



# **West Virginia State College**

## **Plan of Work 2005-2006**

Submitted under the Agricultural Research, Extension, and Education  
Reform Act of 1998 (AREERA)

1890 Research & Cooperative Extension Service

A handwritten signature in black ink, appearing to read "Orlando F. McMeans".

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Orlando F. McMeans, Ph.D.

**DEAN AND DIRECTOR  
Division of Agricultural, Consumer, Environmental, and Outreach Programs**

# Implementation of Plans of Work (POW) under the Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA)

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# I. INTRODUCTION

## A. Historical Background and Institutional Updates

West Virginia State College (WVSC) was fully reinstated as an 1890 Land-Grant Institution in November of 2001. WVSC began the development and implementation of research and extension programs in fiscal years 2000 and 2001. During these years, the College rebuilt its land-grant programs and increased its capacity. The Department of Land-Grant Programs was established on March 17, 2000, as the administrative and operational entity of the College, to deliver its land-grant mission related to the dissemination of research, teaching, and extension services. Fiscal year 2000 was a capacity building for the College, and more specifically, the Department of Land-Grant Programs. There were a number of areas and positions that were reintroduced to the College's 1890 Research and Cooperative Extension Programs. As a result, the reinstatement of land-grant status has positively influenced the College's educational agenda as it moves from a resident instruction institution to one with the additional functions of cooperative extension and cooperative research.

Due to the Department accelerated expansion, in terms of the number of programs and staff employed, its status was elevated to a Division within the College's organizational system, in 2002. The Division of Agricultural, Consumer, Environmental, and Outreach Programs (or ACEOP) is now fully operational and has already established reputable research, extension, and outreach programs within the state. As the College has transitioned into a campus inclusive of resident instruction, research, and extension, the State's Higher Education Policy Commission and Legislature have recently granted the institution university status. This change is very important because it represents an opportunity for the institution to expand its academic curricula (e.g. graduate programs) and to extend its reach as it relates to the delivery of research and extension programs within the state.

The mission of the Division of ACEOP (a.k.a. Land-Grant Programs) has remained unchanged:

*"To aid in the academic, technological, economic, and social advancement of the State of West Virginia by identifying resources and programs pertinent to the progression and dissemination of knowledge and services by way of research, teaching and extension."*

The specific goals proposed for the Division are:

1. Assist various organizations and the College by circulating grant information, as well as by identifying and obtaining funds necessary for the development and maintenance of land-grant programs

2. Coordinate the further expansion of extension and applied research programs, internal and external to the College
3. Work collaboratively with West Virginia University Extension and Agriculture and Natural Resource Development Center to build stronger and broader outreach programs in the areas of youth, family, workforce, community and economic development, and cooperative research
4. Promote and support the development of cutting-edge applied research and extension projects that are in-line with current state and national land-grant initiatives
5. Continue building partnerships with existing extension and research groups, businesses, institutions, as well as, local, state and federal agencies
6. Aid institutions of secondary and higher education in workforce preparation by increasing baccalaureate, post-baccalaureate, certificate, and employment opportunities for students in all academic disciplines.

## **B. Program Resources**

The fiscal annual support of slightly over \$1M for research and \$1M in formula funds for extension has been primarily invested as seed funds to establish cooperative research and cooperative extension infrastructure and programming efforts, since fiscal year 2000. These funds have thus far contributing to the reestablishment of the agricultural programs within the College. Other federal support such as facilities and capacity building programs has been essential in advancing the College's land-grant programs. The College, for the first time in its history, received state appropriated dollars to match 60% of its formula funding for FY 2004. This year, College administrators are again working on securing state appropriations and local funding to maintain and to further expand the reach of its Land-Grant Programs. As state appropriations and other funding are secured, the College has been capable of providing research and extension services to approximately 15 counties in the state.

## **C. Merit and Scientific Review**

The current merit review process used to conduct land-grant related research projects takes into account the recommended steps in the research CSREES administrative manual. All new and existing research projects are subjected to the following steps: (1) Submitted proposals are complete per the guidelines in the Administrative Manual, *Appendix F.*, (2) The proposal is relevant to society's food and agricultural needs, (3) The research proposals are scientifically sound, (4) Cooperative opportunities will be encouraged whenever possible, (5) Project leaders will be given ample opportunity to interact with reviewers in efforts to strengthen proposals, and (6) Documentation of compliance with these goals is kept on file and sent to CSREES upon request. Identified research stakeholders serve as advisors to evaluate the merit of research proposals.

Each year, during the months of March and April, all programs are subjected to a review process. The process includes an internal and external evaluation. An oral presentation at the WVSC Annual Research Symposium is a key component of the overall annual evaluation and it is required for land-grant sponsored researchers. Stakeholders identified by the procedures outlined below are invited to the Symposium. The internal evaluation consists of an Office and/or Departmental appraisal by the executive staff. Additionally, all participants in land-grant sponsored research critically assess the research of fellow colleagues for developmental purposes.

A research advisory panel conducts the external program evaluations. The research advisory panel consists of local scientists with a wide variety of backgrounds, business leaders and other appropriate stakeholders. The evaluations from these panels are utilized to help rank and allocate funds to specific land-grant programs. Evaluation assessing research productivity versus resources spent will be included in the ranking of continuing projects to facilitate funding decisions during the next budget year.

#### **D. Faculty Appointment Policy**

The College's Division of Land-Grant Programs (ACEOP) and the Academic Affairs Unit have developed an appointment system that allows faculty to participate in land-grant funded activities including research and extension or outreach programs. This appointment system also permits land-grant staff members to participate in the College's teaching activities, when required. The system operates on a mechanism designed to exchange appointment time between the Divisions of Land-Grant Programs and the academic Departments of the College.

#### **E. Stakeholder Input and Environmental Scanning**

Stakeholder input has been a critical process to the success of all efforts related to the establishment and development of 1890 Research and Cooperative Extension programs. The acquisition of input from stakeholders has been vital in the program development and implementation effectiveness. Stakeholders represent diverse backgrounds including research advisory committees, community groups, legislative committees, industrial affiliate and target audiences are of extreme importance. Equally important are the means by which inputs have been obtained. These include the conducting of town hall meetings, forums, and focus groups discussions.

Town hall meetings have proven essential to identify our community stakeholders and their needs. Extension personnel held a series of community forums and town hall meetings throughout the year in our servicing areas. Feedback from stakeholders has shown the need for programs that address high unemployment, illiteracy among adults, teen pregnancy, inadequate nutrition, lack of activities for children and youth after school and the digital divide. Programmatic efforts were directed toward these issues. Partnerships with community-based organizations have also been useful to retrieve information pertinent to the needs of our stakeholders. Faith based organizations such as the Partnership of African American Churches (PAAC) have been useful to affiliate

with a community development entity whose interests and accomplishments would support and further the mission of serving as a resource center and broker for the communities the College serves.

As it relates to 1890 Research Programs, stakeholders have been identified by several means: (1) Principal investigators of proposals must identify relevant WV stakeholders, (2) The research office staff canvas both WV industry officials and WV government agency representatives relevant to the proposal and select at least one of each to participate in the merit review of the proposed project, (3) The research office staff solicits public comment on proposed projects through media advertisements and open meetings, and (4) Finally, the Associate Director of Research constructs an advisory panel tailored to each proposal. The Associate Director of Research chairs the advisory panels, provide administrative support, including proposal evaluation instruments, and ensure that WVSC regulations regarding scientific validity and USDA regulations on merit review are followed.

WVSC Division of ACEOP is gradually expanding its presence in the State of West Virginia. The current Institution's strategy of expansion, as it relates to the delivery of its land-grant programs, is based on an environmental scan and needs assessment. Assessing the needs and strengths through our stakeholders allows our staff to identify those communities with the greatest needs within the state. Program Directors and Specialists design programs that are responsive to these needs. Extension Agents and Extension Associates, in turn, deliver educational programs that address the challenges and needs faced by our target stakeholders and the communities we serve.

## II. IMPLEMENTATION OF PLANS OF WORK

### A. 1890 Research Programs

**GOAL 1.** *An agricultural system that is highly competitive in the global economy. Through research and education, empower the agricultural system with knowledge that will improve competitiveness in domestic production, processing, and marketing*

#### Research Program 1.1 “Agricultural Biotechnology”

##### Statement of Issues

Agriculture has evolved rapidly as a key industry in the U.S. over the last 50 years. Biotechnology is a major reason for improvements in plant and animal nutritional value, disease and pest resistance, growth efficiency, and production levels. Understanding the growth, development, and reproductive processes of plants and animals provides a basis for production recommendations and possible genetic modifications to improve desired traits. Unveiling the mechanisms that enhance pathogenic and insect resistance in plants and animals can provide alternative solutions to pest problems.

##### Performance Goals

1. Investigate the compounds and mechanisms associated with plant and animal growth, development, reproduction, and disease resistance
2. Propose the mechanisms to manipulate these processes and compounds to enhance production

##### Output Indicators

1. Volume of new information concerning the regulation of cytokinin metabolism
2. Number of tools developed important for future investigations of plant and animal metabolic processes
3. Number of presentations and publications

##### Outcome Indicators

1. New programs involving the genetic and chemical manipulation of metabolism that enhance yield and improve growth characteristics of crop plants and animal production
2. Development of strategies for the efficient regeneration of plants from cells of food legumes and other plants that have been difficult to manipulate in tissue culture

##### Key Program Components

1. Investigate the regulatory mechanisms controlling plant and animal growth, development, reproduction, and pest and pathogen resistance



### **Internal and External Linkages**

1. Collaborations with WVSC researchers
2. Partnerships with state and federal laboratories and other universities
3. Collaborations with domestic and international businesses

### **Target Audiences**

1. Biotechnologists
2. Agronomists and horticulturists
3. Plant and animal production industries

### **Program Duration**

This program will continue for the two-year life of this plan.

**Allocated Resources** - \$512,500 Federal Formula; State Match; and Other

## **Research Program 1.2 “Diversified/Alternative Agriculture”**

### **Statement of Issues**

Alternative agriculture products and practices, such as organic farming and exotic plant and animal production, are becoming an important component in North American agriculture. Due to the expansion and domination of large agribusiness corporations, small farms are unable to remain competitive in both traditional crop production and marketing. However, alternative approaches to growing traditional crops and the production of new or exotic species not currently grown on a large-scale commercial basis in the USA can provide a greater return on small farms investment compared to traditional products and practices. In areas such as southern West Virginia, with economic instability due to the transition from an industrial and forestry based economy to a service and technology based economy, income from small farms could provide an important source of income for landowners in these regions. An alternative to conventional crops and practices will help develop new and niche markets for plants and animals in high demand but limited supply. Other potential areas of alternative production include organic farming, ornamental and herb production, holistic plant production, and hydroponic plant production.

### **Performance Goals**

1. Increase the presence and awareness of alternative agriculture practices and products in southern West Virginia
2. Obtain an agricultural research and extension center (AREC) for south central West Virginia for farm scale production and experimentation
3. Evaluate and determine proper product selection, management practices, and marketing of selected alternative agriculture products in southern West Virginia
4. Identify marketing strategies to maximize profitability
5. Evaluate management practices and production used in West Virginia alternative agriculture and make recommendations to improve current production

### **Output Indicators**

1. Number of new alternative agricultural options
2. Number of profitable production practices

3. Number of stakeholder visits to the new AREC
4. Number of new quality alternative agriculture products
5. Volume of marketable products available at a premium price
6. Number of presentations and publications

### **Outcome Indicators**

1. Increased production of alternative agriculture products in southern West Virginia
2. Increased knowledge of alternative products and markets
3. Increased profitability of small farms engaged in alternative agriculture
4. Expansion of the market for alternative agriculture products in the region
5. Better understanding of the role small farms can play in rural economies
6. Increased knowledge of the environmental impact of alternative agriculture

### **Key Program Components**

1. Develop recommendations for use of specific products in the region
2. Develop guidelines for best management practices
3. Cooperation with local small organic, alternative and conventional farmers
4. Develop an economic model of a profitable small farm with regards to product and species selection, management practice, and marketing strategy
5. Increase the presence of West Virginia State College in the field of production agriculture by obtaining an AREC in south central West Virginia
6. Evaluation of the levels of nitrogen and phosphorus in agriculture waste water and methods to reduce those levels
7. Determination of markets for products currently grown and products that could potentially be grown in West Virginia
8. Determine the feasibility of using agricultural and municipal waste as a nutrient management technique to reduce costs in agriculture

### **Internal and External Linkages**

1. Small farmers in southern West Virginia
2. WVSC researchers and extension specialists
3. WVU extension service
4. West Virginia Department of Agriculture
5. USDA
6. Colleges and universities conducting diversified/alternative agriculture research
7. Partnerships with state and federal laboratories
8. Collaborations with domestic and international businesses

### **Target Audiences**

1. Small farmers in southern West Virginia
2. West Virginia Nursery and Landscape Association
3. West Virginia Herb Association
4. Mountain State Organic Growers and Buyers Association
5. Individuals interested in establishing alternative agriculture enterprises
6. Agricultural and municipal waste generators

## **Program Duration**

This research will continue for the two-year life of this plan.

**Allocated Resources** - \$392,250 Federal Formula; State Match; and Other

## **Research Program 1.3 “Aquaculture”**

### **Statement of Issues**

Aquaculture is the farming of aquatic organisms (e.g., fish, shellfish, crustacea, aquatic plants, etc.) in natural, controlled marine, or freshwater environments. Aquaculture has recently developed into the fastest growing segment of agriculture in the United States. Over 100 different aquatic species are grown in the U.S. and there is growing demand for domestically produced aquaculture products. Catfish production is the most important sector of the U.S. industry, valued at around \$417 million in 1996. Other important aquaculture species grown for food in the United States are salmon, trout, tilapia, shrimp, oysters, and crawfish.

Seafood imports are the largest contributor to the U.S. trade deficit among agricultural products and second largest, after petroleum, among all imported natural resources. In 1995, about \$6.7 billion worth of seafood was imported into the U.S., of which \$2.7 billion can be attributed to the importation of shrimp, alone. During this same time, the U.S. exported \$3.1 billion worth of seafood, with finfish, mainly salmon, making up 65% of exports.

Today, aquaculture accounts for around 15% of total worldwide production of fish and seafood with 20 million tons of edible seafood coming from fish farmers. According to the World Aquaculture Association, aquaculture will have to play an increasingly important role in meeting the global demand for fisheries products as the world population continues to expand and fisheries stocks approach their biological limits. The availability of freshwater and the proximity to large population bases, along with the increased demand for fresh fish, make aquaculture a promising agriculture industry in West Virginia

### **Performance Goals**

1. Increase the presence and awareness of aquaculture practices and products in southern West Virginia
2. Evaluate and determine proper species selection, management practices, and marketing of selected aquaculture products in southern West Virginia
3. Identify marketing strategies to maximize profitability
4. Evaluate feeding practices and ration formulation and ingredients used in West Virginia aquaculture and make recommendations to improve current production
5. Evaluate methods of minimizing the impacts of aquaculture production on nearby watersheds

### **Output Indicators**

1. Number of new aquaculture options
2. Number of profitable aquaculture production practices
3. Number of new quality aquaculture products
4. Volume of marketable aquaculture products available at a premium price
5. Number of presentations and publications

### **Outcome Indicators**

1. Increased production of aquaculture products in southern West Virginia
2. Increased knowledge of aquaculture products and markets
3. Increased profitability of small farms engaged in aquaculture
4. Expansion of the market for aquaculture products in the region
5. Better understanding of the role small farms can play in rural economies
6. Increased knowledge of the environmental impact of aquaculture
7. Lower feed costs for aquaculture operations

### **Key Program Components**

1. Develop recommendations for use of specific species in the region
2. Develop guidelines for best management practices
3. Cooperation with local small aquaculture farmers
4. Develop an economic model of a profitable small farm with regards to product and species selection, management practice, and marketing strategy
5. Increase the presence of West Virginia State College in the field of production aquaculture
6. Evaluation of the levels of nitrogen and phosphorus in aquaculture waste water and methods to reduce those levels
7. Determination of markets for species currently grown and species that could potentially be grown in West Virginia
8. Determine the feasibility of using agricultural and municipal waste as a feed source to reduce costs in aquaculture

### **Internal and External Linkages**

1. Small farmers in southern West Virginia
2. National Aquaculture Association
3. Mountain Aquaculture and Producers Association
4. U.S. Trout Farmers Association
5. Alternative Aquaculture Association
6. American Feed Industry Association
7. WVSC researchers and extension specialists
8. Dr. Julie Delabbio, Bluefield State College
9. WVU extension service
10. West Virginia Department of Agriculture
11. USDA
12. Colleges and universities conducting aquaculture research
13. Partnerships with state and federal laboratories
14. Collaborations with domestic and international businesses

### **Target Audiences**

1. Aquaculture industry
2. Small farmers in southern West Virginia
3. Individuals interested in establishing aquaculture enterprises

#### 4. Agricultural and municipal waste generators

##### **Program Duration**

This program will continue for the two-year life of this plan.

**Allocated Resources** – \$512,500 Federal Formula; State Match; and Other

### **Research Program 1.4 “Plant Genomics”**

#### **Statement of Issues**

Greenhouse vegetable production is a major industry in the United States. Development of superior cultivars is a never-ending quest. The initial focus will be on greenhouse tomato cultivar development.

North American greenhouse tomato consumption has increased 90%. In the US, greenhouse tomatoes now represent 10% of the total tomato production and many industry experts expect it to increase to 30-40%. Part of this increased production could reduce our imports from other countries. In the four-year period from 1993 to 1997, the percentage of greenhouse tomato imports increased 692% from Canada and 379% from the Netherlands.

Greenhouse production of hydroponic tomatoes is best with varieties bred for that purpose. Field varieties are used in some locations, but their determinate plant growth habit makes them difficult to preserve over extended growing seasons and they require higher light and lower humidity than greenhouse varieties. In addition, the controlled environmental conditions of greenhouse hydroponic production generate higher yields from the greenhouse varieties than the field varieties. Currently, most of the varieties used in greenhouse hydroponic tomato production are bred for northern European conditions and palate. Even though these plants are grown in North American greenhouses, the European environment selects for plants with a lower light requirement in the winter and a more moderate temperature year round than is found in North America. Thus, while these varieties can produce a crop under our conditions, they are not selected for the North American greenhouse environment or our consumer needs.

In production, good management practices and variety choice can limit most insect and diseases problems, except white fly and late blight. White flies are difficult to eliminate with chemical or biological methods. However, germplasm with a broad-spectrum insect resistance is being developed at Cornell University that would allow development of varieties with resistance to the majority of pests in the tomato crop, including white fly. The other increasingly significant problem in tomato production is late blight caused by *Phytophthora infestans*. Useful sources of resistance have been identified and transferring of the resistance from two sources to cultivated tomato has been accomplished. Field-testing of the late blight resistant material has been done and current work is developing molecular markers to assist in selection for the resistance genes in breeding programs. The goal of this project is to identify promising varieties and develop germplasm to use in hydroponic greenhouse beefsteak tomato production. The tomato varieties developed will assist West Virginia and the southern greenhouse tomato producers to increase

their competitive edge in production of tomatoes that require fewer pesticides and are adapted to the North American climate.

### **Performance Goals**

1. Investigate the compounds and mechanisms associated with insect and disease resistance, heat tolerance and organoleptic or sensory traits in greenhouse tomato and other vegetable production.
2. Develop a greenhouse beefsteak tomato variety for southern greenhouse tomato producers

### **Output Indicators**

1. Survey existing vegetable varieties for promising traits related to insect and disease resistance, heat tolerance and organoleptic qualities
2. Volume of new information concerning greenhouse vegetable insect and disease resistance, heat tolerance and organoleptic or sensory qualities
3. Number of presentations and publications

### **Outcome Indicators**

1. New programs involving the genetic and chemical manipulation of vegetable germplasm that enhance yield and improve growth characteristics of greenhouse vegetable production
2. Development of strategies for the efficient transfer and/or integration of traits into promising vegetable lines.
3. Release of new greenhouse vegetable cultivars

### **Key Program Components**

1. Investigate the sources of disease resistance in greenhouse cultivars and germplasm for use in greenhouse vegetable production
2. Identify greenhouse cultivars with genomic regions responsible for insect resistance to speed in the transfer of these traits into greenhouse cultivars
3. Assay fruit quality characters in the greenhouse cultivars and germplasm to select promising cultivars for stakeholders and consumers
4. Test potential releases with stakeholders

### **Internal and External Linkages**

1. Consumers
2. Small farmers in southern West Virginia
3. WVSC researchers and extension specialists
4. West Virginia Department of Agriculture
5. Cornell University
6. North Carolina State University
7. Colleges and universities conducting horticultural research
8. Tomato Genetics Cooperative
9. USDA
10. Partnerships with state and federal laboratories
11. Collaborations with domestic and international businesses

### **Target Audiences**

1. Greenhouse industry
2. Individuals interested in establishing a greenhouse business
3. Horticulturists

### **Program Duration**

This program will continue for the two-year life of this plan.

**Allocated Resources** - \$312,500 Federal Formula; State Match; and Other

**GOAL 2. *A safe and secure food and fiber system to ensure an adequate food and fiber supply and food safety through improved science based detection, surveillance, prevention, and education***

### **Research Program 2.1 “Plant and Animal Pathology”**

#### **Statement of Issues**

Citizens of West Virginia and the United States demand a plentiful supply of safe foods and other products, available at low cost. Fungal, bacterial, and viral diseases, as well as insect and nematode invasion, associated with plant and animal production reduce the quality and yield of food products and increase the cost to producers and consumers. Some methods used to fight and prevent these diseases include treatment with chemical compounds, selection and breeding of resistant breeds and varieties, and management practices, such as crop rotation and improved pasture management. In recent years, biotechnology has allowed researchers to develop new varieties of crops resistant to specific diseases. Researchers are currently studying the effectiveness of synthetic forms of naturally occurring compounds, which can kill disease causing fungus and bacteria. Early detection of plant stress, insects, and bacterial or viral infection can help minimize crop loss and expenses involved in treating infected areas. On-site and remote detection of pathogens in early stages of infection or infestation could prove valuable for both small and large growers. By controlling pathogens in early stages, growers could reduce the cost of treating infected plants or even prevent infections from developing.

#### **Performance Goals**

1. Improve animal performance and plant quality and yield by minimizing the occurrence and effects of pathogenic organisms

#### **Output Indicators**

1. Volume of crop yield and better product quality resulting from healthier plants
2. Improved animal performance
3. Number of new varieties and breeds resistant to pathogens
4. Practices used to prevent and control pathogens
5. Improved methods for pathogen detection in early stages
6. Number of presentations and publications

### **Outcome Indicators**

1. Increased supply of targeted foods and staples
2. Reduced production cost
3. Lower cost products

### **Key Program Components**

1. Evaluation of management practices to prevent and control plant and animal pathogens
2. Evaluation of new breeds and varieties resistant to pathogenic organisms
3. Evaluation of the proper use of new compounds to reduce and eliminate pathogens

### **Internal and External Linkages**

1. West Virginia growers and farmers
2. WVSC researchers and extension agents
3. Private companies that produce chemical controls or disease resistant varieties of crops
4. West Virginia Department of Agriculture
5. Colleges and universities conducting pathology research
6. USDA
7. Partnerships with state and federal laboratories

### **Targeted Audiences**

1. Consumers
2. Growers and farmers
3. Agribusiness and biotechnology industries

### **Program Duration**

This research will continue for the two-year life of this plan.

**Allocated Resources** - \$376,500 Federal Formula; State Match; and Other

## **Research Program 2.2 “Food Quality and Safety”**

### **Statement of Issues**

Producers, processors, and consumers of food products in the United States have become increasingly aware of food safety issues over the past decade. Federal regulations such as HACCP have been implemented to ensure a safer supply of food from producers and processors. Consumers have more access than ever to safe storage and preparation information through product labeling, media coverage, and other sources such as the Internet. Despite these factors, millions of food related illnesses are documented every year. These illnesses can be attributed to microbial contaminants. The food may be contaminated during production, processing, storage, or preparation. New technology to detect microbial contaminants, such as *E. coli* and *Salmonella*, can help to reduce contamination during production and processing and lower the risk for food related illness. Adequate training and monitoring of food producers, processors, consumers, and food service personnel is also needed to ensure appropriate methods are used to reduce the risk of microbial contamination.



### **Performance Goals**

1. Increase knowledge of food safety regulations and safe practices to producers, processors, inspectors, food service personal, and consumers
2. Reduce the presence of microbes and pharmaceuticals in food products from production through processing

### **Output Indicators**

1. Number of new methodologies developed to reduce the presence of microbes and pharmaceuticals in food products from production to processing
2. Number of presentations and publications

### **Outcome Indicators**

1. Increased awareness of food safety regulations and implementation from production through processing
2. Increased knowledge of safe practices for food preparation and storage
3. Reduced presence of microbes and pharmaceuticals in food production through processing
4. Decrease in the number of food-borne illnesses

### **Key Program Components**

1. Develop surveys to monitor the implementation of safe food practices from the producer to the consumer
2. Establish the fate of microbes and pharmaceuticals in livestock residuals, compost, biosolids and liquids utilized as alternative fertilizers for crop production.

### **Internal and External Linkages**

1. WVSC Research and Extension
2. WV Department of Health and Human Resources
3. WV Department of Natural Resources
4. US Department of Fish and Wildlife
5. VPI Research and Extension
6. WVU Research and Extension
7. Colleges and universities conducting food safety research
8. Partnerships with state and federal laboratories
9. Collaborations with domestic and international businesses

### **Target Audiences**

1. Consumers
2. Livestock industry
3. Food service industry
4. Food processing industry

### **Program Duration**

This research will continue for the two-year life of this plan.

**Allocated Resources** - \$327,500 Federal Formula; State Match; and Other

**GOAL 3.** *A healthy, well-nourished population, through research and education on nutrition and development of more nutritious foods, enable people to make health-promoting choices*

**Research Program 3.1** “Human Health and Nutrition”

**Statement of Issues**

Chronic diseases, such as cancer, osteoporosis, diabetes, hypertension, heart disease and obesity, are known to be related to diet. West Virginia consistently ranks worse than the nation with regard to many of these chronic diseases. Heart disease is the leading cause of death in West Virginia and stroke is the third leading cause of death. Together they account for approximately 40 percent of all deaths, according to a 1998 report by the Bureau for Public Health, West Virginia Department of Health and Human Resources. Preventing chronic disease, as well as treating it, may be accomplished through the adoption of healthy behaviors. Improved nutrition practices are one aspect of health promotion. Adequate physical activity, management of blood cholesterol, blood sugar levels, and blood pressure, cessation of tobacco use; and moderation in the use of alcohol are also associated with good health.

One of the most debilitating medical conditions facing West Virginians is obesity. The state ranks third with regard to the prevalence of obesity, as documented through state-level monitoring by the Centers for Disease Prevention and Control’s (CDC) Behavioral Risk Factor Surveillance System (BRFSS) in 2002. In 1990, West Virginia’s rate of adult obesity was 15%, compared with the U.S. rate of 11.6%. By 2001, the state rate was 24.6% percent compared with 20.9% nationally. While the obesity rate has increased in virtually all of West Virginia, the highest prevalence can be found in the southern and western portions of the state, as well as the Eastern Panhandle.

**Performance Goal**

1. Identify perceptions of dieting and weight management in the state of WV
2. Measure awareness of the relationship between nutrition and chronic disease management
3. Identify key points of health and nutrition education not being addressed in WV
4. Identify barriers to effective patient/physician communication regarding health care decisions

**Output Indicators**

1. Number of surveys completed
2. Number of publications

**Outcome Indicators**

1. Identification of baseline data for health and nutrition issues in WV to aid in the development of extension programs

**Key Program Components**

1. Develop surveys to evaluate existing health and nutrition education programs and assess current perceptions in West Virginia

2. Develop assessment of Patient/Physician Communication to identify barriers

### **Internal and External Linkages**

1. Community based organizations
2. Social service agencies
3. WVU Extension service

### **Target Audiences**

1. Individuals and Families in WV
2. Public and Private groups currently working with nutrition education programs
3. Seniors
4. Schools
5. Faith-based organizations

### **Program Duration**

The programs to be developed will continue for the two-year life of this plan  
Allocated Resources - \$352,500 Federal Formula; State Match; and Other

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

### **Research and Extension Program 4.1 “Natural Resource Management”**

#### **Statement of Issues**

Our natural resources, land, air and water, are at risk for contamination due to human activities such as mining, industry, coal fired power utilities, and agriculture. The environment in West Virginia is an important economic resource for the state. Many communities are dependent on the states growing tourism industry. A productive environment requires a healthy population of plants to prevent excess erosion and sedimentation and to provide shade for aquatic plants and animals. Invasive species, land, air and water pollution, climate change, and human activities, such as excess logging and road construction threaten the health and sustainability of the natural environment. Research at West Virginia State College addresses the effect of current threats to the states natural resources and provides solutions to maintaining a healthy ecosystem.

Metal contamination of water sources in the environment is an issue receiving intense, worldwide attention. Due to ever-increasing demand for water, it is important to remediate contaminated waters to maintain an adequate, safe water supply, not only for human activity, but also for the maintenance of the biodiversity of the planet.

Industrial activity in the past century has resulted in a 50% increase in atmospheric carbon dioxide (CO<sub>2</sub>). Carbon dioxide can be converted into methane or methanol, having a two-fold result: (1) minimizing environmentally damaging chemicals and (2) creating new energy sources.

However, due to the high over-potential needed, carbon dioxide reduction via electrochemical methods is not cost effective. An alternative is to model systems after nature's efficient photosynthetic pathways to circumvent this problem.

### **Performance Goals**

1. Assessment of the effects of invasive species, pollution, climate change, and human activity on the growth and reproduction of native and exotic species found in southern West Virginia
2. Develop metal-ion binding technology for use in remediation of waters contaminated with heavy metals
3. Identify and quantify the metal pollutants in water
4. Assess metal-ion binding technology in remediation of waters contaminated with heavy metals
5. Produce a photo-initiated, supra-molecular, heterogeneous catalyst that will reduce carbon dioxide to a useful fuel source such as methane or methanol
6. Assess photo-initiated, supra-molecular, heterogeneous catalysts technology for its capacity to sequester carbon dioxide
7. Develop better remediation methods, which will result in better land, air and water quality

### **Output Indicators**

1. Number of new methods to prevent and control threats to the natural resources in West Virginia
2. Number of alternative methods of environmental remediation
3. Number of presentations and publications

### **Outcome Indicators**

1. Increased awareness of the effects of current and potential threats to West Virginia natural resources
2. Increased awareness among natural resource managers regarding practices which emphasize maintaining and restoring biodiversity and ecosystems
3. Improved land, air, and water quality
4. Development of novel types of environmental remediation
5. Increased knowledge of water-soluble phosphine functionalized silica gels
6. Reduced cost of metal remediation in water
7. Increased knowledge of how photo-initiated, supra-molecular, heterogeneous catalysts work
8. Increased sequestration of carbon dioxide to reduce global warming and climate change

### **Key Program Components**

1. Determine the effects of invasive species competition and/or toxicity on native and exotic species typically found in West Virginia
2. Determine the effects of industrial air, soil, and water pollution on the sustainability of species found in the area
3. Development of new methods to sequester metal contaminants in water
4. Assessment of new methods to remediate metal contaminated water

5. Development of photo-initiated, supra-molecular, heterogeneous catalysts to convert carbon dioxide to a useable fuel source
6. Assessment of the photo-initiated, supra-molecular, heterogeneous catalyst technology to produce fuel from carbon dioxide

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

1. Consumers
2. WVSC researchers and extension specialists
3. WVU
4. WV Department of Environmental Protection
5. Virginia Polytechnic Institute and State University
6. Colleges and universities conducting natural resource research
7. US Department of Energy
8. US Environmental Protection Agency
9. Watershed groups, coal companies and chemical companies
10. Partnerships with state and federal labs
11. Collaborations with domestic and international businesses

#### **Target Audiences**

1. Foresters and timber operations
2. Conservation groups
3. Watershed groups
4. Coal mining companies
5. Power generation utilities
6. Chemical manufacturers
7. Environmental regulators

#### **Program Duration**

This research will continue for the two-year life of this plan.

**Allocated Resources** - \$706,630 Federal Formula; State Match; and Other

### **Research and Extension Program 4.2 “Agricultural Waste Management”**

#### **Statement of Issues**

Increasing production of agricultural waste associated with farming activities impacts health, economic and environmental welfare. In 2002, there were 89.7 million broilers (chickens) produced in West Virginia, with a value of over \$107 million. Over 100,000 tons of manure was associated with this production. Nationally, 40 billion pounds of broilers were produced with over 14 million tons of associated litter and manure. The management of this manure is a serious issue. This animal waste is a rich source of nutrients and unfortunately, human pathogens. Thus, to minimize deleterious impacts to both the health of farms associated communities and the environmental quality of watersheds, livestock farmers need economically viable alternatives to current manure management practices.

As domestic livestock agriculture increases to meet global demands, new strategies must be developed to handle associated waste that can be harmful to soil, water, and air, as well as nearby biotic resources. Microbial degradation of these wastes can be used to alleviate their detrimental effects, and simultaneously produce agriculturally beneficial products. Bioreactors that utilize anaerobic microbial digestion to convert wastes into useable energy, in the form of methane gas, fertilizer, and feed products, may be a feasible option. West Virginia agriculture, especially integrated poultry producers, must have access to knowledge and technologies that eliminate pollution and concomitantly enhance competitiveness.

### **Performance Goals**

1. Utilize the pilot plant digester to develop feedback control on feed and mixing frequency while monitoring pH, temperature, and biogas production along with assessment of both mass and energy balance of the process
2. Monitoring the loss of viability of pathogens in livestock residuals during anaerobic digestion
3. Formulating aquaculture feeds from digested poultry litter
4. Linking microbial community structure to function in thermophilic anaerobic digesters with the aim of understanding the linkages between microbial community diversity, community metabolism and methanogenic reactor design
5. Evaluating digester effluent as an organic fertilizer and developing crop production systems
6. Commercialization and outreach of anaerobic digester technology

### **Output Indicators**

1. Increased awareness of the livestock residual problem
2. Cultivate novel methods of animal waste utilization
3. Link the composition of microbial communities to the degradation capabilities of those communities regarding animal and other waste products
4. Develop an agricultural research and extension center (AREC) for south central West Virginia for farm scale production and experimentation
5. Number of presentations and publications

### **Outcome Indicators**

1. Development of more effective process control technology for anaerobic digestion
2. Increased knowledge of anaerobic digester technology
3. Reduce water and air pollution in the management of livestock residuals
4. Reduced pathogens and inorganic nutrient loads in watersheds impacted by livestock residuals
5. Increased knowledge of pathogenic organisms
6. Increased efficiency of microbial degradation of livestock residuals
7. Defining bioreactor genomics and community structure
8. Increased use of microbial protein in aquaculture feed
9. Defining a nutrient management strategy for land application of solids and liquids from anaerobic digestion
10. Assessing the value of digested solids as a substrate for commercial mushroom production

11. Evaluate the potential of digested liquids as an alternative fertilizer for hydroponic crop production
12. Develop a ranked list of potential regional digester sites based on the distribution of livestock producers and the associated waste
13. Transfer of technology will be developed to facilitate decisions on when and what type of digester technology is appropriate for the management of livestock residuals in a given situation

### **Key Program Components**

1. Developing valued-added technologies by assessing value of microbial degraded waste
2. Assessment of microbe community structure in relation to that communities ability to breakdown certain waste products
3. Assessment of the possibilities of manipulating microbial communities in order to more efficiently breakdown waste products
4. Assessment of the use of microbes to eliminate pathogenic organisms from waste products
5. Develop a survey to identify all factors that should go into an economic model for a regional anaerobic digester

### **Internal and External Linkages**

1. Farmers in West Virginia
2. WVSC researchers and extension specialists
3. WVU extension service
4. West Virginia Department of Agriculture
5. USDA
6. Colleges and universities conducting agricultural waste management research
7. Partnerships with state and federal laboratories
8. Collaborations with domestic and international businesses

### **Target Audiences**

1. Livestock producers including poultry
2. Animal waste disposal industry
3. Agricultural researchers, farmers, extension agents, and businesses
4. Microbiology researchers
5. Parasitology researchers
6. Individuals interested in establishing alternative agriculture enterprises
7. Agricultural and municipal waste generators

### **Program Duration**

This research will continue for the two-year life of this plan.

**Allocated Resources** - \$1,647,500 Federal Formula; State Match; and Other

**GOAL 5. *Enhanced economic opportunity and quality of life for Americans. Empower people and communities, through research-based information and education, to address economic and social challenges facing our youth, families, and communities***

**Research Program 5.1 “Regional Economic Forecasting”**

**Statement of Issue**

The use of economic indicators, and the systems and models capable of producing them are very important to economic and social research because they permit qualitative and quantitative measurements. These measurements evaluate (with different degree of accuracy) the environmental circumstances that prevail in a particular location at a point in time. Thus these tools are important because they allow scientists to predict and to observe patterns or tendencies which in turn allow responsible entities to correct or prevent undesirable and adverse circumstances. When these aforementioned tools are applied within a regional framework, they can prove extremely useful to organizations such as local governments and universities because those entities have a significant influence on its regional environments. West Virginia State College has been using these models and indicators to assist in the design and implementation of research and extension programs so they can be responsive and effective in solving the state’s critical needs.

**Performance Goals**

Improvement in the design and delivery of research and extension programs

**Output Indicators**

1. Number of models and economic indicators generated
2. Number of programs utilizing these models and its indicators

**Outcome Indicators**

1. Increased usage of models and economic indicators among faculty and staff
2. Significant improvement in the design and delivery of research and extension programs

**Key Program Components**

1. Faculty and staff workshops for the design and use of these models and their indicators
2. Guests lectures and training sessions from experts on this field on campus

**Internal and External Linkages**

1. Research and Extension Offices
2. Local Governments
3. Community Organizations

**Target Audiences**

Local Communities, Local Governments, Faith-based Organizations, Colleges and Universities

**Program Duration**

This research will continue for the two-year life of this plan.

**Allocated Resources** - \$335,017 Federal Formula; State Match; and Other



## B. Cooperative Extension Programs

**GOAL 1.** *An agricultural system that is highly competitive in the global economy. Through research and education, empower the agricultural system with knowledge that will improve competitiveness in domestic production, processing, and marketing.*

### **Extension Program 1.1** "Alternative Agriculture Extension and Education"

#### **Statement of Issues:**

West Virginia's small-scale agricultural operations need additional sources of income to increase their profitability. There are sustainable niche markets for organic food producers that are not being utilized in West Virginia. There are also many opportunities to use value-added practices to increase a producer's market share of the final sale price. Some value-added practices that have been found to be profitable in West Virginia have been apple cider production, grass fed livestock, and organic crops. West Virginia has a need for more local markets and more producer collaborations with specialty restaurants for greater profitability.

#### **Performance Goals:**

Transfer information gained from research, conducted in alternative agriculture areas, to people interested in growing and marketing alternative crops, especially small farmers and gardeners.

#### **Output Indicators:**

1. Number workshops and demonstrations
2. Number of producers aware of alternative agriculture options
3. Number of individuals involved in alternative agriculture in West Virginia
4. Number of publications and packets

#### **Outcome Indicators:**

1. Increased quantity of alternative agriculture practices
2. Increased knowledge base in alternative agriculture opportunities
3. Increased profit margins
4. Development of established markets for alternative agriculture enterprises
5. Increased profitability of alternative agriculture producers

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

1. Develop a comprehensive scope of work for training sessions and workshops in the area of alternative agriculture
2. Provide a stable market for alternative agriculture
3. Attend alternative agriculture training seminars to provide the most current information for agriculture producers and residence
4. Increase the presence of West Virginia State College in the alternative agriculture research and extension arena.

**Internal and External Linkages:**

1. West Virginia University Extension
2. Farm Bureau Chapters
3. Boards of Education
4. United States Department of Agriculture
5. West Virginia State College 1890 Research
6. West Virginia Department of Agriculture
7. West Virginia Development Office
8. Chambers of Commerce
9. County Commissions

**Target Audiences:**

1. West Virginia land owners
2. West Virginia agricultural producers and entrepreneurs

**Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$327,500 Federal Formula; State Match and Other

**Extension Program 1.2 "The Expansion of Residential Horticulture Activities in West Virginia"****Statement of Issues**

Home horticulture is one of the major pastimes for many homeowners across the nation. Interests in horticulture vary from vegetable gardening and fruit production to landscape architecture and turf management. In West Virginia, the interest in horticulture related activities has increased in the last decade. Home landscape beautification and vegetable gardening are at the center of this heightened resurgence of interest in horticulture. Commercial growers in the areas of greenhouse and nursery management, turf maintenance, and fruit and vegetable production are seeking marketing and production related advice in order to satisfy consumer needs. Some of the projects that are the most often asked about are the identification and/or eradication of plants and pests, the growing cycles of plants, plant maintenance, and alternative gardening techniques. There are many types of gardens in West Virginia. Some are traditional soil gardens, then there are greenhouses, hydroponics, and the latest trend in gardening are the water gardens. All of these gardens are very beneficial to the producer and the environment. Plant maintenance is also very important to the majority of homeowners. Some forms of plant maintenance are mulching, pruning, watering, and weeding. Residential agriculture is much more of an aesthetically pleasing form of agriculture and there are a much greater variety of alternatives to use when participating in residential agriculture.

**Performance Goals:**

Increase the presence, activity and interest in residential horticulture in the College's service areas.

**Output Indicators:**

1. Number of participants at workshops and demonstrations
2. Number of residents contacted
3. Number of individuals involved in agricultural practices
4. Number of publications and packets

**Outcome Indicators:**

1. Increased quantity of residential agriculture being performed
2. Increased knowledge base in agriculture
3. Increased opportunity for new interests in agriculture

**Key Program Components:**

1. Develop a comprehensive plan of work for training sessions and workshops in the area of residential agriculture
2. Provide information to residents
3. Residents attend residential agriculture training seminars to increase up to date information
4. Increase the presence of West Virginia State College in the residential agriculture research and extension arena

**Internal and External Linkages:**

1. West Virginia University Extension
2. Farm Bureau Chapters
3. Boards of Education
4. United States Department of Agriculture
5. West Virginia State College 1890 Research
6. West Virginia Department of Agriculture
7. Master Gardeners

**Target Audiences:**

1. West Virginia land owners
2. West Virginia residents

**Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$285,000 Federal Formula; State Match; and Other

**Extension Program 1.3 “Production Agriculture Education”****Statement of Issues:**

Production agriculture continues to play an important role in West Virginia’s economy. Livestock operations require the management of nutrition plans, efficiency efforts, marketing strategies, and wellness plans. It is growing harder with every day to keep production agriculture profitable. West Virginia producers are going to have to adopt some new forms of production agriculture managerial techniques to remain profitable in the future. Nutrition plans will increase

rate of gain in livestock operations and reduce excess expenditures towards feed and hay. Creating more economical paths to production is vital, such as, increasing water availability to productively spread nitrates from waste material evenly throughout a pasture, converting to a ten month grazing cycle instead of a traditional nine month cycle, and creating paddocks within a pasture to increase forage growth and utilization. West Virginia needs the creation of specialized markets, such as calf pools, for an increase in market price for local producers. Wellness plans are the key to profitability in production agriculture because livestock that is in good health is desirable and has a higher market value.

### **Performance Goals:**

Increase local agriculture producers' knowledge and utilization of best practices for farm management, quality assurance, and profitability.

### **Output Indicators:**

1. Number of participants at workshops and demonstrations
2. Number participants in the Young Farmer Meetings
3. Number of producers practicing production management strategies
4. Number of publications and packets distributed
5. Number participants in the Calf Pool
6. Number participants in the Quality Assurance Programs

### **Outcome Indicators:**

1. Increased efficiency of production systems
2. Increased profits for producers
3. Increased knowledge base in production agriculture
4. Sustainability of production agriculture markets
5. Increased profitability of producers

### **Key Program Components:**

1. Develop a comprehensive production management lesson plan for training sessions and workshops
2. Develop a producer group for increasing market prices by pooling livestock
3. Attend agriculture production management seminars to increase up to date information for agriculture producers
4. Increase the presence of West Virginia State College in the agriculture production agriculture research and extension arena.

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

1. West Virginia University Extension
2. Farm Bureau Chapters
3. FFA Chapters
4. United States Department of Agriculture
5. West Virginia State College 1890 Research
6. West Virginia Department of Agriculture
7. West Virginia Development Office
8. Chambers of Commerce

## 9. County Commissions

### **Target Audiences:**

West Virginia agriculture producers

### **Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$210,000 Federal Formula; State Match and Other

## **Extension Program 1.4 “Youth Agriculture Education”**

### **Statement of Issues:**

More and more of West Virginia’s youth have no contact with the origination of their food or basic understanding of raising plants and animals. Without this basic understanding, youth are alienated from one of the largest industries in the state. West Virginia must have youth participating in agriculture education to ensure it in the future. There are a plethora of opportunities for youth to get involved and learn about agriculture. Examples of these opportunities are Agriculture in the Classroom participation, Agriculture Field Day, Livestock, Land, and Horse Judging competitions, and the Livestock Show and Sale. Agriculture in the Classroom is a program that is brought into a school system that teaches youth the basic aspects of agriculture. Agriculture Field Day is a program that brings youth participants on a farm to see, hear, smell, and feel what agriculture is really about. Judging contests are a way for more advanced agriculturally educated youth to be challenged and expand their knowledge of agriculture in a specialized area of interest. Most areas have a livestock show and sale for youth to learn the importance of nutrition, maintenance, grooming, and showing of a variety of livestock species.

Junior Master Gardener (JMG) is a national program for youth of all ages that uses fun activities to teach horticulture and environmental science concepts. Children are involved in exploring their world through meaningful activities that encourage leadership development, personal pride, responsibility, and community involvement. Older youths are trained to become mentors for younger children participating in the program. Young people involved in the program develop critical thinking skills, as well as the ability to identify community concerns and take action to address them through individual group projects.

### **Performance Goals:**

Provide opportunities and information for youth to participate in agriculture related activities to increase their understanding of food production, as well as, plant and animal nutrition and health.

### **Output Indicators:**

1. Number of participants at workshops and demonstrations
2. Number of youth participating in Agriculture in the Classroom
3. Number of youth participating in Agriculture Field Day
4. Number of youth participating in livestock judging contests
5. Number of youth participating in livestock shows and sales

6. Number of publications and packets
7. Number of youth participating in JMG
8. Number of schools participating in JMG
9. Number of presentations on JMG program

**Outcome Indicators:**

1. Increased quantity of youth agriculture practices
2. Increased knowledge base in agriculture among West Virginia youth
3. Increased opportunity for youth in agriculture
4. Increased participation for youth in agricultural programs
5. Increased productivity of youth in agriculture
6. Increased appreciation for agriculture and environmental science
7. Increased student performance in math and science
8. Higher incidence of program youth serving in leadership capacities in school and community projects

**Key Program Components:**

1. Develop a comprehensive scope of work for training sessions and workshops in the area of youth agriculture education
2. Provide information to youth about agriculture
3. Agriculture training seminars to increase up to date information for youth interested in agriculture
4. Increase the presence of West Virginia State College in the area of youth agriculture education through extension services
5. Ag in the Classroom presentations to students
6. Livestock Show and Sale participation by 4-H and FFA youth
7. Junior Master Gardener projects occurring in elementary schools

**Internal and External Linkages:**

1. West Virginia University Extension
2. Farm Bureau Chapters
3. Boards of Education
4. United States Department of Agriculture
5. West Virginia State College 1890 Research
6. West Virginia Department of Agriculture
7. West Virginia Development Office
8. Chambers of Commerce
9. County Commissions
10. FFA Chapters
11. Putnam County Schools
12. K-8 educators in West Virginia
13. Community organizations
14. West Virginia Department of Forestry
15. West Virginia Department of Natural Resources

## **Target Audiences:**

- 1. West Virginia Youth**
2. K-8 students and educators in West Virginia
3. Master Gardeners

## **Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$210,000 Federal Formula; State Match and Other

**GOAL 2.** *A safe and secure food and fiber system. To ensure an adequate food and fiber supply and food safety through improved science based detection, surveillance, prevention, and education.*

## **Extension Program 2.1 “Food Safety”**

### **Statement of Issues**

#### **Food Safety**

Foodborne illness is a serious public health problem. The Centers for Disease Control and Prevention (CDC) estimates that each year 76 million people get sick, more than 300,000 are hospitalized, and 5,000 Americans die as a result of foodborne illnesses. It is estimated that many cases of foodborne illness are not reported, especially when the symptoms are mild or attributed to other health problems.

The CDC reports that 79% of the foodborne illness outbreaks between 1987 and 1992 were bacterial, the majority caused by improper holding temperatures and poor personal hygiene. In a national telephone survey of 1,000 adults responsible for preparing the main meal for the household three or more days a week, researchers found that Americans are more aware of home food safety today than they were three years ago when a similar survey was undertaken. But, when questioned about their personal food safety habits, 44% say they consistently forget to wash their hands properly before meal preparation and only 25% use a meat thermometer to check the doneness of meats. Nearly all agree that the food preparer plays the most important role in food safety. Unfortunately, only 27% of the respondents were aware of programs designed to provide food safety education for the public.

Reaching those who handle food for large groups of people with food safety education can help to reduce the number of people who suffer from foodborne illness. Mobilizing communities to work together has been shown to be an effective way to reach schools, consumers and volunteers. The Partnership for Food Safety Education, developed “Using Partnerships to Fight BAC!<sup>™</sup> - A Workbook for Local Food Safety Educators” and encourages the building of partnerships to: a) promote a uniform message to our community; b) get more value for our dollar; c) combine our people power; d) reach a wider audience; and e) create a richer product to achieve synergy.

## **Food Security**

Food security is still an issue in our area, despite the fact that obesity and over-nutrition are prevalent. According to the USDA in the Executive Summary of the Changes in Children's Diets: 1989-1991 to 1994-1996, the caloric content of school-aged children's mean 24-hour food intake increased significantly, from 88 to 94 percent of the 1989 Recommended Energy Allowance. During this same period of time, however, vitamin and mineral intake stayed about the same. These data underscore the importance of examining dietary quality versus quantity.

The National School Lunch Program has demonstrated an improvement in the nutritional well being of children through improvement in the quality of their diets, as detailed in the position statement of the American School Food Service Association. In addition, research shows that there is a link between a nutritious diet and a child's mental alertness and cognitive development. The Summer Food Service Program (SFSP) was created to ensure that children in lower-income areas could continue to receive nutritious meals during long school vacations, when they do not have access to lunch or breakfast at school. The SFSP offered through West Virginia State College Cooperative Extension Programs fed over 15,000 eligible children in the summer of 2003. With continued funding, the program will be offered in 2005 and 2006.

## **Performance Goals**

1. Educate target audiences on safe food handling techniques to reduce food borne illness.
2. Provide nutritious lunches for limited resource children, ages 2 – 18, during summer breaks.

## **Output Indicators**

1. Stakeholder input from target communities to determine the communities' perception of the problem and their willingness to participate in intervention programs
2. Number of educational opportunities on food safety for target audiences
3. Number of Summer Food Service Program participants

## **Outcome Indicators**

1. Decreased number of unsafe food handling practices
2. Increased use of food thermometers when preparing/cooking food
3. Decreased hunger for eligible participants as measured by participation rates
4. Improved nutrition content and variety in the diet of school-aged children throughout summer

## **Key Program Components**

1. Provide education on food safety and food borne illness prevention
2. Provide Summer Food Service Program to eligible participants in Kanawha County

## **Internal and External Linkages**

1. Public and private schools
2. Faith-based organizations
3. Charleston Housing
4. County and municipal parks and community centers
5. WV Department of Education



6. Centers for Disease Control and Prevention
7. American Dietetic Association

### **Target Audiences**

1. Families
2. Youth
3. Elderly
4. Schools
5. Faith-based organization
6. General public

### **Program Duration**

This program will continue for the two-year life of this plan

**Allocated Resources-**\$327,500 Federal Formula; State Match; and Other

## **Extension Program 2.2 “Food Security”**

### **Statement of Issues:**

Food security and safety have come under increased scrutiny across the country. Whether it is the threat of bio-terrorism in our local food supply, the establishment of a steady food supply, or the quality assurance of that food supply, every person in West Virginia will be affected an average of three times a day by food safety issues. Within the past year bio-terrorism efforts have been increased due to outbreaks of foreign animal disease being brought into America. With increasing liability and risks in the agriculture sector of production we need to ensure that we will be able to sustain a food supply. By teaching proper vaccination procedures and handling procedures we can also increase the quality of our product that we are trying to market. In production agriculture a higher quality product comes a greater likelihood of increased profits and a sustainable future.

### **Performance Goals:**

Provide information, collaboration, and training on current production opportunities to West Virginia producers and residents.

### **Output Indicators:**

1. Number of participants at workshops and demonstrations
2. Number of producers aware of food security
3. Number of publications and packets distributed
4. Number of people practicing Quality Assurance techniques

### **Outcome Indicators:**

1. Increased acceptance and practice of government safety regulations spurred from food security issues
2. Increased knowledge base in food security
3. Sustainability of production agriculture markets
4. Security of West Virginia’s food production

5. Acceptance of Electronic Identification Systems
6. Increased establishment of Alert Systems
7. Increased awareness of bio-terrorism

**Key Program Components:**

1. Develop a comprehensive food security lesson plan for training sessions and workshops
2. Develop a producer awareness class
3. Facilitate Food System Security seminars to increase up to date information for agriculture producers and residence
4. Increase the presence of West Virginia State College in the Food System Security research and extension arena

**Internal and External Linkages:**

1. West Virginia University Extension
2. Farm Bureau Chapters
3. Food Processing Operations
4. United States Department of Agriculture
5. West Virginia State College 1890 Research
6. West Virginia Department of Agriculture
7. West Virginia Development Office

**Target Audiences:**

1. ***West Virginia agriculture producers***
2. West Virginia residents

**Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$210,000 Federal Formula; State Match and Other

**Goal 3: A healthy, well-nourished population. Through research and education on nutrition and development of more nutritious foods, enable people to make health-promoting choices.**

**Extension Program 3.1 “Nutrition and Wellness”**

**Statement of Issues**

The foods we eat affect our health throughout our life. In addition to providing essential nutrients for growth and development, foods can supply substances that either contribute to or protect against chronic disease. Chronic diseases, such as cancer, osteoporosis, diabetes, hypertension, heart disease and obesity, are known to be related to diet. West Virginia consistently ranks worse than the nation with regard to many of these chronic diseases. Heart disease is the leading cause of death in West Virginia and stroke is the third leading cause of death. Together they account for approximately 40 percent of all deaths, according to a 1998 report by the Bureau for Public Health, West Virginia Department of Health and Human

Resources. Preventing chronic disease, as well as treating it, may be accomplished through the adoption of healthy behaviors. Improved nutrition practices are one aspect of health promotion. Adequate physical activity, management of blood cholesterol, blood sugar levels, and blood pressure, cessation of tobacco use; and moderation in the use of alcohol are also associated with good health.

One of the key components of good health is adequate health care. Chronic diseases are the result of several factors, as described above. Treatment of lifestyle-related behaviors requires communication between the patient and the health care provider to produce behavior change instead of the more traditional type of medical care that involves vaccinations, surgeries and medications. Communication problems between patients and their physicians are well documented. It is hypothesized that these communication problems interfere with the prevention and treatment of diseases such as heart disease, diabetes, and obesity. The development of educational programs that empower patients to demand adequate information to improve their health through behavior change, self-management, disability prevention, and support for the challenges of living with a chronic condition, may help to alleviate the frustration felt by both patients and their physicians.

One of the most debilitating medical conditions facing West Virginians is obesity. The state ranks third with regard to the prevalence of obesity, as documented through state-level monitoring by the Centers for Disease Prevention and Control's (CDC) Behavioral Risk Factor Surveillance System (BRFSS) in 2002. In 1990, West Virginia's rate of adult obesity was 15%, compared with the U.S. rate of 11.6%. By 2001, the state rate was 24.6% percent compared with 20.9% nationally. While the obesity rate has increased in virtually all of West Virginia, the highest prevalence can be found in the southern and western portions of the state, as well as the Eastern Panhandle.

Youth in West Virginia suffer from obesity similarly to adults, as evidenced by data collected from 5,887 fifth graders in 27 rural West Virginia counties participating in the CARDIAC Project and published in the West Virginia Medical Journal in 2002. Researchers found that almost 43% of children were considered to be overweight and more than one-fourth of them were obese. This data differs substantially from the 1999 National Health and Nutrition Examination Survey (NHANES), which found 13% of 6-11 year olds and 14% of 12-19 year olds to be overweight. The NHANES data does confirm the rapid rise increase in overweight and obesity among children and adolescents. In children, ages 6-11, NHANES documented a three-fold increase in overweight (Body Mass Index  $\geq$  95<sup>th</sup> percentile) from 1965 to 1999. Overweight prevalence among adolescents, ages 12-19, almost tripled between 1970 and 1999.

Obesity contributes to numerous and varied co-morbid conditions. Data from the 2001 WVBRFSS surveys show that obese West Virginians are more likely than their healthy counterparts to have suffered a heart attack, been diagnosed with hypertension, diabetes, and/or asthma, or been limited in their activities due to back pain. Quality of life may be negatively affected due to social discrimination against obese persons. Obese children are spared many of the adult diseases while they are young, but suffer from distorted body image, discrimination and isolation, resulting in poor self-esteem. Overweight adolescents have a 70% chance of becoming overweight or obese adults. The probability increases to 80% if one or more parent is overweight or obese.

While obese West Virginia adults and children most likely consume an excess of calories, the quality of their diet is often poor. The 2000 WVBRFSS found that respondents in the “obese” category ate the least fruits and vegetables. Eighty-two percent of the adults considered obese did not eat the recommended five fruits and vegetables per day compared with 77.4% of the adults considered to be at a healthy weight. The 2001 WV Youth Risk Behavior School Survey found that 81.9% of adolescents reported that they did not eat five fruits and vegetables per day. In addition, soft drink consumption among children, aged 2-17, increased by 47% between the period of 1989-91 to 1994-95, while milk and milk product consumption dropped by 6.2% in the same period.

### **Performance Goals**

1. Improve communication between patients and their health care providers to address the needs of chronic disease prevention, treatment and management.
2. Improve diabetes self-management skills through educational programs
3. Facilitate an attitude change toward short-term dieting and health improvement
4. Increase the food and nutrition skills of youth through interactive learning programs

### **Output Indicators**

1. Number of focus groups and community meetings to determine stakeholders’ perception of health problems and willingness to participate in programs
2. Number of nutrition education classes on diabetes and other health issues in target counties
3. Number of communication skills taught to patients in an effort to improve health care, especially seniors, minorities, and low literacy individuals
4. Number of youth programs targeting meal preparation, food handling and improved nutrition

### **Outcome Indicators**

1. Improvement of nutrition behaviors, as measured by food diaries and pre/post tests
2. Improved communication between patients and their physicians
3. Youth will increase their food preparation and handling skills
4. Youth will increase the number of servings of fruits and vegetables in their diet, as measured by food diaries

### **Key Program Components**

1. Improved health through appropriate nutrition
2. Awareness of the relationship between disease management and healthy behaviors, including nutrition, physical activity and stress management
3. Health literacy skills
4. Food preparation skills

### **Internal and External Linkages**

1. WVSC researchers and extension specialists/agents
2. WVSC Community and Technical College
3. WVSC academic faculty
4. 1890 Nutrition Consortium

5. Area health care facilities
6. Public education system
7. Senior programs
8. Faith-based organizations
9. Local, state and national government agencies focusing on health promotion

### **Program Duration**

This program will continue for the two-year life of this plan

**Allocated Resources-**\$562,500 Federal Formula; State Match and Other

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

### **Extension Program 4.1 “Environmental Conservation Education”**

#### **Statement of Issues:**

West Virginia has many natural resources that are being utilized by landowners every day. However, many of these resources are of the limited natural resource variety and without proper utilization supplies may become exhausted. Producers need to be more aware of the options for increasing land efficiency by using specific conservation practices such as soil sampling and crop rotation opportunities. Water quality is also very important to consider when designing paddocks in pasture and the application of pesticides. Without a clean water supply all agriculture and human life would be disrupted. Protecting and preserving natural resources within West Virginia is an obligation of every landowner in West Virginia.

#### **Performance Goals:**

Provide information, collaboration, and training on current production opportunities to all Roane County, West Virginia producers, landowners, and residents whom are interested in conservations of our natural resources

#### **Output Indicators:**

1. Amount of participants at workshops and demonstrations
2. Number of residents contacted
3. Number of individuals involved in pesticide training
4. Number of people taking soil samples
5. Number of publications and packets

#### **Outcome Indicators:**

1. Increased quantity of environmental conservation practices
2. Increased knowledge base in environmental conservation and natural resource usage
3. Increased productivity of land and water supplies
4. Increased number of applicants for environmental conservation practices at the USDA
5. Productivity of land and water supplies

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

1. Develop a comprehensive scope of work for training sessions and workshops in the area of environmental conservation
2. Provide information to residents
3. Offer environmental conservation training seminars to increase up to date information for agriculture producers and residents.

#### **Target Audiences:**

1. West Virginia land owners
2. West Virginia residents

#### **Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$195,000 Federal Formula; State Match; and Other

**GOAL 5. *Enhanced economic opportunity and quality of life for Americans. Empower people and communities, through research-based information and education, to address economic and social challenges facing our youth, families, and communities.***

#### **Extension Program 5.1 “4-H/Youth Development”**

##### **Statement of Issues**

West Virginia State College Division of Agricultural, Consumer, Economic, and Outreach Programs currently provides youth programming in two counties of West Virginia, Kanawha and Clay. Although the two counties face the similar challenges of youth and families living in poverty; the incidence of childhood obesity; and low literacy levels, in many ways, especially with regard to the clientele being served by the Office of Youth Education, the two counties are worlds apart.

Currently, in Kanawha County, the areas being served by the Office of Youth Education include a combination of urban and rural schools. In these areas, youth are provided with both in school and after school programs. In-school programming includes a combination of service learning projects, mentoring programs, and non-traditional 4-H programs. These programs are provided in a variety of school settings including two of the most urban middle schools – Stonewall Jackson Middle and Dunbar Middle, an alternative middle school - Tyler Alternative Middle, and two high schools - Capital High and South Charleston High.

Three of the four WVSC ACEOP After-School Programs are located in Charleston Housing developments, and the fourth is located in a privately owned, low-income apartment complex. The self-sufficiency standard in Charleston, West Virginia for a single person with no children is \$16,204 per year. That is more than five times the average yearly income (\$3,030) of Charleston Housing residents, many of whom are single parents with multiple children. Seventy percent of residents in Charleston Housing are African-American. Single mothers head more than fifty percent of the households. Sixty-four percent of the families in Charleston Housing are now making the difficult transition from “Welfare to Work” under the State of West Virginia’s

Temporary Assistance for Needy Families Plan (Charleston Housing Authority-Wide Tracking Information, 2002).

The most common types of crimes reported (33%) by Charleston City Police in 2002 at these four locations were violent crimes against another person (malicious wounding, sexual assault, battery, murder, etc.), twenty-seven percent were theft related and six percent were drug related. Parents are reluctant to let their children go out to play after school in these dangerous environments. With the addition of this education component to the after-school setting, WVSC ACEOP provided an alternative, supervised, educational opportunity to encourage positive behavior.

The need for increased opportunities for children to learn and develop in safe and drug-free environments outside of regular school hours is evident. Without affordable, high-quality after-school care available to parents who work, many children must care for themselves or be cared for by older siblings. For most children, these extra responsibilities create barriers to completing their schoolwork. In addition, studies have shown that youth are most at risk of committing acts of violence and engaging in drug use during the hours of three and six p.m. In the absence of structured activities during after-school hours, children are more likely to engage in risky behaviors and activities such as drug use and gang involvement.

In Clay County, West Virginia, where the major issues facing youth are poverty and a lack of positive and meaningful out-of-school activities, WVSC Office of Youth Education provides a traditional West Virginia 4-H program. Youth in the program are given opportunities to participate in community clubs, complete still and livestock 4-H projects, serve as club officers, and attend statewide 4-H events, all while experiencing connections with caring adult role models.

Extension youth programs will address these issues, with after school and summer programs for youth. Programs such as Kanawha and Clay County 4-H, Health Science Technology Academy (HSTA), and an after school program, located in three Charleston Housing Authority sites and one privately owned low-income apartment complex, are designed to reverse the poor academic trends of at-risk minority children.

### **Performance Goals**

1. Youth will gain an understanding of and participate in programs promoting community service, life-skills development, academic achievement, and literacy
2. Youth will form relationships with caring adults in safe environments

### **Output Indicators**

1. Number of limited resource youth participating in after school programs
2. Number of program youth participating in year-round 4-H activities
3. Number of youth participating in summer camping experiences
4. Decreased number of school absences for program youth
5. Number of youth that report reading on their own.
6. Number of volunteers

## **Outcome Indicators**

1. Improved perception of reading by program youth as demonstrated on Garfield Assessment
2. Fewer discipline problems in school for program youth as demonstrated by a survey of school teachers and administrators
3. Higher incidences of program youth serving in leadership capacities in OYE programs, schools, and communities
4. Youth will report an increase in confidence in their ability to lead on a recognized self efficacy assessment instrument
5. Positive perception of program volunteers as reported by participants, paid and unpaid program staff, and/or ACEOP staff

## **Key Program Components**

1. **4-H Programs**  
The Youth Development Extension Specialist and 4-H Extension Agents will provide opportunities for participants to participate in a combination of traditional and non-traditional 4-H activities including: community club and project work; recreation and social activities; community service learning; and life-skills development.
2. **Health Sciences And Technology Academy**  
This project is a partnership between West Virginia University, West Virginia Rural Health Education Partnership and Appalachian communities. HSTA brings minority and disadvantaged students and their teachers to campus each summer for clinic, laboratory, and classroom training and enrichment activities.
3. **After School**  
The After School program provides a safe place where children can spend their out of school hours. During the hours of operation, the program provides: homework help; opportunities to interact with literature; behavioral and social development strategies; art activities; recreational activities; and educational and cultural enrichment in a safe and nurturing environment.

## **Internal and External Linkages**

1. Kanawha County Schools
2. West Virginia University Extension Service
3. Clay County Commission
4. Clay County Board of Education
5. Charleston Housing Authority
6. WVSC Departments of Education and Social Work
7. Community organizations
8. Faith-based organizations

## **Target Audiences**

Youth ages 2-21



### **Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$855,000 Federal Formula; State Match and Other

## **Extension Program 5.2 “Community and Economic Development”**

### **Statement of Issues**

The economy of many regions of West Virginia is being forced to re-align from a reliance on coal, timber and rail into new economies that center around tourism and technology ventures. This necessity for new industrial development has created an important need for localized community and economic development assistance for many regions of our state. This plan of work describes an extension effort for working with local communities to address development issues within an eleven county segment of the state

### **Performance Goal**

Assess community and economic development needs within the service region to assist in providing communities with access to needed community and economic development program efforts that have a measurable impact on development needs of the service region.

### **Output Indicators**

1. Number of communities developing affiliations and partnerships
2. Number of trainings and other program offerings
3. Number of special projects and collaborations
4. Numbers of participants in workshops

### **Outcome Indicators**

1. Increased awareness of community development opportunities by local leaders as self-reported
2. Number of new development initiatives implemented
3. Number of regional plans completed
4. Expansion of broadband education efforts

### **Key Program Components**

1. Facilitation of Community Needs Assessments
2. Community Development Strategic Planning
3. Marketing and Program Development
4. The Workforce Education and Career Assistance Network for You ([www.wecan4u.net](http://www.wecan4u.net))

### **Internal and External Linkages**

1. WVSC School of Economics Staff
2. WVSC Student Assessment Office
3. WVSC Graphic Arts / Printing Office
4. USDA Rural Business Services
5. 4-C Economic Development Agency
6. Greenbrier Valley Economic Development Agency
7. Regional and local Chambers of Commerce

8. County Commissions
9. Mayors within Service Region
10. Regional Planning Commissions
11. Steering Committees
12. Family Resource Networks
13. Community leaders and representatives
14. Employers
15. Alabama A&M University

**Target Audience**

1. New Entrepreneurs
2. Existing Businesspeople
3. Employees in the Workforce
4. Community Development Organizations

**Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$331,250 Federal Formula; State Match and Other

**Extension Program 5.3 “Minority Business Affairs”**

**Statement of Issues**

Over the past 10 years, minority-owned businesses have grown at double the rate of all other firms nationwide, making up 12% of the nation’s businesses and now have a purchasing power equal to 20% of the US disposable income. While this national trend has been very positive, West Virginia has unfortunately not mirrored the rest of the nation in minority business development or purchasing power. Even in Kanawha County, which has the largest number of minority residents in the state, minority-owned businesses comprise only 1% of the total businesses and this percentage is even less in the other counties.

**Performance Goals**

The plan will create the necessary actions to establish relationships that will enhance new capabilities for minority business growth and minority economic development. This will be accomplished in the counties with the heaviest minority population in the state. According to the 2000 US Census, African Americans make up 3.16% of the population in West Virginia, and the West Virginia counties with the highest concentration of African American and Minority population are:

McDowell	<b>11.9%</b>	Raleigh	<b>8.5%</b>	Kanawha	<b>6.9%</b>
Monroe	<b>5.9%</b>	Mercer	<b>5.8%</b>	Fayette	<b>5.6%</b>

**Key Program Components**

1. Business education and development courses that will allow business owners to make better decision

2. To provide information on expanding businesses, procurement, new contract certification
3. Assist businesses in developing packages for business franchising
4. To provide businesses with access to technology and conduct E-Technology courses
5. To train and enhance the employed, unemployed, and underemployed by conducting or facilitating workshops on economic development issues
6. To provide information on strategic planning and avenues for developing financial issues
7. To assist in the process of developing a project, partnerships and the financial impact of a new projects
8. To train community organizations on developing community information.
9. To train community members on asset mapping and community assessment that will build partnerships for economic development
10. Train community members on developing partnerships with local businesses for community reinvestment funding
11. Minority Outreach Partnership Center Program
12. Employment and Job Readiness Program
13. LOCI economic analysis program

### **Output Indicator**

1. Number of small businesses participating in business education, development and technology classes
2. Number of new Economic Development projects for new business ventures to create additional economic growth
3. Number of community members serving as committee members to conduct community assessments and establish stronger community partners
4. Number of community members participating in employment training

### **Outcome Indicator**

1. Number of participating businesses experience growth in sales and expansion
2. Increase in Economic Development activities in higher minority population counties
3. Community members establish new forums to solve business and community issues
4. Community members demonstrate increased job skills

### **Internal and External Linkages**

1. City, State and Federal Government
2. Regional Contracting Assistance Center
3. WVSC Faculty & Staff
4. Minority Business Development Center
5. Faith-Based Non-Profit Organizations
6. West Virginia Development Office

### **Target Audiences**

1. Minority Small Businesses
2. Minority Community Development Corporations
3. Minority Community Organizations
4. Minority Community Leaders and Members

### **Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources**-\$235,000 Federal Formula; State Match and Other

### **Extension Program 5.4** “Technology and Literacy Education Programs”

#### **Statement of Need**

Many youth, adults, and senior citizens in West Virginia are economically vulnerable due to a lack of education, skills, or training. Many adult residents presently lack the education and/or skill level necessary to advance beyond minimum wage status. Without additional training opportunities that will advance them past their current educational attainment, many will become trapped in a cycle of low-wage, high debt situations that does not allow them to improve their socio-economic level.

#### **Performance Goals**

West Virginia State College will provide communities with access to computer technology and deliver basic literacy and educational programs. These programs will provide skill trainings that relate to interviewing, technology, and word processing and, also, provide life-management skills including health and wellness, credit, attitude, communication, and decision-making. These programs will assist residents in higher educational attainment and better achievement in workforce performance.

#### **Output Indicators**

1. Regular availability to technology access
2. Increase programming to approximately 8 clubs and 20 annual programs
3. Develop a volunteer base
4. Accessible recreation programming offered
5. Develop a greater confidence in participants to become self-sufficient
6. Number of clubs created that meet monthly on topical interests

#### **Outcome Indicators**

1. Increase in regular participation at learning centers
2. Community learning sites will report an enhanced sense of community through activities, volunteerism, and regular communication
3. Participants will gain marketable technological skills and an awareness of job resources and professional demeanor that will empower residents to improve upon earning minimum wages
4. Youth will be involved in an array of activities that promotes good citizenship, teamwork, and a well-rounded education

#### **Key Program Components**

1. Computer literacy programs
2. Life Management Skills programs addressing such issues as health and wellness, GED preparation, and reading programs
3. Safe recreational activities within communities
4. Arts & crafts activities linked to technology and literacy

5. Special interests groups such as Arts & Crafts, Book Club, Community Garden, Internet Investigations, Job Search, Site Seers Club, Web Site Construction Crew, and a Walking Club

### **Internal and External Linkages**

1. Kanawha Institute for Social Research & Action
2. West Virginia State Communities and Technical College
3. TLTEK Computer Services
2. Public Housing Authorities
3. Faith-Based Non-Profit Organizations

### **Target Audiences**

1. Youth and young adults
2. Displaced workers
3. Unemployed population
4. Senior citizens

### **Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$335,000 Federal Formula; State Match and Other

## **Extension Program 5.5 “Rural Business Services”**

### **Statement of Need**

According to the WV Economic Summary, March 2003, unemployment rates in southern West Virginia range as high as 13% and average 8.5%. In addition, West Virginia has the lowest percentage of persons in the labor force, including armed forces, over the age of 16 in the country at 55%. The largest employer in many of the southern West Virginia counties are the respective boards of education, while much of the rest of the region is dependent on seasonally based travel and tourism industry. Additionally, while 6% of this region report being a minority, only 1.2% of businesses in the region are minority owned. While there are many activities occurring in the counties to encourage entrepreneurship, there is not a guiding force working to develop the region entrepreneurially. WVSC hopes to provide the impetus for the development of regionalism in the area beyond a limited two-three county scope. While most of the counties in this area have limited resources, together they are obviously much stronger than independently. By developing a holistic approach for the region, it will improve the ability of entrepreneurs to operate in the area.

**Performance Goals:** To promote new and sustain existing businesses through educational training and workshops within the rural counties of southern West Virginia

### **Key Components:**

1. Training programs and workshops for new businesses
2. Training programs and workshops for existing businesses
3. To promote business retention through training programs

4. To assist in developing new businesses
5. To conduct business market feasibility studies within 2 counties
6. To assist Summers County in developing a community kitchen coop project
7. To assist Summers County in researching and developing a farmers market
8. To help develop youth entrepreneurial skills
9. To provide linkage and referral assistance to businesses within WIB counties
10. To continue partnership with the West Virginia Specialty Foods Cooperative
11. To continue partnership with the Region 1 Workforce Small Business Development Centers
12. To continue partnership with the I-64 Technology Corridor project

**Program Outputs:**

1. Number of training workshops offered
2. To conduct the West Virginia Specialty Foods Conference each year
3. Number of educational brochures produced and distributed
4. Number of participants attending training workshops
5. Number of youth gaining entrepreneurial skills
6. Number of business market feasibility studies completed and presented

**Program Outcomes:**

1. Growth in economic stability of participating businesses
2. Number of local governments exhibiting expanded knowledge and implementation of regionalism concepts
3. Number of communities accessing broadband Internet technology

**Internal and External Linkages:**

1. Region 1 Workforce Investment Board
2. West Virginia University Extension Offices
3. Region 1 Workforce Small Business Development Centers
4. West Virginia Development Office
5. The West Virginia School of Osteopathic Medicine
6. Summers County Commission
7. USDA Rural Development Office
8. West Virginia Department of Agriculture
9. West Virginia Specialty Foods Cooperative
10. Economic Development Authority Offices
11. Greenbrier Valley Economic Development Authority
12. 4C Economic Development Authority
13. Program Specialist for Technology, Transportation and Economic Development with Congressman Nick J. Rahall II
14. County Board of Educations
15. Mayors and City Governments
16. Family Resource Networks
17. Convention and Visitors Boards
18. WVSC Neighborhood Network Program Coordinator
19. West Virginia State College Graphic Artist Specialist

20. West Virginia State College Photography Services
21. Rural Appalachian Transportation Institute located at Marshall University

### **Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources**-\$666,250 Federal Formula; State Match; and Other

## **Extension Program 5.6 “Family Education”**

### **Statement of Issues**

According to the 2000 Census, West Virginia is ranked last or in the bottom five in every major indicator of economic well-being including: lowest per capita income, lowest family income, the highest unemployment rate, highest rate of teenage pregnancy, lowest percentage of high-school graduates, and the lowest level of high school graduates. Many of these socio-economic issues present in our community can largely be attributed to one thing—a lack of education. An educated population is the key to long-term economic development.

Another disturbing trend on the increase in West Virginia is that of child abuse and neglect. Approximately 8000 West Virginia children are abused or neglected each year. This is one of the highest rates in the nation. The Office of Family Education, by working with Social Service Agencies and the school systems develops programs to address all aspects of this issue. Educational seminars on identifying and reporting abuse and neglect are offered as well as parenting education to offer alternative styles of parenting and new ideas for parents to implement to assist in decreasing their frustrations.

WVSC seeks to expand its presence in the Kanawha Valley and surrounding counties to assist families and the community. The Office of Family Education is currently expanding existing programs that address several of the above mentioned issues, including domestic violence, homelessness, teen pregnancy, parenting education, and independent living skills. In addition, new programs are being explored for development including programs to assist limited resource families in their pursuit of life-long learning opportunities, family financial planning, and higher education. Extension Specialists and Agents will deliver existing programs and once developed, the new programs to community centers, youth groups, parents, teachers, and the community-at-large.

### **Performance Goals**

1. Increase knowledge of families on parenting skills
2. Increase knowledge of teens and preteens on the requirements of parenthood
3. Inform and educate the community about critical social issues

### **Output Indicators**

1. Number of participants in community/family programs
2. Number of Family Education Programs offered
3. Number of community partnerships

## **Outcome Indicators**

1. Increased number of participants engaging in new parenting practices
2. Increased number of participants who report improved quality of parent/child relations
3. Increased number of at-risk students working towards their college degrees
4. Increase in knowledge of teens and pre-teens on requirements of parenting

## **Key Program Components**

### **1. WVSC Transitional Living Community---H.O.U.S.E. and Phase II**

The H.O.U.S.E. (Helping Our Undergraduates Succeed in Education) program is designed to assist at-risk youth ages 17-21 years, who have earned their High School Diploma or GED certificate with attending college for the first time, as well as preparing them for the transition into dormitory life. The facility can house up to six students and is currently staffed by two Resident Assistants and one Extension Agent who provide case management and independent living skills instruction as needed. Once students transition into the dormitories, they are still provided with case management services from the Extension Agent, if needed.

The Phase II program provides housing and basic living skills training to formerly homeless and battered women, as well as women with children who are beginning their college careers. The facility for this program has been designed as a 3-unit apartment building (one—2 bedroom and two—1 bedroom units). As with our H.O.U.S.E. program, the Extension Agent and Resident Assistants are available to provide case management and other needed support services to the participants of the program.

### **2. Teen Pregnancy Prevention**

The Office of Family Education will provide teen pregnancy prevention education utilizing the Baby Think It Over program. This program, used nationally, is designed to help teens become aware of the time and effort it takes to parent a newborn. Computerized infant simulators are assigned to each teen and they must care for the baby by feeding, changing, burping, and rocking the baby when it cries.

### **3. Parenting Education Classes**

The OFE will provide parenting education classes in the community to families with newborns through those dealing with the teenage years. OFE utilizes an Active Parenting program that offers programs for parents, as well as teenagers. All programs work towards improving parent/child communications and relationships, thus decreasing family violence and incidents of child abuse and neglect.

### **4. Assessment of Community Needs**

OFE will continually identify relevant social issues and provide the necessary training to individuals and groups. This program will be constantly modified based on the needs of the community, as well as updated with information and research accessible by staff.

## **Internal and External Linkages**

1. Local high schools
2. Faith-based and community organizations



3. Business and Industry
4. Social Service Agencies (Child Protective Services, New Connections)
5. Youth Correctional Facilities (Salem Industrial Home for Youth)
6. WV Bureau for Children and Families
7. Domestic Violence Prevention Agencies (Branches Domestic Violence Shelter, YWCA, South Charleston Domestic Violence Counseling Center)
8. WVSC Department of Social Work
9. WVSC Student Support Services and Counseling Center

**Target Audiences**

1. Teens
2. Families
3. Victims of Domestic Violence
4. Educators, Community Groups
5. Parents
6. High School Seniors seeking to further their education

**Program Duration**

These programs will continue for the two-year life of this plan.

**Allocated Resources-**\$520,000 Federal Formula; State Match and Other

### III. SUMMARY OF TOTAL ALLOCATED RESOURCES

#### 1890 RESEARCH PROGRAMS

<b>BIANNUAL ALLOCATION OF RESOURCES (FY 2005-2006)</b>					
<b>NATIONAL GOAL / INSTITUTIONAL PROGRAM</b>		<b>FUNDING SOURCE</b>			
<b>Goal</b>	<b>Program Description</b>	<b>Federal Formula</b>	<b>State Match (80 &amp; 90%)</b>	<b>Other (Projected)</b>	<b>TOTAL</b>
<b>GOAL I</b>					
Program 1.1	Agricultural Biotechnology	250,000	212,500	50,000	512,500
Program 1.2	Diversified Alternative Agriculture	185,000	157,250	50,000	392,250
Program 1.3	Aquaculture	250,000	212,500	50,000	512,500
Program 1.4	Plant Genomics	150,000	127,500	35,000	312,500
	<b>Total</b>	<b>835,000</b>	<b>709,750</b>	<b>185,000</b>	<b>1,729,750</b>
<b>GOAL II</b>					
Program 2.1	Plant and Animal Pathology	190,000	161,500	25,000	376,500
Program 2.2	Food Quality and Safety	150,000	127,500	50,000	327,500
	<b>Total</b>	<b>340,000</b>	<b>289,000</b>	<b>75,000</b>	<b>704,000</b>
<b>GOAL III</b>					
Program 3.1	Human Health and Nutrition	150,000	127,500	75,000	352,500
	<b>Total</b>	<b>150,000</b>	<b>127,500</b>	<b>75,000</b>	<b>352,500</b>
<b>GOAL IV</b>					
Program 4.1	Natural Resource Management	250,000	212,500	244,130	706,630
Program 4.2	Agricultural Waste Management	350,000	297,500	1,000,000	1,647,500
	<b>Total</b>	<b>600,000</b>	<b>510,000</b>	<b>1,244,130</b>	<b>2,354,130</b>
<b>GOAL V</b>					
Program 5.1	Regional Economic Forecasting	175,685	149,332	10,000	335,017
	<b>Total</b>	<b>175,685</b>	<b>149,332</b>	<b>10,000</b>	<b>335,017</b>
	<b>GRAND TOTAL</b>	<b>\$ 2,100,685</b>	<b>\$ 1,785,582</b>	<b>\$ 1,589,130</b>	<b>\$ 5,475,397</b>

## 1890 COOPERATIVE EXTENSION PROGRAMS

<b>BIANNUAL ALLOCATION OF RESOURCES (FY 2005-2006)</b>					
<b>NATIONAL GOAL / INSTITUTIONAL PROGRAM</b>		<b>FUNDING SOURCE</b>			
<b>Goal</b>	<b>Program Area</b>	<b>Federal Formula</b>	<b>State Match (80 &amp; 90%)</b>	<b>Other (Projected)</b>	<b>TOTAL</b>
<b>GOAL I</b>					
Program 1.1	Alternative Agriculture Extension and Education	150,000	127,500	50,000	327,500
Program 1.2	The Expansion of Horticultural and Forestry Activities in West Virginia	100,000	85,000	100,000	285,000
Program 1.3	Production Agriculture Education	100,000	85,000	25,000	210,000
Program 1.4	Youth Agriculture Education	100,000	85,000	25,000	210,000
	<b>Total</b>	<b>450,000</b>	<b>382,500</b>	<b>200,000</b>	<b>1,032,500</b>
<b>GOAL II</b>					
Program 2.1	Food Safety	150,000	127,500	50,000	327,500
Program 2.2	Food Security	100,000	85,000	25,000	210,000
	<b>Total</b>	<b>250,000</b>	<b>212,500</b>	<b>75,000</b>	<b>537,500</b>
<b>GOAL III</b>					
Program 3.1	Nutrition and Wellness Education	250,000	212,500	100,000	562,500
	<b>Total</b>	<b>250,000</b>	<b>212,500</b>	<b>100,000</b>	<b>562,500</b>
<b>GOAL IV</b>					
Program 4.1	Environmental Conservation Education	100,000	85,000	10,000	195,000
	<b>Total</b>	<b>100,000</b>	<b>85,000</b>	<b>10,000</b>	<b>195,000</b>
<b>GOAL V</b>					
Program 5.1	4-H / Youth Development	300,000	255,000	300,000	855,000
Program 5.2	Community And Economic Development	125,000	106,250	100,000	331,250
Program 5.3	Minority Business Affairs	100,000	85,000	50,000	235,000
Program 5.4	Technology and Literacy Education	100,000	85,000	150,000	335,000
Program 5.5	Rural Business Services	225,000	191,250	250,000	666,250
Program 5.6	Family Education	200,000	170,000	150,000	520,000
	<b>Total</b>	<b>1,050,000</b>	<b>892,500</b>	<b>1,000,000</b>	<b>2,942,500</b>
<b>GRAND TOTAL</b>		<b>\$ 2,100,000</b>	<b>\$ 1,785,000</b>	<b>\$ 1,385,000</b>	<b>\$ 5,270,000</b>

### IV. CONTACT INFORMATION

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