Development Economics
- School of Natural Resources
- Piketon Research and Development Center
- Agroecosystems Management Program
- Ohio Compost and Manure Management Program
- Agricultural Technical Institute.
- Ohio Ecological Food and Farming Association.
- Innovative Farmers of Ohio.
- Stratford Ecological Center.

**Target Audiences:**

Existing certified organic producers, non-certified organic producers, transitional producers, conventional farmers interested in learning more about organic agriculture; fellow agricultural scientists, extension and NRCS personnel; potential buyers, (eg., health food store managers) and consumers.

**Program Duration:**

Five years plus.

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 32,423	33,071	33,732	34,407	35,095
FTE's	.3	.3	.3	.3	.3

**Program 4De. Water Quality (extension)**

**Statement of Issue:**

Ohio is a water-rich state with more than 61,532 miles of streams and rivers; a 451-mile border on the Ohio River; more than 5000 lakes, ponds and reservoirs; and 236 miles of Lake Erie shoreline. Publicly owned lakes account for 118,801 surface acres of water. There are 10 scenic (national and/or state) rivers in the state, comprising 629 river miles. Only about 10% of the original wetlands remain. The source for this water resource is an average precipitation of 38 inches. Ohio's 10,887,325 residents (1990 Census) use 12.5 billion gallons of water daily. Over 6 million people rely on surface water for various water supplies, while 90% of the rural population relies on groundwater for their drinking water supply. The Ohio EPA approach to assessing the surface waters of the state relies on evidence of the attainment or non-attainment of ecological indicators which express water resource integrity. Major threats to Ohio's surface water resources are: point sources, hydromodification, agriculture, mining, and urban runoff. Since 1988, there has been a 56% decline in point sources as major impairments of streams and rivers. This has unmasked nonpoint sources as the major category of water quality problems. While agriculture is one of the contributors to nonpoint source pollution,

agriculture also has the potential to be one of the significant factors in improvement of water quality if the adoption of best management practices (BMPs) is significantly increased.

**Performance Goals:**

- To acquaint agricultural producers and homeowners with the nonpoint source pollution resulting from various practices.
  - a. To provide educational programs to teach skills in adopting water quality best management practices.
  - b. To evaluate and demonstrate water quality BMPs to agricultural producers and homeowners.
  - c. To develop voluntary risk assessment and prevention programs for agricultural producer and homeowner adoption.

**Output Indicators:**

- Educational events - workshops, meetings, conferences, field days, in-service training.
- Educational materials - fact sheets, bulletins, manuals, video tapes, web sites.
- Mass media - news releases
- Policy development

**Outcome Indicators:**

- Number of producers exposed to BMPs in educational programs.
- Number of targeted BMP practices adopted.
- Number of natural resource professionals participating in in-service training opportunities.

**Key Program Components:**

- “Ohio Water Resource Fact Sheets” series
- Overholt Drainage School
- Water Table Management and Subsurface Irrigation
- Pesticide Applicator Training Programs - Commercial and private
- Farm Science Review
- Tri-State Fertility Program
- Agricultural Production System Evaluations
- Riparian Buffer System Program
- Ohio Farm\*A\*Syst

## **Internal and External Linkages:**

### **Internal Linkages**

- School of Natural Resources, Department of Civil Engineering

### **External Linkages**

- Ohio Land Improvement Contractors
- USDA-NRCS
- Ohio Environmental Protection Agency
- Ohio Department of Natural Resources
- Lake Erie Buffer Committee

### **Integrated**

Recent research findings from the MSEA Project, along with on - going research efforts are providing the basis for water resource management guidelines, particularly with regard to subsurface irrigation, drainage, stream/river/wetland restoration via ecological engineering, and nutrient management.

### **Multi-state**

- Purdue University Extension and Michigan State University Extension are collaborators in the development and updating of tri - state fertility recommendations.

### **Target Audiences:**

- Agricultural producers
- Crop consultants
- Land improvement contractors/drainage installers
- SWCD and NRCS personnel

### **Program Duration:**

This is a long term program, but specific emphases will change as new BMPs are developed and evaluated.

**Stakeholder Input Process:** (Addendum to Section II.)



Stakeholder input is received via the commodity groups, agency representatives, and the Ohio Natural Resources Coordinating Council.

**Allocated Extension Resources:** (see Section V.)

#### **Program 4Dr. Water Quality (research)**

##### **Statement of Issue:**

Agriculture represents the largest industry in Ohio. The production of food and fiber occurs throughout the state on farms and forests that are highly diverse in terms of size, crops, and production philosophies. At the same time, Ohio is a rapidly suburbanizing state. The rural non-farm population continues to increase and those residents expect to enjoy the quality of life benefits of “living in the country” and at the same time are demanding that agricultural producers be more environmentally friendly in their livestock, crop, and fiber production practices. The production of food and fiber often requires complex strategies that must balance profitable and efficient farming with water quality and quantity concerns. In Ohio, surface water resources supply the public and rural water needs of about 55 percent of the state’s population. Ground water resources supply these needs for the remaining 45 percent. However, in rural areas of Ohio, ground water resources supply approximately 98 percent of the rural domestic water use. Therefore, agricultural production systems that considers water quality are imperative in Ohio.

##### **Performance Goals:**

- Assess strategies for improving surface and ground water quality in Ohio.
- Assess design criteria for the construction of wetlands.
- Greater understanding of ecological processes in constructed and natural wetlands.

##### **Output Indicators:**

- Better understanding of techniques for monitoring success of constructed wetlands.
- Enhanced database for state water quality management.
- Development of water quality educational programs for producers.

##### **Outcome Indicators:**

- Higher quality wetlands.

- Improved surface water quality.
- Comprehensive agricultural water management guide to address water table management.
- Reduced levels of pesticides and plant nutrients in Ohio’s surface and groundwater.

**Key Program Components:**

- Study and evaluate the practice of water table management (conventional drainage, controlled drainage, controlled drainage, subirrigation) for reducing agricultural impacts on water resources.
- Studies on wetlands creation and restoration techniques.
- Studies on ecological processes in wetlands.
- Study methods and techniques to reduce plant nutrients, pesticides, and sediment entering water sources.

**Internal and External Linkages:**

- School of Natural Resources
- Department of Food, Agricultural, and Biological Engineering
- Department of Horticulture and Crop Science
- Department of Animal Sciences
- State Specialist and Extension Agents
- Ohio Environmental Protection Agency
- Ohio Department of Natural Resources

**Target Audiences:**

Agriculture producers, general public, researchers

**Program Duration:**

Long term: In excess of five years.

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 478,256	487,821	497,577	507,529	517,679
FTE’s	7.6	7.6	7.6	7.6	7.6

## **Program 4E. Watershed Management (extension):**

### **Statement of Issue:**

The predominance of agriculture as a land use in a state rich in water resources makes it essential that the effects of agriculture, both positive and negative, on the resource be addressed on a watershed scale. The scale for watershed management in Ohio is based on the 93 hydrologic units as delineated by the Ohio EPA, and the philosophy of all the agencies involved in watershed management is that water resource issues can best be addressed and resolved at the local level. Across the state watershed groups comprised of concerned citizens are organizing to address their local water issues. The most recent census of groups puts their number at nearly 75. In order to strengthen and support the work of new, emerging, and experience groups, a major initiative "An Action Agenda for Ohio Watersheds" for OSU Extension (\$1.5 million for SFY 2000-2001) has been funded by the state's General Assembly. A comprehensive watershed management education program addressing most of the sources and causes of nonpoint source pollution will be undertaken. Over the next five years, this Extension program will collaborate with a new, major academic program in ecological engineering which will focus on stream, river and wetland restoration. The Extension natural resource economics program will provide economic analyses of various state policies as well as the economics of farm-level and community-level implementation of best management practices.

### **Performance Goals:**

- To provide organizational development assistance to local watershed groups.
- To encompass water quality considerations in land use and urban/suburban development decisions and policies
- To create sustainable and inclusive watershed partnerships in communities of interest and place.

### **Output Indicators:**

- Educational events - workshops, programs, conferences, seminars, clinics, and inservice training.
- Educational materials - manuals, factsheets, bulletins, video tapes, slide sets, web sites
- Mass media - news releases

### **Outcome Indicators:**

- Number of new watershed groups formed.
- Number of existing watershed group that have expanded their active memberships.
- Number of municipalities and townships that have examined water resource impacts when considering land use planning and zoning.

- Number of watershed groups that identify and use a program development and evaluation model to guide their efforts.

**Key Program Components:**

- Ohio Watershed Network
- Ohio NEMO
- “Organizational Skills for Watershed Groups”
- Ohio Watersheds On-Line
- OSU Extension Watershed Education Team

**Internal and External Linkages:**

**Internal**

- The Ohio State University
  - a. OSU Extension Land Use Team
  - b. OSU Water Resources Center
  - c. Department of Agricultural, Environmental and Development Economics
  - d. Department of Food, Agricultural and Biological Engineering
  - e. School of Natural Resources
  - f. College of Education - School of Educational Policy and Leadership
  - g. OSU Extension - 4-H Youth Development Program

**External**

- Ohio Department of Natural Resources
- Ohio EPA
- Ohio Farm Bureau
- Ohio Department of Agriculture
- Ohio Natural Resource Coordinating Council
- Ohio Federation of Soil and Water Conservation Districts
- The Nature Conservancy
- The Ohio Environmental Council
- U.S. Forest Service
- USDA - Natural Resources Conservation Service
- U.S. Geological Survey
- Ohio Department of Health
- Ohio Parks and Recreation Association

**Integrated**

- OSU Environmental Policy Initiative (research program)
- OSU Extension Water Management Program
- OSU Water Resources Center Research Program

**Multi-disciplinary**

- Environmental science
- Adult education
- Community development
- Leadership development
- Natural resource economics
- Forestry
- Chemistry
- Public policy

**Multi-State**

Not Applicable

**Target Audiences:**

- Members of watershed groups
- Agricultural producers
- Elected and appointed public officials at township, county, and municipality level
- General public
- Homeowners

**Program Duration:**

Intermediate - special funding for field-level positions likely to exist for four years. At the end of four years, a program review will be conducted to determine future program directions.

**Stakeholder Input Process:** (Addendum to Section II.)

A program design committee developed the structure for the Ohio Watershed Network (OWN). The committee was comprised of industry, public agency, higher education institution, environmental group, and local government representatives. The committee will be reassembled to provide program direction advise for the overall Watershed Action Agenda. The composition of the OWN Committee will include all the major stakeholder groups.

**Program Review Process:** (Addendum to Section III.)

## **Merit Review Process**

The merit review process will commence once the positions have been identified and the final program plans have been formulated. Two states (North Carolina, Wisconsin) with existing watershed programs will be asked to review and comment on the program plans.

**Allocated Extension Resources:** (see Section V.)

## **Program 4F. Ecosystem Based Management:**

### **Statement of Issue:**

Agriculture is the most extensive user of land in Ohio. Advances in technology, coupled with policies favoring large-scale crop monoculture and farm consolidation, have resulted in a highly productive agricultural industry. Within the same time frame, we have seen the development of environmental awareness within our society and the stewardship of our agricultural lands has come under scrutiny. The result is a situation that is often interpreted as diametrically opposed goals: maintaining productivity and profitability or protecting our environment. In response, we are developing a process for ensuring that agricultural production, environmental and social goals are congruent. The ecosystem concept, with its focus on whole systems, provides an appropriate paradigm and practical foundation for developing a system of management that can be environmentally sound, productive and profitable; thus fulfilling societal demands.

### **Performance Goals:**

- Conduct research and educational programs in ecosystem based management so that Ohio's agriculture will be economically profitable, ecological sound and socially responsible.

### **Key Program Components:**

- Incorporate an ecological paradigm throughout the undergraduate curriculum for the College of Food, Agriculture and Environmental Science.
- Integrated insect, disease and weed management research and extension programs to reduce pesticide inputs and maximize the use of biological control agents.
- Major projects and programs on the use of constructed wetlands and riparian zones to reduce soil and chemical contamination of waterways.
- Newly created Endowed Professor Chairs in Rural - Urban Interface, Agricultural Ecosystems Management and Soil Ecology.
- Statewide programs in Extension on whole-farm planning and conservation.
- Research projects in soil ecology and compost technology.

- Formation of the Agroecosystems Management Team.
- Extension led program in nutrient management directed at reducing negative environmental impacts of livestock operations.
- Formation of the Sustainable Agriculture Team in Ohio State University Extension.
- K through 12 education programs in environmental science and agriculture sponsored by the Agroecosystems Management Team.
- The Thomas L. Payne Endowment in Agroecosystems Management administered by the College of Food, Agriculture and Environmental Science.
- Soil quality workshops and manuals sponsored by Ohio State University Extension.
- Development of a fact sheet/guidebook series through Extension and OARDC on ecologically based management.
- Extensive farm tour/workshop series on ecologically based management as a collaboration between The Ohio State University and farm organizations.
- Development of alternative cropping and livestock systems that demonstrate the application of ecological principle.
- Research and extension projects on management intensive grazing.
- Using Geographical Information Systems to analyze and develop conservation plans at the watershed and sub-watershed levels.
- New programs using On-Farm Research as a major tool for adoption of more environmentally sound cropping practices.
- New programs in urban landscape pest management based on ecological management.

#### **Outcome Indicators:**

- An increase in the number of farms applying ecological principles and management techniques to improve both environmental quality and economic performance.
- Improvement in surface and ground water as a result of applying ecologically based management.
- Increased number of farmers using On-Farm Research techniques to develop more diversified cropping systems.
- Awareness by K through 12 students on issues of production, economics and environmental quality in agriculture.
- All students graduating from the College of Food, Agriculture and Environmental Science having some background in ecological and systems science.
- Increased number of research and extension projects and extramural funding relating to environmental quality and economic sustainability.

#### **Internal and External Linkages:**

- Ten OSU academic departments and extension programs.
- Agroecosystems Management Program.
- Waste Management Programs.
- Ohio Ecological Food and Farming Association.

- Soil Conservation agencies.
- Innovative Farmers of Ohio.
- Commodity organizations.
- Great Lakes Basin Grazing Association.
- W.W. Kellogg Foundation.
- Minnesota Department of Agriculture
- Ohio Forage and Grassland Council
- Stratford Ecological Center
- USDA

**Target Audiences:**

Both mainstream and niche farmers, regulatory agencies, non - government environmental agencies, agriculture suppliers, crop consultants, county and regional planners, local chambers of commerce, consumers and marketing organizations.

**Program Duration:**

More than 5 years.

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 305,842	311,958	318,198	324,561	331,053
FTE's	3.8	3.8	3.8	3.8	3.8

**Program 4G. Forest Resource Management (extension):**

**Statement of Issue:**

Nearly one-third (7.9 million acres) of Ohio is covered by forests. This total represents an increase of 4.7 million acres from 1940 to 1994, and more recently, an increase of 224,000 acres between 1982 and 1992. Of this overall total, 79% of Ohio's forests are owned by private individuals. While most of this forest land is not primarily owned for commercial purposes or economic gain, most woodland owners have goals and objectives in mind for their forest resource. With a total of 330,000 private non-industrial forest land owners in the state with an average land tenure of seven years, there is a constant and nearly overwhelming need to provide these individuals with sound, research -based



information that they can use to both achieve their forest resource management goals, but to also protect the surrounding environment and resources in the process.

### **Performance Goals:**

- To provide private woodland owners with information, through educational programs, about forest resource management.
- To acquaint private woodland owners with services and assistance available.
- To expose private woodland owners to the environmental impacts from harvesting and how to use BMPs to reduce the potential for water pollution from sediment.

### **Output Indicators:**

- Educational events - workshops, meetings, conferences, field days, in-service training.
- Educational materials - fact sheets, bulletins, manuals, video tapes, web sites.
- Mass media - news releases.

### **Outcome indicators:**

- Number of woodland owners who participate in educational events.
- Number of natural resource professionals who participate in conferences and in-service training opportunities.
- Number of woodland owners who intend to adopt at least one forest stewardship practice.

### **Key Program Components:**

- Ohio Woodland Steward Program
- Forestry Field Days
- Forest Issues Conferences
- Ohio Woodland Journal
- OSU Extension In-service Training Opportunities
- Periodic news releases through OSU Extension -Section of Communication and Technology
- Publication of new Extension bulletins and fact sheets

### **Internal and External Linkages:**

#### **Internal Linkages**

Not Applicable

### **External Linkages**

- Ohio Department of Natural Resources - Divisions of Forestry and Wildlife
- Ohio Forestry Association
- Regional forestry associations

### **Multi-disciplinary**

- Economics
- Forestry
- Soil science

### **Target Audiences:**

- Private woodland owners - absentee and residential
- Ohio Department of Natural Resources - Division of Forestry's Service Foresters
- OSU Extension Agents
- Natural resource professionals from the public and private sectors

### **Program Duration:**

This is a long-term program due to the constant turnover of woodland tract ownerships and the increasing public expectation of natural resource stewardship on private lands.

**Allocated Extension Resources:** (see Section V.)

### **Program 4H. Forest Specialty Crops (extension):**

#### **Statement of Issue:**

Forest specialty crops, including maple products, Christmas trees, nuts, and herbs offer income opportunities that often exceed typical commercial timber production. In Ohio, both the Christmas tree and maple syrup industries are well-organized and progressive. Both have commodity organizations, the Ohio Christmas Tree Association, and the Ohio Maple Producers Association. Each of these commodities represents several million dollars of sales on an annual basis. A recent research study of the Christmas tree industry indicates that there are over 600 commercial growers in Ohio. The number of maple producers is not well-established due to the difficulties in documenting the production by a large Amish community of producers. Both the Christmas tree growers and maple producers are

interested in the application of new production technologies and marketing strategies to their industry as a whole and to their individual operations. Less well-organized are the tree nut and forest herb producers, but nonetheless they are a clientele which is growing in numbers and their desire to receive information and participate in OSU Extension programs.

**Performance Goals:**

- To provide speciality crop producers with the information and knowledge they need to adopt new technologies.
- To improve the marketing skills of producers.

**Output Indicators:**

- Educational events - workshops, meetings, conferences, field days, training.
- Educational materials - fact sheets, bulletins, manuals, video tapes.

**Outcome Indicators:**

- Number of producers participating in Christmas tree programs, workshops, and conferences sponsored or supported by OSU Extension.
- Number of producers participating in the annual Ohio Maple Days.
- Case studies of individual producers adopting new technologies and/or practices.

**Key Program Components:**

- Ohio Maple Days
- Christmas Tree Twilight Field Days
- Ohio Christmas Tree Association Meetings (Board meetings, summer meetings, winter meetings)

**Internal and External Linkages:**

**Internal Linkages**

- The Ohio State University
  - College of Food, Agriculture and Environmental Sciences
    - School of Natural Resources
    - Department of Agricultural, Environmental and Development Economics
    - Department of Plant Pathology
    - Department of Entomology

**External Linkages**

- Ohio Christmas Tree Association
- Ohio Maple Producers Association
- Ohio green industry

Research involving the identification of a new commercial Christmas tree species, Canaan fir, evaluation of appropriate cultural practices and identification of appropriate site conditions has been incorporated into OSU Extension programs in such a fashion that producers have been successful in adding this species to their commercial operations and selling it for a lucrative profit.

### **Multi-disciplinary**

Development and evaluation of Canaan fir for Christmas tree production involves research faculty from genetics and soils.

### **Multi-state**

- Michigan State University Extension. Ohio State University Extension specialists work collaboratively with Michigan State Extension specialists to develop educational materials (regional and national handbooks and bulletins) and then deliver educational programs that are based on the published information and how producers can use it.
- Purdue University Extension, Penn State Extension, and Michigan State Extension. The Ohio State University Extension specialist provides programmatic and subject matter support to the Christmas tree and/or maple industries through Purdue University Extension, Penn State Extension, and Michigan Extension.

### **Target Audiences**

- Christmas tree producers
- Maple producers

### **Program Duration:**

Long term.

**Allocated Extension Resources:** (see Section V.)

## **5. Enhanced Economic Opportunity and Quality of Life**

### **Program 5A. Economic Development:**

#### **Statement of Issue:**

Social, economic, and technological changes are profoundly affecting the lives of Ohioans, all families and communities, urban and rural, large and small, face challenges to economic well being and quality of life. The rapid changes in industrial structure, governmental relationships, and international trade agreements mean rural areas will increasingly continue to face uncertainty with respect to the future of their economies. The changes will impact the quantity and quality of rural job opportunities, the ability of rural households to earn an adequate level of income, and for many families alter “a way of life”. The impact of the economic, social, policy, and institutional change vary and an understanding of differences in impact on different rural communities is important. Changes taking place in the organization and structure of the rural economy and the agricultural industry are critical issues related to rural development. Communities must maintain a population base sufficient to finance the kind of facilities and services that make them attractive places to live.

#### **Performance Goals:**

- Assess the changes in the structure of agriculture and changes in the structure of the off-farm rural economy.
- Generate information about strategies to enhance economic environment of an area.
- Assess the kinds of public programs needed to stimulate community development.
- Evaluate factors which influence economic growth of an area.
- Determine ways to raise level of aspirations of rural youth.

#### **Output Indicators:**

- Greater understanding of information needed by local decision makers.
- Database to assist in development of economic indicators for an area.
- Research based education information for businesses and government in the area.

#### **Outcome Indicators:**

- Increase motivation of rural youth.
- Communities supporting development projects.
- Increased linkages between strategic industries and other sectors of the local economy.

#### **Key Program Components:**

- Providing educational leadership enhancement for youth, producers, and rural community leaders.

- Building stronger bonds between local businesses and the community.
- Greater understanding of public programs needed to stimulate community development.

**Internal and External Linkages:**

- Department of Agricultural, Environmental, and Development Economics
- Department of Human & Community Resource Development
- Piketon Research and Development Center
- Extension Specialist and Agents

**Target Audiences:**

Local communities, community leaders, rural youth, general public, researchers

**Program Duration:**

Long term: Five plus years.

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 255,223	260,327	265,534	270,844	276,261
FTE's	3.3	3.3	3.3	3.3	3.3

**Program 5Be. Rural/Urban Interface: (extension)**

**Statement of Issue:**

There is an increasing amount of conflict occurring at the rural/urban interface of Ohio's metropolitan Areas. While some of this conflict will inevitably be resolved in court, the remaining conflicts can be managed, if not resolved by interventions initiated by Ohio State University Extension.

**Performance Goals:**

To increase the capacity of Ohio communities to resolve public conflicts.

**Output Indicator:**

OSU Extension will conduct workshops on “Dealing with Public Conflict” in at least one community in the Urban fringe of each of Ohio’s major metropolitan areas.

**Outcome Indicator:**

OSU Extension will follow up on the workshops by assisting local officials in designing a process to deal with an actual community conflict.

**Key Program Components:**

- An in-service training for County Agents on “Developing and Delivering a Conflict Resolution Workshop.”
- Conflict Resolution Workshops in each metropolitan area.
- Development of “OSU Extension Process for Dealing with Public Conflicts.”
- Adaptation of “C” in response to community request for assistance.

**Internal & External Linkages:**

- Ohio Commission on Dispute Resolution

**Target Audiences:**

Ohio local government officials and community leaders.

**Program Duration:**

Intermediate

**Allocated Extension Resources:** (see Section V.)

**Program 5Br. Rural/Urban Interface: (research)**

**Statement of Issue:**

From 1954 to 1992, Ohio lost 24 percent of its farm land to other uses, significant in a state with more than half its land in prime soils. Public debate related to the future of agriculture in Ohio includes land use issues and the rural-urban interface. Programs that foster orderly development of urban areas and encourage preservation of farms and other unique features such as wetlands are important. Further

efforts in this arena should examine economic and social consequences of alternative public policies that guide the use of land, water, and other natural resources.

In addition to the land resource issue, there is also the issue of compatibility of farm and rural non-farm residents. A rising share of rural non-farm residents lack rural background of any kind. In addition, many farm households get the majority, if not all, of their income from non-farm sources and occupy their residence as a home as a matter of preference. Hence their motifs and circumstances are very similar to those of rural non-farm residents. Both are allied in their feelings that they do not want change in the present character of their community. Thus, conflict, when it emerges, is less likely to be farm versus non-farm than it is to be home and family in alliance together and in opposition to changes from any source that would disturb present community character, whether the change is agricultural, commercial, or industrial.

### **Performance Goals:**

- Assess extent to which land markets protect land use.
- Increase understanding of public policy mechanism to protect land use.
- Assess public policies that encourage orderly development of urban areas.
- Assess public policies that encourage preservation of farms and other unique features such as wetlands.

### **Output Indicators:**

- Development of strategies to preserve farmland.
- Strategies to reduce conflict between producers and neighbors
- Understanding of the economic and social consequences of policies that guide the use land, water, and other natural resources.

### **Outcome Indicators:**

- Improved planning for farmland protection.
- Decrease in loss of prime farm land, wetlands, and forests.
- Decreased conflict between producers and neighbors.
- Better educated community leaders on impact of public policy changes.

### **Key Program Components:**

- Research on alternative public policies that guide the use of land, water, and other natural resources.
- Research on budgetary costs and returns as well as distributional implications for those affected by policy change.
- Research on methods of maintaining mutually acceptable character of rural communities.



**Internal and External Linkages:**

- Department of Agricultural, Environmental, and Development Economics
- Department of Human and Community Resource Development
- Department of Animal Sciences
- Department of Horticulture and Crop Science
- Extension Specialist and Agents

**Target Audiences:**

Rural communities, producers, general public, researchers

**Program Duration:**

Greater than five years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 92,056	93,897	95,775	97,690	99,644
FTE's	1.5	1.5	1.5	1.5	1.5

**5C. Green Industry:**

**Statement of Issue:**

The green industry is the fastest growing segment of Ohio's agriculture economy and is projected to rank fourth behind only soybeans, corn, and poultry in farm cash receipts within the next few years. Bedding plants and trees play a vital role in enhancing the quality of life through our beautiful landscaping and conservation efforts to improve the environment. The turfgrass industry continues this interaction of environmental and quality of life enhancement as it constantly improves and develops healthier lawns, golf courses, and other sport fields. The well manicured lawn is a source of pride whether in the rural setting or the confines of the urban surroundings. The green industry is a common bond for the rural/urban interface.

**Performance Goals:**

- Improve the quality and consistency of turfgrass on lawns and golf courses.
- Improve the environment in greenhouses.
- Development of sustainable ornamental plant systems.

**Output Indicators:**

- Enhanced understanding of root zone environment required for quality turfgrass.
- Enhanced understanding of role of compost in biological control of turf diseases.
- Strategies to enhance fertilizer efficiency.
- Improve production practices for more efficient water and nutrient use.

**Outcome Indicators:**

- Reduced usage of pesticides and fertilizer.
- Integrated strategies for reducing pest problems.
- Reduced maintenance cost for golf courses.

**Key Program Components:**

- Efficient water and nutritional production systems.
- Integrated pest management
- Technical and economical efficiencies of producing, managing, and marketing landscape plants.
- Controlled environments in greenhouses.

**Internal and External Linkages:**

- Department of Horticulture and Crop Science
- Department of Plant Pathology
- Department of Entomology
- Department of Food, Agricultural, and Biological Engineering
- Ohio State Turfgrass Team
- Extension Specialist and Agents
- Ohio Turfgrass Foundation
- Ohio Lawn Care Association
- Golf Course Superintendents of America
- United States Golf Association

**Target Audiences:**

Homeowners, golf courses, landscape industry, nursery industry, general public, researchers.

**Program Duration:**

Long term: In excess of five years.

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
Total Hatch and matching funds	\$ 236,884	241,621	246,454	251,383	256,410
FTE's	4.3	4.3	4.3	4.3	4.3

**Program 5D. Quality of Life:**

**Statement of Issue:**

Today's world dramatic social and technological changes are profoundly affecting the lives of Ohioans, all families and communities, urban and rural, large and small, face challenges to economic well being and quality of life. Whether encountering issues such as buying a home, saving for retirement, starting a business, or finding their way through new paths created by recent economic reforms, individuals and families of all economic levels require guidance and information in making good decisions. Similarly, quality of life is constantly challenged in this increasingly complex society as more members of a family enter the workforce, as more stress is exerted on relationships, as health and wellness are threatened by illness, trauma or pressure, as children, teens, adults, and senior citizens experience the challenge of living in today's world. Whether encountering issues such as parenting skills, teen pregnancies, stress management, coping with illness or divorce, living in a blended family, serving as a caregiver, or balancing work and family, individuals and families of all economic levels require guidance and information in dealing with an increasingly complex world.

**Performance Goals:**

- The development and delivery of programs that build strong families, improve lifestyle choices from infancy to retirement, improve the management of money, time, and other resources, address community health and environmental concerns and aid in the management of multiple roles.

**Output Indicators:**

- Improved understanding of basic money management needs of clientele.
- Enhanced understanding of methods to create supportive environments for children and families.
- Improved understanding of parenting educational needs of clientele.

**Outcome Indicators:**

- Computer assisted money management instruction.
- Application of distance learning techniques for delivery of programs.
- Enhanced money management skills.
- Enhanced parenting skills in clientele.

**Key Program Components:**

- Parenting skills
- Stress management
- Child and elder care providers

**Internal and External Linkages:**

- College of Human Ecology
- State Specialist and Extension Agents
- Department of Human and Community Resource Development
- Ohio Department of Human Services
- Ohio Department of Health
- Private industry

**Target Audiences:**

General public

**Program Duration:**

Greater than five years

**Allocated Resources:**

	<b>FY 00 Base</b>	<b>FY 01</b>	<b>FY 02</b>	<b>FY 03</b>	<b>FY 04</b>
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Total Hatch and matching funds	\$ 257,842	262,998	268,258	273,623	279,096
FTE's	5.5	5.5	5.5	5.5	5.5

**Program 5E. Community Economic Well-Being: (extension)**

**Statement of Issue:**

Ohio communities face a variety of local and regional economic issues and challenges, including: attracting and retaining local businesses; maintaining and enhancing the economic vitality of localities; improving the economic well-being of households and individuals; and financing local public services. Education, analysis, and value-added information are needed to inform the local decision-making process on these community economic issues. The overall goals of Extension outreach programming in community economics within the Department of Agricultural, Environmental, and Development Economics (AED Economics) is to improve the sustainability of local and regional economies, lower the incidence of individual and family poverty, and measure the spatially differentiated effects of national policies and global trends on urban, suburban, and rural areas.

**Performance Goals:**

- To provide teaching of innovative decision-making methods that use specialized databases to address local and state economic issues. Teaching and training will be delivered via 1-2 day hands-on training workshops with computers when appropriate. Each workshop will be accompanied with a written training manual that will be issued to all workshop participants.
- To provide communities and local policymakers with economic analysis and specialized databases that inform the local decision-making process regarding community economic issues. These databases include geographically referenced data organized in a geographic information system (GIS), regional input-output (I-O) accounts, social accounting matrices (SAMs), local government revenue and expenditure data, and other databases.
- To provide technical assistance to local and regional decision-makers, e.g. county commissioners, in direct ways, e.g. by telephone, email, or face-to-face meetings.
- To provide support to local community groups for facilitating group dialogue and discovery regarding community economic issues, e.g. provide needed economic and demographic data for strategic economic development planning.
- To develop innovative media to deliver educational information and programs. These outreach media include the development of a community and regional economics web site, an email newsletter on community economic topics, and distance learning technologies to disseminate information as widely as possible.

## **Key Program Components:**

Current and future regional and community outreach activities of the AED Economics Department include:

- Business retention and expansion (R&E) involving “training for trainers” workshops, specialized software, and data analysis in support of community efforts to retain and expand existing businesses.
- Economic and fiscal analysis of local and state projects and policies. Current studies in the Department focus on the local fiscal impacts of residential development, economic impacts of environmental regulation, the economic impacts of agriculture and agribusiness, the economic impacts of manufacturing development in rural areas, and the costs and benefits of new residential development.
- Using GIS as an economic development tool, which includes a workshop that delivers training in GIS to perform spatial economic development analysis, e.g. identifying customer markets and optimal business locations. This outreach includes the provision of specialized GIS databases for Ohio communities.
- Retail trade and market area analysis, which seeks to use spatial economic analysis to aid communities in identifying retail surpluses and leakages and potential opportunities for targeted retail business development.
- The Columbus Economic Information Project is a collaborative effort with the Greater Columbus Chamber of Commerce. The AED Economics Department is developing a web site to provide economic and demographic data and analyses to the general public in support of the Chamber’s regional marketing and work force initiatives. Economic impact studies of particular projects are undertaken and a business climate analysis will be performed.
- Program for Cooperative Development whose goal is to devise ways in which cooperatives can be used to provide infrastructure and health care services in rural areas.
- Land use education and planning assistance for local and state officials and for citizens.
- Economic development in the Appalachian region of Ohio.

## **Internal and External Linkages:**

### **Integrated**

- Joint extension programming has occurred or is planned with other faculty members within the AED Economics Department; county agents, district and state specialists, and the systems specialist from the Community Development Extension program; and other community economic development partners within the OSU system, e.g. the Piketon Research Center.

**Multi-disciplinary**

- Some Extension programming in the community economics area has been or will be jointly undertaken with partners within the following departments: Department of Human and Community Resource Development and the School of Natural Resources. Other partners include state specialists and the systems specialist from the Agricultural and Natural Resources Extension program and county agents from the Ohio Sea Grant program.

**Multi-institutional**

Not applicable.

**Multi-state**

- Collaborative extension efforts that are multi-state include CPAN (Community Policy Analysis Network).

**Target Audiences:**

- Community and state leaders and decision-makers within Ohio
- Community and state leaders in other areas outside of Ohio

**Program Duration:**

The community and regional economics Extension program is a long-term program, although various components of this program may have short or intermediate program duration. For example, both the Greater Columbus Economic Project and GIS training workshops are intermediate term programs, whereas the economic fiscal impact analysis program is a long term program.

**Stakeholder Input Process:** (Addendum to Section II.)

A variety of mechanisms have been or will be used to gather stakeholder input, including: evaluation forms after workshops and presentations; mail survey questionnaires to community leaders, Extension agents, and others; and feedback via the AED Economic Department's website for regional and community economics.

**Extension Merit Review Process:** (Addendum to Section II.)

An annual review process with the Chair of the AED Economics Department is in place for the review of personnel that deliver community economic Extension programming. Additional feedback is received from the Director of Extension and the Director of the Community Development Extension program.

**Extension Fiscal Resources:** (Addendum to Section V.)

Grant funding for particular program components has been obtained or will be sought from the following sources: USDA's National Research Initiative (NRI); Lincoln Land Institute; Ohio Sea Grant program; OSU's Environmental Policy Initiative; OARDC; and others as opportunities arise.

**Program 5F. Community Development: (extension)**

**Statement of Issue:**

What role will community play in the lives of Ohioans in the next century? Extension research has shown that people in Ohio believe that community and the role it will play in the next century it is an important issue. Research has also shown that communities define themselves, their social challenges and the roles members will play while helping communities face those challenges. Therefore helping communities regularly engage in a process that defines who communities want to be and how to get there is a powerful way to help them gain both efficacy and agency around their future.

**Performance Goals:**

Each year over the next five years Ohio communities will engage in innovative processes of defining their vision for the future and creating action plans to achieve the vision. A key component is the inclusive process of citizen involvement that is both broad and deep. The vision produced by this process for the community will be both comprehensive and sustainable. Specific goals relating to the development of the vision and action plan are:

- Every community member who wishes will be involved in creating the community vision and action plan.
- The assets and capacities of the community will be inventoried prior to the beginning of the visioning process.
- The vision will include the social, economic, physical and environmental systems of the community.
- The vision and the action plan will be achievable and sustainable.



### **Output Indicators:**

- In each community Extension faculty will work with community residents to:
  - a. Contact every citizen within the community and invite them to participate in the visioning process.
  - b. Increase all the forms of diversity in the community development activities.
  - c. Increase collaboration among community groups and external stakeholders to promote regional perspectives.
  - d. Discover the unique life giving social and physical forces in the community.
- Extension faculty will teach the visioning and action planning process to community residents for continued use.
- Extension faculty will assist community residents in the action plan implementation process.

### **Outcome Indicators:**

Each community will create a written vision for the community and an action plan to achieve the vision. The vision and action plans will build on the social and physical assets within the community.

### **Key Program Components:**

- Appreciative Inquiry will be used as an over arching process to create the vision and action plan.
- Asset mapping will be used to identify the individual skills and capacities of the citizens. It will also be used to inventory the assets and capacities of the citizen organizations and community institutions.
- The Future Search methodology will be used to create common ground around the vision.
- Open Space Technology will be used to create the action plan.
- Use of Neighborhood targeted sessions.
- Community Leadership Programs.
- Volunteer Training.
- Public Issues Education Method.

### **Internal and External Linkages:**

#### **Internal Linkages**

- The Ohio State University  
College of Food, Agriculture and Environmental Sciences  
Ohio State University Extension

## **External Linkages**

- County comprehensive plans
- USDA - Rural Development
- Ohio Association of Counties
- United Way Agencies
- Ohio Department of Transportation
- Ohio Development Association
- Ohio Department of Natural Resources
- Ohio Health Department
- Ohio Department of Education

## **Target Audiences:**

Small and medium size communities, their members and stakeholders.

## **Project Duration:**

Intermediate: 5 years.

**Allocated Extension Resources:** (see Section V.)

## **Program 5G. Management of Economic Resources: (extension)**

### **Statement of Issue:**

To enhance the ability of families and communities to manage their economic resources.

### **Performance Goals:**

- Families will be provided with the knowledge and skills to better manage their financial resources.
  - a. Families will increase their savings and reduce their debt burden through the MONEY 2000 plus program.
  - b. Women will develop financial planning and management skills through the Women's Financial Information Program.
  - c. Families' and communities' long term viability will be enhanced through outreach efforts aimed at enabling families to develop retirement plans and estate plans.
  - d. Families will be assisted with tax preparation.

- Home and small businesses will be provided with the support needed to help them survive and become a viable part of the community.
  - a. Jobs will be saved and created through the provision of management assistance for home and small business.
  - b. Community focused networks will integrate home and small business into community affairs.
- Families will be provided with assistance in the management of housing and clothing resources.
  - a. Youth will develop skills in selection, design and production of clothing.
  - b. Families will develop skills in wardrobe planning and the identification of special clothing needs through the life cycle.
  - c. Quality of housing resources will be enhanced.

**Key Program Components:**

- Extension will support programming in resource management for families and communities.
  - a. MONEY 2000 plus will facilitate savings and debt reduction of families.
  - b. The Master Money Manager program will provide skills in money management.
  - c. Basic budgeting will be carried out under the Family Nutrition Program.
  - d. The Women's Financial Information program will help women develop financial planning skills.
  - e. Limited resource families will be the subject of special programming in financial management.
  - f. Master Clothing Educators will educate youth in selection, design and production of clothing.
  - g. Quality of housing in Appalachian Ohio will be the subject of special study.
- Extension will cooperate with colleagues at The Ohio State University and community leaders to enhance on-going efforts to enhance economic resources.
  - a. Sources of information will be provided on consumer products and services.
  - b. Sources of information will be provided for financial planning (with special emphasis on retirement planning), estate planning and tax preparation.
  - c. Sources of information will be provided on wardrobe planning and special clothing needs throughout the life cycle.
  - d. Welfare to Work programs will enable welfare recipients to enter the work force.
  - e. Home and small businesses will receive information and assistance to manage and grow their business.

f. Community -focused networks will be developed.

**Internal and External Linkages:**

**Internal Linkages**

Ohio 4-H Foundation. Collaborations include the Master Clothing Educator Program, Shopping Bag, and Consumer Day.

**Multi-disciplinary**

Special clothing needs through the life cycle are identified through participation of extension personnel in OSU's Body Imaging Task Force, which involves the Colleges of Human Ecology, Medicine and Life Sciences.

**Multi-institutional and Multi-state**

NCR 52, multi-state and multi-institution regional committee on Family Economic Research.

NC 223, multi-state and multi-institution research project into the impact of welfare reform on families in rural communities.

**Target Audiences:**

- Youth and families of Ohio
- Home and Small Businesses
- Rural Communities
- Welfare Recipients
- Limited resource families
- Women

**Program Duration:**

- Medium term (1-5 years): tax preparation, information on consumer products, business management advice, clothing choices.
- Long-term (over 5 years): financial and business planning, community development, welfare to work.

**Allocated Extension Resources:** (see Section V.)

**Program 5H. Land Use Issues: (extension)**

**Statement of Issue:**

Ohio communities have spent the past few years gaining a deeper understanding of land use planning. Many communities now are ready to develop land use plans.

**Performance Goals:**

Fourteen Extension faculty will aid local community leaders in six communities develop comprehensive plans or farmland preservation plans for their communities.

**Key Program Components:**

- Education meeting & Activities:
- Public meetings to assist residents to understand process and technical terms
- Provide programs for farmland preservation
- Distribution of information through media
- Data collection and explanation
- Provide technical expertise for zoning and planning regulations.

**Committee Activities:**

- Serve on steering committee
- Write draft sections of the plan
- Obtain input for governmental units

**Internal and External Linkages:**

- Local Planning Department
- Citizens Groups
- Local Units of Government

**Target Audiences:**

- Community residents
- Citizen's groups
- Local elected officials

**Program Duration:**

Intermediate: 1-2 years.

**Allocated Extension Resources:** (see Section V.)

**Program 5I. Business Efficiency: (extension)**

**Statement of Issue:**

Rural communities and intercity urban neighborhoods find that a majority of new business development is stimulated by smaller firms. Therefore, it is important that these smaller firms receive assistance with financing, management and marketing programs.

**Performance Goals:**

Extension faculty will provide educational assistance to local businesses to increase business efficiency.

**Output Indicators:**

- Educational sessions for business owners/management.
- Implementation of Retention and Expansion visitation programs.
- Establishment of site inventory systems.
- Development of downtown management plans.
- Creation of tourism team.
- Identify consumer needs and behaviors.
- Management training assistance.
- Education regarding Brownfield Development.
- Teach components of regional tourism development.

**Key Program Components:**

- The Small Business Management Excel materials
- Implementation of Business Retention and Expansion visitation efforts
- Survey of Consumer Spending patterns
- Inventory available business sites and distribute results
- Survey downtown business owners
- Develop downtown strategic plans
- Establishment of curriculum and programming through tourism team
- Sea Grant programming on Lake Erie
- Visitation and discussion with individual businesses

**Internal and External Linkages:**

- Ohio Development Association
- Local Chambers of Commerce
- Small Business Development Centers
- Ohio Department of Development
- Regional Planning Commissions

**Target Audiences:**

- Business owners/managers
- Community leaders
- Economic Development professionals

**Program Duration:**

Short-term: 1-2 Years.

**Allocated Extension Resources:** (see Section V.)

**Program 5J. Work/Life/Health Issues: (extension)**

**Statement of Issue:**

The demands of work and family/personal roles are becoming increasingly complex for employees in Ohio. The combination of a fluctuating work environment with competing job, family and personal commitments can negatively affect employees in the form of lowered morale, diminished motivation, reduced productivity and increased burnout and turnover. On the home front, more families are finding that two incomes are necessary to maintain their desired lifestyle. Singles and single parents struggle to make economic ends meet. Employed people need researched based education and information to help them with the stresses of managing multiple roles including: provider, partner, parent, child and/or care-giver, family member, community member.

**Performance Goals:**

- To increase the number of face-to-face educational programs conducted at work sites for employees. Forty-four counties will conduct one or more educational programs at a work site in their respective county. County personnel will distribute educational information handouts at these sites.

- To increase the number of contacts with employers across the state. Fifty counties will make a least two contacts with employers and distribute educational information to employees.

**Key Program Components:**

- Work site financial information displays will be developed by county personnel and used at work site fairs and other activities. Displays will highlight one educational concept. Additional information will be shared through dialogue with employees and with additional handout pieces. Topic include: Planning for retirement, home buyer information, credit card traps, check cashing services, rent-to-own, basic budgeting, budgeting for occasional expenses, holiday spending, spending habits, debit cards, and saving pocket change.
- Work/Life display boards will be distributed to employers to display in the work site. The boards hold tablets of short, concise research-based information pertaining to managing multiple roles including: Stress, quick meals, time management and money management. Tablets will be perforated so that employees can tear off the desired information sheet and take it with them.
- Ten issues a year of a newsletter, “LifeTime” will be developed, edited and distributed to county personnel. County professionals can then duplicate the newsletter and distribute it to employed persons. Target audience for LifeTime is employed parents. An editorial board will oversee the content of the newsletter. Authors will include state extension specialists and county professionals. The newsletter will also reach a wider audience by being part of the Ohio Family and Consumer Sciences web site.

**Target Audiences:**

- All employed persons in Ohio.
- Currently non-employed persons who are engaged in a program that will lead to employment.
- County residents

**Program Duration:**

Intermediate: 1-5 years.

**Allocated Extension Resources:** (see Section V.)

**Program 5K. Positive Youth Development: (extension)**

**Statement of Issue:**

The mission of the Ohio 4-H Youth Development program is to create positive environments for diverse youth and adults to reach their fullest potential as capable, competent, caring, and contributing citizens.



The current Ohio 4-H strategic plan identifies five critical focus areas of program effort to achieve this mission: Developing Marketable skills in Youth, Encouraging Citizenship and Community Service, Appreciating and Building Upon Diversity, Building Sustained Relationships between Youth and adults, and Building Volunteer skills and Abilities. The Ohio 4-H program will utilize and build the skills and abilities of adult and teen volunteers to enable them to assist with the critical needs of youth for positive, mentoring relationships with adults, and marketable skills such as teamwork, responsibility, and initiative. The Ohio 4-H program seeks to create additional ways to involve youth in meaningful service to their communities and to empower their sense of responsibility as local and global citizens. An appreciation for, and ability to work within, a diverse community is also a skill the Ohio 4-H program emphasizes within youth development. The Ohio 4-H program will utilize these five focus areas as a guide for creating additional youth development opportunities throughout the state of Ohio.

### **Performance Goals:**

Adults, youth, and youth serving professionals will increase their knowledge, skills, and understanding of positive youth development. Individual development will in turn enhance communities as supportive environments for youth.

### **Output Indicators:**

- A target of 210,000 persons will participate in non-formal educational programs on youth development.
- 70% of the persons participating will implement one or more practices that promote or enhance positive youth development within 6 months of participating in an educational program.

### **Outcome Indicator:**

- The quality of youth development opportunities, and opportunities for positive adult/youth relationships will increase by 5% each year for 5 years. Program quality will be measured through program evaluations and 4-H research studies.

### **Key Program Components:**

Preparing Ohio 4-H for the 21st Century professional development in service, Ohio Volunteer Conference, Youth Starts with You volunteer development videoconferences and training resources, annual volunteer development training conducted by 88 counties, Ohio 4-H Youth Expo, local key leader efforts, Master Clothing Educator program, numerous local program efforts targeting teen leadership development, 4-H clubs, Ohio Reads.

### **Internal and External Linkages**

- Ohio 4-H Foundation, RISE, Dayton Metroparks, Cleveland Metroparks, and numerous other local entities who collaborate to provide local youth development opportunities.
- The Ohio Hunger Task force, local juvenile justice systems working in cooperation with local Extension units, Schools, the Ohio FFA program, the Ohio Department of Education.

**Target Audiences:**

Extension professional and volunteer staff, parents, and others who work directly with you. Youth ages 14-19 who mentor younger youth and serve in leadership roles at the local and state level.

**Program Duration:**

This is a long-term program effort as youth development is an ongoing program priority.

**Allocated Extension Resources:** (see Section V.)

**Program 5L. Parenting and Family Life: (extension)**

**Statement of Issue:**

Today's families face many challenges such as divorce, family violence, teen pregnancies, and general parenting issues. Parents need to learn skills to help them nurture and guide youth from infancy through adolescence and beyond as well as nurturing themselves.

**Performance Goals:**

- Families will strengthen parenting skills to nurture and guide children and adolescents.
  - a. 50,000 parents will receive information about various parenting issues through Extension publications and newsletters.
  - b. 11,000 of the 12,000 parents attending workshops will plan to adopt one or more recommended parenting practices.
  - c. 9,000 parents attending workshops will actually adopt one or more recommended parenting practices.
- Families will learn skills to help them adjust to family structure change and loss experienced through death and divorce.

- a. 2,500 of 3,000 parents attending workshops on adapting to change and loss will plan to adopt one or more recommended practices.
  - b. 2,000 families will actually adopt one or more recommended practices for adjusting to change and loss.
- Families will learn skills such as communication skills, conflict resolution skills, anger management, and marital enhancement skills to strengthen family relationships .
  - a. 5,500 of the 6,000 families attending workshops will plan to adopt one or more recommended practices for strengthening family relationships.
  - b. 4,800 families will actually adopt one or more recommended p practices for strengthening family relationships.
- Ohio State University Extension will work with Ohio communities to provide safe and secure environments for families with children.
  - a. 65% of 1500 parents participating in child care programs will indicate success in developing children do better in school. 35% will show improved literacy rate and 45% of parents will indicate children developing a greater interest in reading for recreation. 30% will show improvement on 4<sup>th</sup> grade proficiency tests.
  - b. Of the 220 families completing a parenting program, 87% of parents will plan to adopt skills improving parent- child relationships in terms of increased parent involvement, attention or affection, patience, and understanding.
  - c. 500 care-givers of older adults will complete a aging sensitivity program and 75% will change their attitude on the aging process of older adults. Two out of three care-givers will adopt practices to keep older adults more independent.
  - d. 800 care-giver program participants will plan to adopt one or more recommended care-giving practices and 66% will actually adopt practices within six months of program completion.
- Ohio State University Extension will collaborate with local community services to provide resources and programs to child care and elder care providers and 45% of these community services will provide.
  - a. 44 Ohio Senior Centers will utilize Extension programing focusing on dependent care issues.
  - b. 600 care providers will adopt good communication techniques with the care receiver.
  - c. 33 Ohio Extension web site will offer resources on dependent care for children and/or older adults.

**Key Program Components:**

- Extension will train professionals to improve the quality of child care and older adult care.
  - a. Home child day care provider workshops
  - b. Adult day care providers workshops
  - c. Babysitting clinic
  - d. Newsletters and research bulletins
  
- Extension will provide education for parents of young children.
  - a. Child enrichment classes for parents
  - b. Parenting classes for 2-parent families, single parent families, and blended families
  - c. Child development classes
  - d. Reading assistance through literacy programs
  - e. Newsletters and research bulletins
  - f. Building support groups
  
- Extension will provide education to caregivers of older adults
  - a. Aging sensitivity activities for caregivers
  - b. Stress management programs
  - c. Maintaining independence in older adults
  - d. Building support groups
  - e. “Care” for the caregiver
  - f. Building support groups
  
- Extension will develop of dependent care resources
  - a. Newsletters
  - b. Web sites
  - c. Research projects
  - d. Curriculum guides
  - e. Fact sheets
  - f. Programs
  - g. Media resource
  
- Policy makers will understand and recognize the need for dependent care education for adult children caring for older adults and for parents of young children
  - a. Success stories and impact statements endorsing the need for Extension education
  - b. Financial support in communities with need

c. Government programs identifies to aid in Extension education

**Internal and External Linkages:**

- Ohio State University Extension is a collaborative partner with Family and Children First (FCF), a state-government-led initiative whose goal is for all Ohio Children to enter school ready to learn. Issues addressed range from improving access to health care and early education to designing programs to reduce abuse, neglect, teen pregnancy, and dependency on state aid. Based at each of Extension’s five district offices, family and regional coordinators link the vast educational resources of Extension with the FCF effort.
- Ohio State University Extension has linked with Americorp National Service Program to offer OhioReads, a program that addresses literacy in young children
- Ohio State University Extension networks with Ohio Department of Aging, and Ohio’s various aging networks to provide education, training, and resources especially designed for Ohio’s older adult population and for those who provide care to an older adult.
- Ohio State University Extension will link with state and local Departments of Education and Human Services in reaching families providing care to dependents.

**Target Audiences:**

- Parents of infants through preschool children
- Communities identifying a literacy concern with children in grades preschool through 4<sup>th</sup> grade
- Parents of school age, teenage, stepchildren and children at risk
- Adult children providing care to an older adult
- Child day care providers
- Older adult day care providers
- Community Service Providers
- Legislatures
- Staff and agencies who address the needs of the older adult populations
- School Systems and K- 8 school teachers
- Home-based dependent care providers
- Child care professionals
- Children in diverse communities

**Project Duration:**

Immediate and long-term.

**Allocated Extension Resources:** (see Section V.)

**Other Sources**

- Ohio Reads funding
- Family and Children First funding
- Senior Series funding from Ohio Department of Aging
- Critical issue funding
- 4-H Foundation funding
- Strategic Planning funding
- Specialized grant funding
- Collaborative funding efforts with external partners
- Registration fees for training and services

## II. STAKEHOLDER INPUT PROCESS

The College of Food, Agricultural, and Environmental Sciences of The Ohio State University was awarded a grant from the W. K. Kellogg Foundation to conduct a process that would create (1) a new vision for food systems education, with implications for changes in land-grant universities and higher education across the country; (2) new structures for engaging citizens in vision building, decision making, and agenda setting; and (3) new models for educational responsiveness to constituent needs. The process entitled “Project Reinvent” brought together, through 18 focus group sessions, more than 230 individuals from the College, the University, and citizens of the State of Ohio to gather their views on what the College of Food, Agricultural, and Environmental Sciences must become to most effectively serve the needs of the people of Ohio and meet the challenge of the 21st century. External stakeholder groups participating in the focus sessions included farmers and producers, consumer and food advocacy/health care, food processors and retailers, agribusiness suppliers, commodity groups, environmental and natural resources groups, sustainable agriculture groups, legislators, primary and secondary educators, entrepreneurs/new technology, rural economic development groups, and media.

Some key highlights resulting from the focus groups input includes:

- The College adopted a new vision statement that would drive future decisions and an implementation grant was secured. Four teams were formed to address system change issues in:
  - Organizational structure
  - Reward system
  - Programmatic focus
  - Communication and marketing
- A team was formed to create a strategic plan for the Ohio Agricultural Research and Development Center, encompassing the Columbus and Wooster campuses and the 10 branch stations. In May 1998 the team presented the first phase of a strategic planning process, which

identified a number of strategic issues and a series of experimental efforts to address those issues.

- Integrated systems approach identified and adopted as the foundation of the efforts within the College. The College recognizes that to sustain agricultural practices in the future the efforts must address issues of 1) production efficiency, 2) economic viability, 3) environmental compatibility, and 4) social acceptability in an integrated manner.
- A group of college and community leaders were brought together to serve as an ongoing advisory council to the Vice President and Dean of the College on issues that have widespread impact and implications for the College, its many units, and the full spectrum of audiences.
- An OARDC Internal Competitive Grants Program that matches funds from industry and other stakeholders with OARDC funds.

And the stakeholder input process continues. The Ohio Agricultural Research and Development Center and most academic departments have external advisory boards that meet at least quarterly to discuss current programs and provide input for future direction. Within the past 6 months in excess of 60 meetings have been held throughout Ohio with state legislators, community lay leaders, and representatives of Ohio State University Extension and OARDC to dialog on current educational and research programs and converse on future programs.

### **III. PROGRAM REVIEW PROCESS**

#### **Merit Review:**

OSU Extension develops long range program plans through a process involving Extension personnel from throughout the system, input of lay leaders in communities, incorporating data about Ohio's population, and through collaboration with other agencies, institutions and organizations.

Each of the four program areas conducts long range strategic planning to prioritize programming. Specialists from academic disciplines provide insight from research trends while county Extension personnel provide insight from local communities. Systematic prioritization processes, such as Delphi, are used. Program areas work together to identify key issues that cut across disciplines. Special task forces or teams then collaborate to identify priority program efforts to address these issues. Funding is then allocated to support program priorities. Programmatic resources such as personnel or materials reflect the program priorities. In addition, these priorities direct from what sources grant funds are sought.

Once strategic plans are in place, there is continual review of plans to include the ability to be responsive to unanticipated issues. The system provides flexibility for agents to address these issues. In situations

where grant monies are obtained, staff with specific short-term employment contracts are hired to assist in meeting priority needs.

Agent specialization is a way for the system to provide subject matter expertise close to local communities. Agents determine a subject matter specialization that relates to needs in their geographical area of the state. They receive additional training to remain on the cutting edge of their field. They are encouraged to work with other agents in their district to address local needs in a timely manner. In addition, agents are linked to state specialists in the same discipline to enable the rapid dissemination of new information or the development of appropriate programming to address critical needs.

### **Scientific Peer Review:**

Base funds (Hatch, McIntire Stennis, Animal Health) allocated to OARDC undergo an extensive review process within the OARDC system. The following describes the review process:

- Project proposals are initiated by research faculty and research scientists in consultation with colleagues and Department or Program chairs.
- Chairs review all proposals. Chairs are responsible for selecting at least two peer reviewers for each proposal. The reviewers are expected to have expertise in the subject matter area and can be from on campus or off-campus. The reviewers evaluate, recommend, and comment on each proposal.
- Reviews are returned to the proposing scientist who then responds to suggestions, makes changes, and resubmits the proposal to the Chair.
- Chairs indicate departmental approval by signing the AD-416.
- Following review and approval by Chairs, proposals are forwarded to the Experiment Station Director's Office where they are reviewed for accuracy in coding and format and concurrence with State Experiment Station and CSREES program directions. Revisions are requested if proposals are incomplete, are not sufficiently justified, or documented.
- Upon approval by the Director or his/her designee, projects are assigned a number and are electronically forwarded to CSREES for approval and inclusion into the Current Research Information System (CRIS). The Experiment Station Fiscal Office is notified of all approved projects wherein the Fiscal Office maintains records of expenditures to be used in the AD-419 and the Annual Report which are submitted to CSREES. The Experiment Station publishes the Annual Report to document and distribute scientific accomplishments and impacts.

## **IV. MULTI-STATE ACTIVITIES**



**Extension:**

<b>Goal</b>	<b>Description</b>	<b>Participants</b>
<b>1</b>	Ag Answers	IN, <b>OH</b>
	Alternative Agricultural Economic Opportunities	IL, IN, KY, MI, <b>OH</b> and other states
	Annual Agricultural Outlook Insert	IL, IN, <b>OH</b>
	Commercial Tree Fruit Spray Guide & Commercial Small Fruit and Grape Spray Guide	AR, IA, IL, IN, KS, KY, MO, NE, <b>OH</b> , WI, WV
	Diagnostic Training Center	IL, <b>OH</b>
	Equine Alliance	IL, KY, MI, <b>OH</b>
	Field Crop Diagnostic Clinic	IN, <b>OH</b>
	Five State Beef Initiative	IN, IL, KY, MI, <b>OH</b>
	Five State Weed Science Working Group	IL, IN, KY, MI, <b>OH</b>
	Great Lakes Fruit Workers Conference	MI, NY, <b>OH</b> , WI; Ontario Canada
	Great Lakes Grazing Conference	IN, IL, MI, <b>OH</b>
	Hands-On Grain Quality and Fumigation Training	IN, IL, <b>OH</b>
	Heartland Grape and Wine Coalition	IN, MI, <b>OH</b> , IL and KY to join
	Hort and Turf	IL, IN, KY, MI, <b>OH</b>
	Indiana Beef Evaluation Program	IA, IL, IN, KY, MI, <b>OH</b> , WI
	Integrated Management of Arthropod Pests in Livestock and Poultry	National
	IQ+ Beef & Five State Beef Initiative	IL, IN, KY, MI, <b>OH</b>
	MWPS Educational Materials	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI; National
	Mid-America Tomcast System	MI, <b>OH</b>
	Midwest Tree Fruit Pest Management Handbook	IA, IL, IN, KS, KY, MO, <b>OH</b> , WI

	Midwest Soybean Conference	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	Midwest Dairy Management Conference	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , WI
	Multi-Disciplinary Evaluation of New Apple Cultivars	GA, ID, IN, MA, MI, NC, NH, NJ, NY, <b>OH</b> , OR, PA, UT, VT, WA, WI
	Multi-state Manure Nutrient Management Program	IN, MI, MO, <b>OH</b> , PA, WI
	National Swine Improvement Fact Sheets	IA, IN, MI, MN, MO, NC, NE, <b>OH</b>
	National Swine Registry Stages Program	National
	Nontraditional Soil Additives	IA, IL, IN, MI, MN, MO, <b>OH</b> , SD, WI
	North Central Region Aquaculture	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	North Central Region Sheep Task Force	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	North Central Region 89 Swine Management Group	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	Pork Industry Handbook	GA, IA, IL, IN, KS, MI, MN, MO, NC, ND, NE, <b>OH</b> , OK, SD, VA WI and others
	Regional U.S. Sheep Seedstock Workshop	IA, IL, IN, MI, MO, <b>OH</b> , WI
	Regional Diagnostic Training Center	IL, IN, <b>OH</b>
	SARE	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI, WV
	Soil & Plant Analysis Methods & Interpretation for Nutrient Management	IA, IL, IN, KS, MI, MN, MO, <b>OH</b> , PA, SD, WI
	Sustainable Agriculture	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	Tobacco Education	KY, <b>OH</b>

	Tri-State Dairy Nutrition Conference 2000	IN, MI, <b>OH</b>
	Tri-State Dairy Management Conference 1999	IN, MI, <b>OH</b>
	Tri-State Master Gardener Conference	IN, KY, <b>OH</b>
	Tri-State Swine Nutrition	IN, MI, <b>OH</b>
	Tri-State Vegetable Meeting	IN, MI, <b>OH</b> ; Ontario, Canada
	U.S. Agency for International Development Integrated Pest Support Project	CA, GA, IN, <b>OH</b> , PA, VA
	Weed Management Programs in Hort Crops	IL, IN, MI, <b>OH</b> , WI
	Weekly Outlook, Letter, Outlook Reports	IL, IN, <b>OH</b>
<b>2</b>	Virtual PQA Laboratory	IN, <b>OH</b>
<b>3</b>	North Central Region Family Nutrition Program	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	Society of Nutrition Education Conference	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
<b>4</b>	Bulletin on Organic Residuals	IN, MI, <b>OH</b>
	Consortium of Institutes for Decentralized Wastewater Treatment	28 States
	Farm-A-Syst and Home-A-Syst	MI, <b>OH</b> , WI
	Integrated Approaches to Manure Management	MI, <b>OH</b>
	Land Use Consortium	IL, IN, MI, MN, <b>OH</b> , WI
	Landscape Ornamentals	MI, <b>OH</b>
	Midwest Plan Service	IA, IL, IN, MI, MO, <b>OH</b> , PA, WI
	National Wildlife Habitat Evaluation Contest	National
	Pesticide Impact Assessment	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI

	Shared Forestry Position funded in part with the U.S. Forest Service	IL, IN, MI, MN, <b>OH</b> , WI; Northeast Region
	Timber Tax Education	IL, IN, MI, <b>OH</b> , OK, PA
	Tri-State Plant Fertility Program	IN, MI, <b>OH</b>
<b>5</b>	4-H Financial Accountability	MI, <b>OH</b>
	4-H National Congress	National
	American Society of Agricultural Engineering Youth Activities	IN, KY, <b>OH</b> , WI
	Barn/Rural Preservation	IA, IL, IN, MI, ME, MO, NY, <b>OH</b> , WI
	Disaster Education Network	28 States
	Heartland Coalition Conference	IN, MI, <b>OH</b>
	North Central Region Home Ownership	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	National 4-H Impact Assessment Project	National
	National 4-H Engineering, Science and Leadership Event	AL, AR, DE, FL, IL, IN, KY, LA, MD, MS, <b>OH</b> , PA, WI
	National 4-H Jury Review Process	National
	National Experiential Learning Design Team	National
	North Central Region Volunteer Forum/Volunteer Week Materials	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
	Transitional Living Programs	National
	Urban Conference	National
	Youth Outcomes - Four Fold Youth Development Model	AZ, IN, MN, NV, <b>OH</b>

**Research:**

Project Number	Title	Participants
NC-007	Plant Germplasm and Information Management and Utilization	IN, IA, KS, NE, <b>OH</b> , IL, MI, MN, MS, ND, SD, WI
NC-052	Regional Committee on Family Economic Research	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
NC-062	Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety	AZ, IL, IN, IA, KS, MI, MN, MO, NE, <b>OH</b> , SD, PA, WA, NADC, UCSD, U-IA, MN-MED
NC-100	RRF Administration, Planning, and Coordination	IA, IL, IN, KS, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
NC-107	Bovine Respiratory Disease: Risk Factors, Pathogens, Diagnosis and Management	CA, IL, IN, IA, KS, LA, MI, MN, MS, MO, NE, ND, <b>OH</b> , OK, SD, TN, TX, WI
NC-113	Methods to Increase Reproductive Efficiency in Cattle	IL, IA, KS, MI, MO, <b>OH</b> , WI
NC-119	Management Systems for Improved Decision Making and Profitability of Dairy Herds	AL, AZ, CA, FL, GA, IL, IN, IA, KS, MI, MN, MO, NE, NH, MN, NYC, <b>OH</b> , PA, SD, TN, TX, VA, WA, WI
NC-125	Biocontrol of Soil-Borne Plant Pathogens	ARS, IA, IL, IN, KS, MI, MN, ND, <b>OH</b> , WI
NC-131	Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation	ARS, AL, AZ, CA, CTS, IA, IN, MI, MN, MO, NE, NYC, <b>OH</b> , SD, WA, WI
NC-136	Improvement of Thermal Processes for Foods	CA, FDA, FL, IN, IA, MI, MN, MO, NE, NJ, NYG, NYC, NC, ND, <b>OH</b> , OR, PA, TX, WA, WI, Nat'l Ctr. for Food Safety and Tech
NC-140	Rootstock and Interstem Effects on Pome and Stone Fruit Trees	AR, CA, CO, GA, IL, IN, IA, KS, KY, MA, MD, ME, MI, MN, MO, NC, NJ, NYG, <b>OH</b> , OR, PA, SC, SD, TN, UT, VA, VT, WA, WI, WV
NC-167	Role of n-3/n-6 Polyunsaturated Fatty Acids in Health Maintenance	CA, CO, IN, IA, KS, LA, MI, MN, NE, <b>OH</b> , OR, TX, WI

NC-168	Advanced Technologies for the Genetic Improvement of Poultry	ALX, AR, CA, CANADA, DE, IL, IA, MD, MA, MI, MN, NC, <b>OH</b> , IN, VA, WI, USDA/ARS
NC-174	Impact of Accelerated Erosion on Soil Properties and Productivity	ARS, IA, IL, MI, MN, MO, ND, NE, <b>OH</b> , SD, WI
NC-185	Metabolic Relationships in Supply of Nutrients for Lactating Cows	AL, AZ, CA, FL, IL, IN, IA, KS, KY, MD, MI, MN, MO, NH, ND, <b>OH</b> , PA, SD, UT, WA, WI, USDA/DFRC, USDA/RN
NC-189	Forage Protein Characterization and Utilization for Cattle	IA, IL, IN, KS, MI, MN, MO, MT, NM, NYC, ND, NE, <b>OH</b> , OK, SD, WI
NC-193	Spatial Dynamics of Leafhopper Pests and Their Management on Alfalfa	IL, KY, MD, MI, MN, MO, NE, NYC, <b>OH</b> , OK, WI
NC-202	Biological and Ecological Basis for Weed Management Decision Support Systems to Reduce Herbicide Use	CO, IN, IA, MT, MI, MN, <b>OH</b> , NE, SD, WI
NC-205	Ecology and Management of European Corn Borer and Other Stalk-Boring Lepidoptera	DE, IL, IA, KS, KY, MD, MA, MI, MN, MO, NE, NYG, NC, ND, <b>OH</b> , PA, SC, TX, WI
NC-209	Genetic Improvement of Cattle using Molecular Genetic Information	AZ, CA, IL, IA, MA, MI, MN, <b>OH</b> , SD, USDA/ARS, VA, WI
NC-212	Ecology and Impact of Gypsy Moth Invasion	AR, CTH, IL, IN, MI, MN, MO, <b>OH</b> , WI, NCRES, NEFES, ARS, APHIS
NC-213	Marketing and Delivery of Quality Cereals and Oilseeds	AR, IL, ID, IN, IA, KS, MI, MN, MT, NE, ND, <b>OH</b> , TX, WA, WI, USDA/ERS, USDA/ARS
NC-216	The Adoption of Sustainable Farming Systems: Implications to Agricultural Education	IA, IN, KS, MI, MN, ND, <b>OH</b> , WI
NC-218	Characterizing Nitrogen Mineralization and Availability in Crop Systems to Protect Water Resources	IL, IN, IA, KS, MI, MN, MO, NE, <b>OH</b> , SD, WI, USDA/ARS

NC-219	Using Stages of Change Model to Promote Consumption of Grains, Vegetables and Fruits by Young Adults	AZ, IA, KS, ME, MI, NE, <b>OH</b> , OR, SD, WI
NC-220	Integration of Quantitative and Molecular Technologies for Genetic Improvement of Pigs	AL, GA, IN, IA, NE, NC, NCX, <b>OH</b> , OK, VA, USDA/ARS
NC-221	Financing Agriculture and Rural America: Issues of Policy, Structure, and Technical Change	AR, IL, IN, IA, KS, KY, MN, MI, NYC, ND, <b>OH</b> , TX, Fed Res Bank of Kansas City, USDA/ERS
NC-222	Impact of Technology on Rural Consumer Access to Food and Fiber Products	CO, NYC, IL, IA, KY, MN, MS, NE, ND, <b>OH</b> , OK, WI
NC-223	Rural Low-Income Families: Monitoring their Well-Being and Functioning in the Context of Welfare Reform	CA, CO, ID, IN, KY, LA, MA, MI, MN, MO, NE, NH, <b>OH</b> , OR, UT, WY, (IA, SD, WI Participating in Annual Meeting)
NC-224	Competitiveness and value added in the U.S. Grain and Oilseed Industry	AR, GA, IL, IA, KS, LA, MN, MN, NE, ND, <b>OH</b> , OK, OR, USDA/ERS, USDA/ACS
NE-112	Mastitis Resistance to Enhance Dairy Food Safety	CA, CTS, IL, IA, KY, LA, MI, NYC, <b>OH</b> , PA, TN, VT, VA, WA, USDA/ARS
NE-123	Functional Properties of Food Proteins	ARS, CANADA, KY, MI, MS, NJ, NC, NYC, <b>OH</b> , OR, PA, RI, WI
NE-124	Genetic Manipulation of Sweet Corn Quality and Stress Resistance	FL, HI, ID, IL, IN, MA, MN, NYC, NYG, <b>OH</b> , OR, PA, WI
NE-138	Epidemiology and Control of Emerging Strains of Poultry Respiratory Disease Agents	AL, CTS, DE, MD, NYC, <b>OH</b> , TX, USDA/ARS, VMES
NE-161	Association of Fertility with Temporal Changes in Ovarian Function of Domestic Ruminants	CT, ME, MA, NH, NY, <b>OH</b> , PA, WV

NE-162	Rural Economic Development: Alternatives in the New Competitive Environment	AZ, CA, DE, GA, IN, KY, MI, MN, MO, NV, NYC, NH, NC, <b>OH</b> , OR, PA, RI, SC, UT, TX, VA, WA, WI, USDA/ERS/ED
NE-164	Controlled Environment and Facilities Engineering for Greenhouses	CTS, GA, MI, NE, NH, NJ, NYC, <b>OH</b> , PA
NE-165	Private Strategies, Public Policies, and Food System Performance	AR, CA, CTS, FL, GA, IL, IN, IA, KS, LA, MN, MA, MI, MN, MT, NE, NH, NJ, NYC, NC, <b>OH</b> , RI, TX, VA, WI, USDA/ERS, USDA/RBS, USDA/AMS, USDA/PSA, CDCP, FDA, GAO
NE-167	Family Businesses: Interaction in Work and Family Spheres	HI, IN, IA, IL, MI, MN, MOX, MT, NE, ND, NYC, <b>OH</b> , PA, TX, UT VT, CANADA, Brigham Young U., Miami U. (In OH)
NE-177	Impacts of Structural Change in the Dairy Industry	KY, MD, ME, MI, MN, NYC, <b>OH</b> , PA, TX, VT, WI
NE-183	Multidisciplinary Evaluation of New Apple Cultivars	AR, CTH, GA, MA, ME, MI, MO, NC, NH, NJ, NYC, NYG, <b>OH</b> , OR, PA, VA, VT, WA, WI, WV, PA/RODALE, WV(USDA), CANADA
NE-184	Development of New Potato Clones for Environmental and Economical Sustainability in the Northeast	DE, ME, NJ, NYC, NC, <b>OH</b> , PA, PEI, Quebec, VA, USDA/ARS/BARC
S-103	Technical and Economical Efficiencies of Producing, Marketing, and Managing Landscape Plants	AL, AR, DE, FL, GA, IL, KY, LA, MS, NM, NJ, NV, <b>OH</b> , OR, PA, RI, SC, TN, TX, TVA
S-213	Reproductive Performance of Turkeys	ARS, CA, MD, MN, NC, <b>OH</b> , OR, VA, WI
S-233	Genetic Relationships of Growth and Reproduction in Diverse Poultry Populations	ALX, AL, AR, CANADA, GA, MS, NC, <b>OH</b> , PA, SC, TN, VA, TX, ARS



S-259	Rural Labor Markets in the Global Economy	AR, GA, IA, KS, KY, LA, MD, MI, MN, MS, NYC, <b>OH</b> , PR, NC, SC, WI, AL, HUNTSVILLE, USDA/ERS
S-273	Development and Application of Comprehensive Agricultural Ecosystems Models	AL, FL, GA, IL, IA, KY, LA, MD, MN, NCSU, <b>OH</b> , OK, TN, TX, VA, NCX, USDA/ARS
S-276	Rural Restructuring: Causes and Consequences of Globalized Agricultural and Natural Resource Systems	AL, IA, KY, LA, MI, NC, <b>OH</b> , PR, SC, TX, GAX, NCS
S-278	Food Demand, Nutrition and Consumer Behavior	CA, FL, GA, IL, IN, IA, KS, LA, ME, MN, NJ, NYC, NC, <b>OH</b> , OR, SC, TN, TX, VA, WA, WIL U. OF NC, USDA/ARS, USDA/CNPP, USDA/ERS, USDA/FCS, US/BLS
S-281	Dynamic Soybean Insect Management for Emerging Agricultural Technologies and Variable Environments	AR, FL, GA, IL, IN, IA, KY, LA, MS, NE, <b>OH</b> , SC, TN TX, VA
W-112	Reproductive Performance in Domestic Ruminants	AZ, CA, CO, HI, ID, KS, MN, MO, MT, NV, MN, <b>OH</b> , OR, TX, WA, WY
W-133	Benefits and Costs of Resource Policies Affecting Public and Private Land	CA, CA-D, CO, GA, IA, ME, MA, MI, NV, NH, NM, NYC, <b>OH</b> , OR TN, UT, WA, WV
W-168	Seed Biology and Technology Investigation	ARS, USDA/FS, AZ, CA, CO, IA, IN, ID, KS, KY, LA, NYG, NYC, NC, <b>OH</b> , OR, VA, WA
W-170	Chemistry and Bioavailability of Waste Constituents in Soils	ARS, CANADA, CA, CO, FL, HI, IA, IL, NM, KS, MI, MO, MT, NM, <b>OH</b> , WA, WI, WY
W-181	Modifying Milk Fat Composition for Improved Manufacturing Qualities and Consumer Acceptability	CA, ID, IL, MN, NYC, <b>OH</b> , SC, SD, UT, VA, WA, WI

## V. ALLOCATED RESOURCES SUMMARY

**Extension:**

	<b>Goal 1</b>	<b>Goal 2</b>	<b>Goal 3</b>	<b>Goal 4</b>	<b>Goal 5</b>	<b>Total</b>
<b>FY 2000</b>						
FTE	29.7	28.2	44.6	10.4	65.	178.0
Federal	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
Match	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
<b>FY 2001</b>						
FTE	28.9	27.4	43.3	10.1	63.2	173.0
Federal	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
Match	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
<b>FY 2002</b>						
FTE	28.1	26.7	42.1	9.8	61.4	168.0
Federal	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
Match	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
<b>FY 2003</b>						
FTE	27.2	25.9	40.8	9.5	59.6	163.0
Federal	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
Match	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
<b>FY 2004</b>						
FTE	26.4	25.1	39.6	9.2	57.7	158.0
Federal	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078
Match	\$1,521,683	\$1,445,599	\$2,282,525	\$532,589	\$3,328,682	\$9,111,078

Note: Assumes Federal and match dollars remain the same; using a 4% inflation factor each year for salary reduces funds by about \$700,000 each year. Assumes a decrease of 5+A17 total positions per year.

**Research:**

		<b>FY 2000 Base</b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>
Program 1B.						
	Total Hatch & matching funds	\$389,127	\$396,909	\$404,847	\$412,944	\$421,203
	FTE	7.3	7.3	7.3	7.3	7.3
Program 1C.						
	Total Hatch & matching funds	\$549,060	\$560,041	\$571,242	\$582,666	\$594,320
	FTE	9.6	9.6	9.6	9.6	9.6
Program 1D.						
	Total Hatch & matching funds	\$2,749,092	\$2,804,073	\$2,860,155	\$2,917,358	\$2,975,705
	FTE	56.0	56.0	56.0	56.0	56.0
Program 1E.						
	Total Hatch & matching funds	\$1,916,962	\$1,955,301	\$1,994,407	\$2,034,295	\$2,074,981
	FTE	36.6	36.6	36.6	36.6	36.6
Program 1F.						
	Total Hatch & matching funds	\$678,705	\$692,279	\$706,124	\$720,247	\$734,652
	FTE	14.9	14.9	14.9	14.9	14.9
Program 1G.						
	Total Hatch & matching funds	\$857,563	\$874,714	\$892,208	\$910,052	\$928,253
	FTE	14.9	14.9	14.9	14.9	14.9
Program 1H.						
	Total Hatch & matching funds	\$396,792	\$377,187	\$384,731	\$392,426	\$400,274

	FTE	4.4	4.4	4.4	4.4	4.4
Program 2Ar.						
	Total Hatch & matching funds	\$579,454	\$591,043	\$602,863	\$614,921	\$627,219
	FTE	11.7	11.7	11.7	11.7	11.7
Program 2Br.						
	Total Hatch & matching funds	\$220,885	\$225,302	\$229,808	\$234,404	\$239,093
	FTE	3.4	3.4	3.4	3.4	3.4
Program 2C.						
	Total Hatch & matching funds	\$61,961	\$63,200	\$64,464	\$65,753	\$67,068
	FTE	0.9	0.9	0.9	0.9	0.9
Program 3Ar.						
	Total Hatch & matching funds	\$246,985	\$251,924	\$256,963	\$262,102	\$267,344
	FTE	3.9	3.9	3.9	3.9	3.9
Program 3B.						
	Total Hatch & matching funds	\$51,699	\$52,732	\$53,787	\$54,863	\$55,960
	FTE	1.2	1.2	1.2	1.2	1.2
Program 4Ar.						
	Total Hatch & matching funds	\$317,573	\$323,924	\$330,402	\$337,011	\$343,751
	FTE	5.4	5.4	5.4	5.4	5.4
Program 4B.						
	Total Hatch & matching funds	\$601,601	\$613,633	\$625,905	\$638,423	\$651,192
	FTE	11.8	11.8	11.8	11.8	11.8

Program 4C.						
	Total Hatch & matching funds	\$32,423	\$33,071	\$33,732	\$34,407	\$35,095
	FTE	0.3	0.3	0.3	0.3	0.3
Program 4Dr.						
	Total Hatch & matching funds	\$478,256	\$487,821	\$497,577	\$507,529	\$517,679
	FTE	7.6	7.6	7.6	7.6	7.6
Program 4F.						
	Total Hatch & matching funds	\$305,842	\$311,958	\$318,198	\$324,561	\$331,053
	FTE	3.8	3.8	3.8	3.8	3.8
Program 5A.						
	Total Hatch & matching funds	\$255,223	\$260,327	\$265,534	\$270,844	\$276,261
	FTE	3.3	3.3	3.3	3.3	3.3
Program 5Br.						
	Total Hatch & matching funds	\$92,056	\$93,897	\$95,775	\$97,690	\$99,644
	FTE	1.5	1.5	1.5	1.5	1.5
Program 5C.						
	Total Hatch & matching funds	\$236,884	\$241,621	\$246,454	\$251,383	\$256,410
	FTE	4.3	4.3	4.3	4.3	4.3
Program 5D.						
	Total Hatch & matching funds	\$257,842	\$262,998	\$268,258	\$273,623	\$279,096
	FTE	5.5	5.5	5.5	5.5	5.5

## VI. EXTENSION CIVIL RIGHTS PLAN

### Statement of Issue

OSU Extension is committed to civil rights as a critical issue for the future success of Extension programs in Ohio. Civil-rights related priorities for OSU Extension (OSUE) fall in three areas, which are:

1. Employment
2. Programming
3. Organizational Culture and Climate

OSUE works to comply with AA/EEO law, but also takes this commitment a step further in an attempt to create an organization that seeks out diversity and enhances organizational effectiveness by empowering people to develop their full potential.

### Performance Goals: (including Output Indicators, Outcome Indicators)

Goal A: Increase number of qualified minority candidates in pool of potential OSUE hires.

- Output Indicators: Number of qualified minority applicants, number and type of recruitment efforts.
- Outcome Indicators: Percent of minority applicants hired by OSUE

Goal B: Increase number of minority hires.

- Output Indicators: Number of minorities hired by OSUE.
- Outcome Indicators: Number of new OSUE hires who are members of minority groups.

Goal C: Increase retention rate of minority employees.

- Output Indicators: Percentage of minority workers remaining in the employ of OSUE.
- Outcome Indicators: Percent of OSUE work force who are members of a minority group.

Goal D: Create and maintain an organizational climate that encourages assimilation of all employees, emphasizing minority employees and other employees having diverse backgrounds.

- Output Indicators: Turnover and retention rates.
- Outcome Indicators: Number of personnel indicating a high level of assimilation into OSUE.

Goal E: Expand programs and audiences to reach a more diverse population of Ohio residents with educational programs and information.

- Output Indicators: Programs conducted throughout Ohio that target a diverse audience or address diversity, number of minorities participating in OSUE programs.

- Outcome Indicators: Number of program participants throughout Ohio, percent of minority participants, results of innovative programs that reach diverse audiences or educate citizens about diversity issues.

Goal F: Monitor the state of the organization related to diversity and compliance with AA/EEO law.

- Output Indicators: Results of annual county diversity reviews, number of participants in diversity training opportunities offered by OSUE, organizational diversity analysis.
- Outcome Indicators: Greater understanding of AA/EEO compliance requirements by OSUE employees, a climate that is increasing in its openness to diversity.

Goal G: Provide ongoing diversity and AA/EEO compliance training opportunities for all staff.

- Output Indicators: Annual county diversity reviews held, reports returned to review counties, diversity training offered.
- Outcome Indicators: County action plans developed by office staff and Advisory Committees in Review counties, actions taken in counties.

Goal H: Reward individuals and programs that model a commitment to diversity, creating a culture of inclusion, and embracing differences.

- Output Indicators: OSUE diversity awards offered on an annual basis and recipient(s) selected.
- Outcome Indicators: Recognition among staff that diversity is valued and rewarded in OSUE.

**Key Program Components, Target Audiences, Program Duration:**

Program Component: Recruitment

Target Audience: Minorities who are potential OSUE hires

Program Duration: Ongoing

Program Component: Learning the Ropes new personnel orientation and training programs

Target Audience: OSUE new personnel

Program Duration: Ongoing

Program Component: AA/EEO Counselors - these are peer-selected individuals who are designed to be a sounding board for any employee who may have an AA/EEO concern

Target Audience: All OSUE employees

Program Duration: Ongoing

Program Component: Diversity Training - will be offered each year as an in-service training opportunity, also included in new personnel orientation programs.

Target Audience: All OSUE personnel, with special emphasis each year on personnel in counties being reviewed.

Program Duration: Annual

Program Component: Diversity Reviews - a compliance review process for all OSUE counties which also encourages creative, collaborative thought to broaden audiences reached and programs offered.

Target Audience: All OSUE county units, 22 each year

Program Duration: Annual, a rotation system has been established so that each county participates in a review every four years.

Program Component: Diversity Strategic Plan for OSU Extension

Target Audience: All OSUE personnel and clientele

Program Duration: Existing plan will be reviewed in 1999 - 2000, revised goals established and approved by the organization during 2000, implementation from 2000 - 2004

Program Component: Diversity Action Team - a group of OSUE personnel who voluntarily give leadership to raising awareness of diversity issues in the organization. The group has five subcommittees - focus planning, diversity awards, diversity training, marketing and communications, and recruitment and retention.

Target Audience: All OSUE personnel and clientele

Program Duration: Ongoing

### **Internal and External Linkages:**

Civil rights compliance and diversity are by nature interdisciplinary. Programming and support in these areas are for all OSUE staff, not just for those in certain program areas or having certain rank. The SOL project (Strengthening Ohio's Leadership) is a three-year project funded by CYFAR monies which includes external partners. Two new youth development positions have been established in cooperation with Dayton and Cleveland MetroParks systems. Several programs in the Family and Consumer Sciences discipline have external linkages. These include EFNEP, the Family Nutrition Program (funded through DHS Food Stamp grant monies), Children and Families First (funded jointly with the State of Ohio Governor's office), and Ohio Works First (a welfare reform program in cooperation with Ohio DHS)

### **Allocated Resources:**

The Leader, Personnel in OSUE is responsible for EEO compliance in the employee selection process. The Leader, Staff Development and Leader, Program Development and Evaluation are responsible for supporting programmatic efforts targeted at diversity and AA Compliance. County diversity reviews are the shared responsibility of a team of 15 state and district level personnel, with leadership for the process coming from the state-level Employee Development Network. A Diversity Action Team



composed of program personnel from all organizational levels is voluntary, and has approximately 15 active members.

### **Stakeholder Input:**

Advisory groups in each county are included in the program development process in OSUE. Where there are external partnerships, memorandums of understanding exist and steering committees with representation from various stakeholder groups work together to implement programmatic efforts. Stakeholders for internal programs are OSUE employees, who have the opportunity for input via various program committees and professional associations that meet regularly with the administrative leadership of OSUE.

### **Program Review Process:**

OSU Extension's annual planning and reporting system provides a mechanism for evaluation of program impact which includes narrative reporting that will identify diversity efforts, as well as quantitative data which identifies minority participation in programs. The Diversity Action Team will examine Ohio's Diversity Strategic Plan during 1999-2000, evaluate goal attainment, and plan for future efforts. Data related to employee selection, turnover, and reasons for leaving are maintained by the Personnel Unit and Employee Development Network.

### **The Ohio State University Plan of Work Addendum: Under-Served/Under-Represented**

The College of Food, Agricultural, and Environmental Sciences has an outstanding tradition of serving the diverse needs and interests of the citizens in the State of Ohio. The demographics of Ohio, like many other states, are changing and as a result, new audiences are emerging and the capacity to serve these audiences is changing to meet the need. The next few paragraphs will briefly describe OSU efforts to reach under-served and under-represented audiences.

The Ohio State University Extension/Research Sustainable Agriculture Team will network closely with our small scale and limited resource farm audiences by working through various on-farm research and demonstration projects. Working with leadership from the Innovative Farmers Of Ohio (IFO) and Ohio Ecological Food and Farm Association (OEFFA), the Team will plan strategic in-services and conduct farm tours that highlight low-input and sustainable production and marketing systems.

The needs of organic producers in Ohio have been largely under-served historically by The Ohio State University. An initiative, the Organic Food and Farm Extension and Research Program (OFFER), has been started with state funding to lend science to the art of organic farming. The program must demonstrate a partnership between producers and scientists to compete for the funding.

Our programs, especially those impacting the Enhanced Economic Opportunities and Quality of Life goal, have been expanded to include members of traditionally under-represented audiences.

Under-represented and under-served audiences will be reached in goal five via targeted programs for limited resource audiences. These are people who have limited education and limited income sources. Examples of programs in Ohio would be Budget in a Box, Pathways to Money 2000+, SOARS- Seeking Opportunities and Reaching Success, Opportunity Closet, Shopping at Thrift Stores, Stretching Your Food Dollar, Women's Financial Information Program, Fathering Programs for Incarcerated Fathers, Parenting Programs for Single Parents, etc.

Resources that address these audiences would include our Better Living Series Factsheets, over 60 fact sheets for limited literacy clientele; Ledger System for Electronic Balance Transfer to be used in conjunction with the Food Stamp Debit Cards; LifeWorks Tear-Off Sheets for use with balancing work and family; Materials written in Spanish for the Hispanic audiences; Positive Parenting Newsletter; and the Family Life Month Packet.

We make our programs and resources open to all people and try to hold programs that are located in neighborhoods where people live and work. An effort is made to have meeting sites that are handicapped accessible.

The Ohio 4-H program will target limited resource families and ethnic minorities through the Cleveland and Dayton Metroparks program efforts. These program are being strategically located and specifically designed to attract and serve audiences which have historically been under-served within the 4-H program. In addition, volunteer recruitment and training programs such as Youth Starts With You will enable staff to recruit and educate adult volunteers from under-served populations and communities. Establishment of a volunteer base will in turn bring new opportunities for youth involvement in diverse communities. Within individual communities, local extension staff in 88 counties will continue to be involved in teen vehicular safety, juvenile diversion, school age child care, and other programs which reach under-served and diverse audiences.

The Community Development Program as part of its values and philosophy work to be all inclusive in creating community visions, plans and conducting action programs. The approach to community development is Jeffersonian in that attempts are made to value equally the input of all people regardless of their social economic, racial or gender status. While community leadership many times over represents specific strata, the Community Development through representation surveys another information work to bring about realistic picture of the needs of all people in the community in all community decisions.

Asset based approaches to community development are particularly appropriate for people who are often marginalized in the decision-making process. As a result, they often feel powerless to affect their future destiny and standard of living. Through the processes such as asset mapping and planning with these groups, a greater sense of autonomy and local control is developed. We will also teach how to access resources beyond the community to assist them in carrying out their community plan.

In the community economic development program workforce training efforts are identified, coordinated and conducted to assist in such programs as welfare-to-work and in assisting people to move up in the wage benefit hierarchy. Many firms with entry-level positions are beginning to supply additional training that will be essential as they become more valuable in the workplace. The community development and community economic development programs address the under-served in both rural and inner city areas. To assist and identify inner city needs to district specialists, urban program positions have recently been created and will work with agents in the major metropolitan areas in Ohio to develop specific programs for inner city under-served populations. These efforts will include all Extension resources appropriate to these audiences. An example of a current program underway is the SOL Project that provides leadership training and expands access to the Internet through placement of computers in public access areas in under-served communities.

## **VII. STATE CONTACTS**

### **Administration:**

Keith L. Smith  
Professor/Director  
Ohio State University Extension  
3 Agricultural Administration Building  
2120 Fyffe Road  
Columbus, OH 43210-1084  
Voice phone: 614-292-4067  
Fax phone : 614-688-3807  
Electronic mail: [Smith.150@osu.edu](mailto:Smith.150@osu.edu)

Lowell R. Nault  
Interim Director  
Ohio Agricultural Research & Dev. Center  
1680 Madison Avenue  
Wooster, OH 44691-4096  
Voice phone: 330-263-3703  
Fax phone : 330-263-3688  
Electronic mail: [OARDC@osu.edu](mailto:OARDC@osu.edu)

Barbara G. Ludwig  
Chair, Department of Extension  
Ohio State University Extension  
3 Agricultural Administration Building  
2120 Fyffe Road

Columbus, OH 43210-1084  
Voice phone: 614-292-4067  
Fax phone : 614-688-3807  
Electronic mail: [Ludwig.2@osu.edu](mailto:Ludwig.2@osu.edu)

**Allocated Resources:**

Linda G. Johnson  
Leader, Business Operations  
Ohio State University Extension  
4 Agr. Admin. Bldg.  
2120 Fyffe Road  
Columbus, OH 43210  
Voice phone: 614-292-2337  
Fax phone : 614-292-1240  
Electronic mail: [Johnson.56@osu.edu](mailto:Johnson.56@osu.edu)

Robert L. Oyer  
Senior Accountant, OARDC  
Ohio Agricultural Research & Dev. Center  
1680 Madison Avenue  
Wooster, OH 44691-4096  
Voice phone: 330-263-3700  
Fax phone : 330-263-3688  
Electronic mail: [Oyer.2@osu.edu](mailto:Oyer.2@osu.edu)

**Programs:**

Stephen R. Baertsche  
Asst Dir/Agriculture & Natural Resources  
Ohio State University Extension  
32 Agr. Admin. Building  
2120 Fyffe Road  
Columbus, OH 43210-1084  
Voice phone: 614-292-4077  
Fax phone: 614-292-3747  
Electronic mail: [Baertsche.1@osu.edu](mailto:Baertsche.1@osu.edu)

Marilyn A. Spiegel  
Asst Dir/Assoc Dean, FCS Administration  
Ohio State University Extension

342 Campbell Hall  
1787 Neil Avenue  
Columbus, OH 43210-1295  
Voice phone: 614-292-1655  
Fax phone : 614-688-4706  
Electronic mail: [Spiegel.1@osu.edu](mailto:Spiegel.1@osu.edu)

Jeffrey E. King  
Asst Director, 4-H Youth Dev.  
Ohio State University Extension  
25 Agr. Admin. Bldg.  
2120 Fyffe Road  
Columbus, OH 43210-1084  
Voice phone: 614-292-6996  
Fax phone : 614-292-5937  
Electronic mail: [King.20@osu.edu](mailto:King.20@osu.edu)

John D. Rohrer  
Asst Director, Community Development  
Ohio State University Extension  
700 Ackerman Road  
Suite 235  
Columbus, OH 43202-1578  
Voice phone: 614-292-8436  
Fax phone : 614-292-7341  
Electronic mail: [Rohrer.2@osu.edu](mailto:Rohrer.2@osu.edu)

Forest V. Muir  
Professor/Animal Sciences  
OARDC - Wooster  
105 Gerlaugh  
Wooster, OH 44691  
Voice phone: 330-263-3671  
Fax phone: 330-263-3688  
Electronic mail: [Muir.2@osu.edu](mailto:Muir.2@osu.edu)

**Program Development & Evaluation:**

Janet L. Henderson  
Assoc Professor/Leader, Program Dev & Evaluation  
Ohio State University Extension  
700 Ackerman Road  
Suite 240  
Columbus, OH 43202-1578  
Voice phone: 614-292-0179  
Fax phone: 614-292-7341  
Electronic mail: [Henderson.1@osu.edu](mailto:Henderson.1@osu.edu)

**Civil Rights:**

Gwen H. Wolford  
Asst Professor/Employee Development Network  
Ohio State University Extension  
115 Agr. Admin. Bldg.  
2120 Fyffe Road  
Columbus, OH 43210-1084  
Voice phone: 614-292-0877  
Fax phone : 614-292-5100  
Electronic mail: [Wolford.1@osu.edu](mailto:Wolford.1@osu.edu)

**Data:**

David A. Williamson  
Ext Assoc/Program Reporting Analyst  
Ohio State University Extension  
700 Ackerman Road  
Suite 240  
Columbus, OH 43202-1578  
Voice phone: 614-292-5089  
Fax phone: 614-292-7341  
Electronic mail: [Williamson.84@osu.edu](mailto:Williamson.84@osu.edu)

Forest V. Muir  
Professor  
OARDC - Wooster  
105 Gerlaugh  
Wooster, OH 44691  
Voice phone: 330-263-3671  
Fax phone: 330-263-3688

Electronic mail: [Muir.2@osu.edu](mailto:Muir.2@osu.edu)

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