

**ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS**

**For**

**THE SOUTHERN UNIVERSITY AGRICULTURAL RESEARCH AND  
EXTENSION CENTER**



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**THE UNITED STATES DEPARTMENT OF AGRICULTURE/  
COOPERATIVE STATE RESEARCH, EDUCATION, AND  
EXTENSION SERVICE**

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## **INTRODUCTION**

Southern University Agricultural Research and Extension Center (SUAREC) was established July 1, 2001 as the fifth campus of the Southern University and Agricultural & Mechanical College System out of the need to increase the impact of the land-grant programs on the citizens of Louisiana. SUAREC combines both research and cooperative extension programs into a unified system at the campus level. The Center assumes administrative responsibilities for the federal research and extension funds as stipulated under sections 1444 and 1445 of the National Agriculture Research, Extension and Teaching Policy Act (NARETPA) of 1977. Sections 202 and 225 of the Agricultural Research, Extension and Education Reform Act of 1998 (AREERA) which amended the Smith-Lever Act, the Hatch Act, and the NARETPA of 1977 requires the submission of the Plan of Work (POW) by institutions in order to continue to receive formula funds for its research and extension programs.

The POW submitted by Southern University for October 1, 2000 – September 30, 2004 consisted of two separate plans for the research and extension programs. Effective FY 2003, the annual report of accomplishments and results is being submitted jointly, i.e., as a combination of both research and extension programs. Also, effective FY 2004, both research and extension Plans of Work were submitted jointly by SUAREC. This document reports accomplishments and results for Fiscal Year 2005 (October 1, 2004 to September 30, 2005) consistent with the approved POW.

## **PLANNED PROGRAMS**

In order to address the five national goals for agriculture, the Southern University Agricultural Research and Extension Center places emphasis on the following broad areas:

- 1. Sustainable Agricultural Systems
- 2. Urban Forestry and Natural Resource Management
- 3. Nutrition and Health
- 4. Family and Human Development
- 5. Youth Development
- 6. Economics and Community Development

To further enhance its capacity to address the five national goals for agriculture, SUAREC Research and Extension Programs have key program areas. Research program areas include: (1) Plant and Animal Production Systems, (2) Human Nutrition, Health, Family and Consumer Sciences, (3) Urban Forestry, Natural Resources and Environment, and (4) Economics, Marketing, Policy and Community Development. Extension program areas include: (1) Agriculture and Natural Resources, (2) Diet, Nutrition and Health Education, (3) Family and Human Development, (4) Youth Development, and (5) Community and Economic Development.

## **OVERVIEW**

The mission of SUAREC is to conduct basic and applied research, and disseminate information to the citizens of Louisiana in a manner that is useful in addressing their scientific, technological, social, economic and cultural needs. The goal is to assist diverse audiences, who have limited social and economic resources, improve their access to positive opportunities through research and outreach education. SUAREC aims to help small-scale and limited resource farmers and ranchers develop and/or maintain viable farming operations that are in harmony with the environment, help communities build capacity to enhance the growth and development of the business and industrial sectors, and improve the quality of life for families and youth throughout the State. To ensure that clientele needs are addressed effectively, the research and extension programs target the same clients. Research projects are designed with inputs from stakeholders and the findings are specially packaged and disseminated by the extension agents.

As a result of the devastation of Hurricanes Katrina and Rita in the later part of FY 2005, SUAREC programs reached out to many evacuees in shelters throughout the state. Currently, these programs continue to serve many evacuees who have and/or are trying to resettle both in the greater New Orleans area and also in various parts of Louisiana.

## **STAKEHOLDERS INPUT PROCESS**

Soliciting stakeholder input is a continuous process which is embedded in Southern University Agricultural Research and Extension Center's entire program development process. Stakeholder inputs are used to establish priorities, goals and objectives consistent with state, regional and national issues based on the land-grant philosophy. The Parish Advisory Council is organized at the grassroots level by each extension program to involve clients, community leaders, state and local government officials, and other stakeholders in the process of identifying community needs and/or resources, programs and projects to address them. Parish advisory council meetings are conducted at least once annually and important discussions are documented and utilized by the extension agents in developing the parish plan of work. A survey of the extension staff showed that 100 percent of the staff have functioning parish advisory councils. The survey also indicated that 100 percent of SUAREC extension staff sought inputs from parish advisory councils, focus groups, public forums, clients and community leaders when planning their work.

Extension Agents use information from focus groups, public forums, community leaders, and the client need assessment to develop their plan of work. Agents' plans of work, needs assessment, and information from the forums are submitted to the specialists at the state office. The state specialists meet monthly with the Vice Chancellor for Extension to report on progress of work (and problems) and to review and/or revise where necessary. Additionally, joint research-extension exchange meetings are held periodically to identify critical areas that warrant research by the Center to better serve the needs of clients. Furthermore, the Chancellor's Advisory Council serves to advise the Chancellor on ways that would ensure greater stakeholder input in identifying and planning meaningful,

effective and efficient research, education and outreach programs to benefit the citizenry of the state of Louisiana.

In summary, the Center's research and extension programs, the federal plan of work and the state strategic plan are developed based on the information received from the grassroots such as, Parish Advisory Councils, parish plan of work, the Louisiana Cooperative Extension Service, parish review team, needs assessment, evaluation studies, Strategic Planning Meeting, Joint Research-Extension Exchange Meetings, Chancellor's Advisory Council, Program Areas Advisory Councils, Federal and State Agencies, Commodity Organizations, and Land Grant Institutions.

Data collected from these sources by the Office of Planning and Evaluation are made available to the Research and Extension administrators who in turn utilize them to plan and prioritize their program/projects to address needs/problems of Louisiana citizens.

The following are some of the sources of the stakeholders input:

**Strategic Planning:** The First Annual Southern University Agricultural Research and Extension Center strategic planning conference was held to develop the current (2003-2008) strategic plan. The retreat provided a forum for sharing knowledge and information between research and extension faculty and staff and for creating a model designed to integrate both entities. The main outcome was the exchange of information to ensure that research and extension programs in the Center are relevant to the needs of the people of Louisiana and planned to address the needs of citizens. Research and extension faculty and staff from each of the six program areas of SUAREC met to discuss and plan strategies to efficiently and effectively provide services to clientele.

**Joint Research-Extension Exchange Meetings:** As a follow up to the strategies of the strategic planning conference, joint research-extension exchange meetings were held to identify critical areas which warrant research by the Center to better serve the needs of clients. Several joint meetings were held, the information gathered will be incorporated into the development of the FY 2007-2011 Plan of Work.

**Plan of Work Conference:** The primary focus of the August 8-10, 2005 SUAREC Program Development Conference was to bring together faculty and staff of the Center to create a comprehensive 5-year Plan of Work (POW) that meets and addresses the needs of the clientele/citizens of Louisiana. The secondary focus of the conference was to introduce faculty and staff to the new USDA/CSREES POW guidelines and equip them with the necessary tools to write their parish/program or project plans to ensure participatory accountability. The most important goal was to expose each faculty and staff to an overall awareness and understanding of the problems/situations facing our clientele and the planned research and extension programs/projects to address them. And in the joint research and extension fora, critical inputs were sought and shared between extension agents, state specialists, and research faculty and staff.

**Parish Advisory Councils:** Organized at the grassroots, are Parish Advisory Councils for each extension program area. These Councils involve clients, community leaders, state and local government officials, and other stakeholders in identifying community needs and/or resources, programs and projects to address them. Parish advisory council meetings are conducted regularly, and important discussions are documented and utilized in the joint research-extension exchange meetings. A survey of extension staff shows that 100 percent of the staff have functioning parish advisory councils in their areas. The study also indicated that 100 percent of SUAREC extension staff sought inputs from parish advisory councils, focus groups, public forums, clients and/or community leaders when planning their work.

Additionally, public forums involving community leaders are usually conducted during the Annual Faith-Based and Community Economic Development Conference. In FY 2005, the sixth of such conferences took place in Lafayette, Louisiana and forums were conducted to seek inputs on best ways to institute programs that will improve quality of life for the people of Louisiana through research and education.

**Survey of Clients:** The Office of Planning and Evaluation of SUAREC conducted several surveys of clients to seek their inputs in assessing programs already in place, gather data on areas of needs, and evaluate the impacts of existing programs. These findings are vital to the conceptualization and implementation of programs that will ensure improved quality of life.

**Survey of Extension Staff:** The Office of Planning and Evaluation also surveyed the extension staff to assess progress of previous year's initiatives, identify new and emerging issues that SUAREC may consider, and to seek their inputs with regards to research, education and outreach programs necessary to improving the quality of life for citizens. Findings from the surveys will be incorporated into the FY 2007-2011 Plan of Work.

**Chancellor's Advisory Council:** The Chancellor's Advisory Council has representatives from various stakeholders' interests such as Clients, Clientele groups, Federal and State Agencies, Commodity Organizations, Land Grant Institutions, and other Agriculture, Family and Consumer Sciences related groups. The Council advises the Chancellor on ways that would ensure greater stakeholder input in identifying and planning meaningful, effective and efficient research, education and outreach programs to benefit the citizenry of the state of Louisiana.

**Program Areas Advisory Councils:** These Councils are expected to ensure greater subject matter stakeholder input in identifying and planning meaningful, effective and efficient research, education and outreach programs to benefit the citizenry of the state of Louisiana.



## **PROGRAM REVIEW:**

**Merit Review by CSREES:** A request was submitted to the United States Department of Agriculture/Cooperative State Research, Education, and Extension Service (USDA/CSREES) in Washington, D.C. for a comprehensive review of the research program in the fall of 2004. A review team headed by a senior staff of the CSREES reviewed the Center's research projects for relevancy of the research to local and national needs, program performance (output, outcomes, and impacts), adequacy of resources to meet program objectives, and the interrelationship between research and extension. Findings provided by the team indicate that SUAREC's research projects are accomplishing targeted objectives. These findings will be utilized by SUAREC for program direction and allocation of resources. Additionally, SUAREC continues to conduct internal evaluation of all research projects to ensure that they are meeting the needs of its clients.

**Peer Review:** All CSREES funded programs/projects and others seeking funding are subjected to a thorough scientific and educational peer review process. A Proposal Review and Evaluation Committee (PREC) comprising of faculty and staff from SUAREC and the greater university community is functioning effectively. It operates as a standing committee to review proposals consistent with standard agency guidelines and other established scientific and educational criteria. Proposals usually undergo strict review, scrutiny and endorsement by discipline peers, program heads, and a select review committee. Additionally, each proposal must show clear evidence of stakeholder input prior to approval by the Vice Chancellor for Research and/or Vice Chancellor for Extension.

## **FIVE NATIONAL GOALS FOR AGRICULTURE**

To address the five national goals for agriculture, SUAREC planned and executed its research and extension programs as follows:

**National Goal 1: An agricultural production system that is highly competitive in the global economy.**

SUAREC's research and extension programs in sustainable agriculture, human nutrition, diet, health, family and consumer sciences worked collaboratively in addressing this goal. The goal was accomplished through the following projects/programs:

## **RESEARCH PROJECTS:**

1. Effects of Grazing Cattle and Goats Together and Separately on Animal Performance
2. Pasture Rearing of Poultry and Rabbits
3. Evaluation of Methods and Usages for Processed Aquatic

Waste Meals

4. Utilizing Multiple Indices to Measure Quality Deterioration in Value-Added Meat Products During Storage
5. Effects of Low-Cost High Tunnel and Formulated Media on Production of Selected Horticultural Crops for Niche Market

## **1. Effects of Grazing Cattle and Goats Together and Separately on Animal Performance**

In 2002, beef cattle production ranked fourth as a major agricultural enterprise in Louisiana in terms of the value of products sold. The state's cattle producers earned \$157,153,000 (9 percent of the total cash receipts from the sale of farm products) from the sale of cattle and calves in 2002. The most popular form of beef cattle production in Louisiana is the cow-calf system in which producers maintain and breed a herd of brood cows and sell the calves as weanlings. In Louisiana, 26 percent of beef producers have less than 9 brood cows and 50 percent have less than 19 brood cows (1997 Census of Agriculture, AC97-A-18, 1999).

Goat meat production is increasing in popularity in the Southeastern United States. Goat meat production is a good prospect for diversification and enhancement of small farmers' income. The potential for goat production to substitute or complement traditional livestock rests on three premises. 1) Goats can be produced with relatively little capital and labor, the meat is rich in protein and U.S. consumers are becoming more heterogeneous and many are willing to try new and exotic products. 2) Cattle are grazers and will not consume all the grass in a given area. 3) Goats are browsers and are more selective, thus they have a tendency to nibble on leaves, twigs, and young shoots of trees or shrubs. Therefore, the two species together should consume everything for efficient utilization of available forages.

The goal of this project is to assist small beef producers in increasing their production and economic base by utilizing available natural farm resources while exploring the complementarity of goat production.

**Key Theme:** The central theme of this project is to raise forage-based livestock throughout the year with minimal supplementation.

**Output:** The end product of this project is the efficient utilization of pastures for livestock production. Naturally, cattle are grazers and tend to consume all the grass they could grasp by their tongue, leaving weeds and woody plants behind. On the other hand, goats are browsers and are more selective.

### **Publications/Presentations**

Gebrelul, S., A. Chapell, Y. Ghebreyessus, V. Bachireddy, G. Simon, O. Udoh. 2004. "The Effects of Mixed-Species and Grazing Management on the Performance of Brangus Cows: Early Observations". Annual Meeting of the Southern Association of Agricultural Scientists (SAAS). Tulsa, Oklahoma.

Gebrelul, S., A. Chapell, Y. Ghebreyessus, V. Bachireddy, G. Simon, O. Udoh. 2004. "Mixed-species and Grazing Management Effects on the Performance of Goats: Preliminary Observations". Annual Meeting of the Southern Association of Agricultural Scientists (SAAS). Tulsa, Oklahoma.

Gebrelul, S., A. Chapell, Y. Ghebreyessus, V. Bachireddy, G. Simon, O. Udoh. 2003. "Status Report on the Goat and Cattle Grazing Project". Annual Meeting of the Small Ruminant Exchange Group. Langston, Oklahoma.

**Outcome:** The multi-species grazing project was initiated in July, 2003. It is still in the preliminary stages of research. Three research presentations have been made at professional conferences. On the basis of the interest displayed by the audience, it is obvious that information emanating from the project will be widely utilized.

**Impact:** The multi-species project is already yielding positive economic impacts. The project was used to leverage for the 2004 funding of a multi-state initiative of creating opportunity for small scale goat producers. In FY 2005, the five participants' herds averaged about 150 percent kidding rate or a market value of approximately \$4,000 each. These five farmers currently participating in this project are serving as peer mentors, model farmers and advisors to other limited resource clients. The site of the mixed-species project is serving as a laboratory for training/workshop in production, management, nutrition, and health of goats.

As a result of their participation in the workshops/training, more farmers especially the Heifer Project International (HPI) participants have indicated strong interest in adding goats to existing cattle farms. Also, 75 farmers who participated in demonstrations to detect parasites using the FAMACHA eye color chart reported saving up to \$300 each (a total of \$22,500) annually in animal care costs.

The project was also used to leverage funding for a project to develop educational materials for Future Farmers of America (FFA) to enhance youth experiences. A CD-ROM suited for training youths on proper slaughtering techniques, meat grading and identification has been developed and used to train 150 vocational agricultural educators

**Scope of Impact:** Information generated from this project will be disseminated widely by collaborators such as Louisiana State University Agricultural Center and the Louisiana Department of Agriculture and Forestry. Citizens of Louisiana, Southeastern United States, and other areas where multiple species grazing may be practiced could benefit from the study.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

## **2. Pasture Rearing of Poultry and Rabbits**

Interest in pastured poultry and pastured rabbit is growing with numerous successful pastured poultry producers across the U.S. Many claims are made about the effects of

pasturing on the flavor, texture and nutritional value of the meat. Claims regarding the health benefits in terms of the omega 3 and omega 6 fatty acid ratios and the CLA contents of meat from pastured poultry and rabbits have not been quantified through scientific data. Most of the work on fatty acid ratios has been carried out with ruminants. Because the rabbit is a non-ruminant herbivore and the chicken a omnivore, there may be important differences in the effects of pasturing on the fatty acid contents of the meats from these species. Studies with controlled experimental parameters are needed so that the producers can accurately inform their customers.

The goal of this research program is to provide sound scientific information for pastured poultry and rabbit producers and to recruit, educate and provide information to such producers thus increasing the availability of the products in Louisiana and increasing the farmers' income. Specific objectives include comparing the method of housing on productivity of poultry and rabbits; comparing method of housing on egg and meat quality including fatty acid profiles and consumer acceptance studies; and to provide a clearinghouse and connection among pastured poultry and rabbit producers in Louisiana. This project is a part of the Southern University Agricultural Research and Extension Center strategic plan goal to strengthen the productivity, profitability and competitiveness of Louisiana's agriculture, forestry, and fisheries while enhancing the environment and wise use of the natural resources. This fits in with the USDA strategic goal for 2002-2007 to develop an agricultural system that is highly competitive in the global economy.

**Key Theme:** Value added animal products

**Output:** This is the first year of the project (the start-up period), two additional outdoor day range houses were constructed. The first broiler trial comparing pastured to conventionally produced broilers was conducted and the carcasses were frozen for future chemical and sensory analysis. A laboratory assistant has been employed for the chemical analyses which are ongoing. Similarly, consumer acceptance trials comparing the meat from pastured and conventionally housed birds are continuing and will be completed in December 2005. A pastured rabbit trial was conducted that indicated needed refinement of our methods. Breeding problems in the herd have prevented further trials but these will be carried out as soon as fryers are available.

We identified 12 farmers who were producing pastured poultry in Louisiana. We held two general 2-hour training sessions (with a total of 16 participants) and two 4-hour on-farm processing training sessions for a total of 6 producers during the year. Four informational letters were sent to the producers.

Based on previous research the following papers were published:

**Publications/Presentations:**

J. I. McNitt, Z. Negatu and K. McMillin. 2004. Bone particle determination in mechanically separated meat – Preliminary Results. Proc. 8<sup>th</sup> World Rabbit Congress, Puebla, Mexico, September 7-10, 2004, pp. 1416-1421.

Lukefahr, S.D., P.R. Cheeke, J.I. McNitt and N.M. Patton. 2004. Limitations of intensive rabbit production in North America: A review. *Canadian Journal of Animal Science*, 84:349-360.

J. I. McNitt, Z. Negatu and K. McMillin. 2003. Influence of rabbit age, deboner drum aperture and hind/fore carcass half on mince components of mechanically separated rabbit. *Journal of Muscle Foods*, 14(1):25-32

The following manuscript has been accepted for publication.

Z. Negatu, McNitt, J.I., and K. McMillin. 2006. Determination of small bone fragments in mechanically separated rabbit meat. *Journal of Muscle Foods*, in press.

**Outcome:** Most participants in the training sessions were interested in starting pastured poultry production or expanding the numbers they were already doing. All participants said they found the training sessions useful and that the sessions increased their knowledge of pastured poultry production. The “on-farm” processing sessions were especially appreciated because that is the hardest part of the paradigm. We have a set of small processing equipment we loan to the farmers while they are getting started. This allows them to try the method to determine if they want to continue. If they do continue, they can continue to borrow our equipment or, if they wish to expand their operations, they can purchase a set of their own.

A publication entitled “Home Harvesting of Broilers” was prepared for distribution to producers.

**Impacts:** Three new producers have started rearing pastured poultry. They were all successful with their first batches in that they successfully produced and processed the birds and used them for home consumption and sold enough to make a profit. All three intend to continue production but have been slowed because of hurricanes Katrina and Rita which negatively impacted all of our producers.

**Scope of Impact:** At the present time, the beneficiaries are all residents of Louisiana. Once information regarding the chemical composition and sensory analyses become available and are published, the impact will be nationwide.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

### **3. Evaluation of Methods and Usages for Processed Aquatic Waste Meals**

The overall goal of the project is to find ways to utilize aquatic waste (AW) in animal and plant systems. Clean air, water, and land are priceless. Proper disposal of AW derived from crawfish, crab, and shrimp is a growing environmental problem in Louisiana and other states with aquaculture industries. Nationwide there is an increasing enforcement of

state and federal environmental mandates for clean air, land, and water. One violation can cost \$50,000 or more. Conversely, it can cost an aquatic plant \$60,000 to \$72,000/year to have AW hauled to a landfill.

The application of AW to land is not always environmentally sound. If not done properly, it can take months for the AW to decompose. The odor of the decomposing materials can be a nuisance for days and months. Finding usages for the millions of pounds of AW materials produced each year in Louisiana is better than dumping the AW in our landfills, on our lands, and in our waterways.

Our project fits within USDA national goals 1 and 4. These goals deal with having an agricultural system that is highly competitive in the global economy and providing greater harmony between agriculture and the environment. The objectives of our project are: (1) to compare efficiency of four AW processing methods for making aquatic meal (AM), (2) to assess the effects of processed AM as a feed source for livestock, and (3) to assess the compost and soil amendment potentials of AM.

**Key Theme:** New Uses for aquatic waste, feed, environment, soil fertility.

**Output:** Activities were conducted to compare several methods of processing AW into AM. The activities included the collecting of AW, experimental set-up, completion of the process for converting AW into AM, data collection, and data analysis. Participants included the project director, research associate, civil service workers, and private industry. A demonstration of the process was conducted at Southern University Agricultural Research and Extension Center (SUAREC) Livestock Field Day on August 20, 2005. The event was held in Baton Rouge, Louisiana. On December 17, 2005, an aquatic meal display was exhibited at the grand opening of Canadaville in Simmesport, Louisiana.

**Outcome:** Participants learned of the potentials and steps for converting AW into AM. One 500 acre organic farm in Louisiana has expressed interest in using our process. Three (3) small scale swine farmers were provided several pounds of crawfish and crab meal for use in their feeding programs.

**Impact:** This project is in its first year of field trial implementation. A 972 acre organic farm (pork, poultry, beef, and vegetables) will be adopting one of the drying method used in this research. The organic farm plans to use the AM as soil amendment and livestock feed ingredient. Two swine producers currently use AM in their pig diets. Preliminary data appears to show positive impacts.

**Scope of Impact:** Findings from the study will be disseminated to the scientific community in the form of professional paper/poster presentations, and other media outlets.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

#### **4. Utilizing Multiple Indices to Measure Quality Deterioration in Value-Added Meat Products**

Many Americans have increased the demand for more low-fat, high protein meats but are oblivious to the benefits and sources of goat and rabbit meat. Rabbit and goat meats are highly nutritious with fat contents lower than other meats. However, they are not widely consumed in the United States because the marketing of these products are unstructured, therefore resulting in economic limitations for goat and rabbit farmers in the Delta region. To increase the productivity and profitability of Louisiana small-scale farmers, (formulated meat products) potential outlets for utilization of goat and rabbit meat were created in the Meat Processing Laboratory at Southern University. There is a great potential for these products to be marketed but before this is done, all safety (quality deterioration with time and temperature) and regulatory measures have to be addressed.

This project addresses (a) promoting a safe and secure food system, (b) expanding the understanding of the hazards to a safe meat supply, (c) enhancing economic opportunity and quality of life for Americans.

**Key Theme:** Adding value to new agricultural product

**Output:** Scientists involved in this study have published and presented their work in scientific journals and at professional meetings and conferences. Two articles appeared in the *Journal of Food Sciences*, and *Goat Rancher*. Two abstracts were in the *Proceedings of the Annual Meeting of the Food Expo (Proceedings of the Institute of Food Technologist)*, and one abstract was presented in the *Proceedings of the Annual Meeting of the Southern Section of the American Society of Animal Science*.

Processing of rabbit, goat and beef hearts into defatted muscle proteins and meat products may also increase the utilization of these nontraditional meats. Powdered goat hearts (surimi) processed in our laboratory was found to be more effective in binding water (increased juiciness) in patties than a powdered beef surimi, suggesting that goat heart surimi has the potential to be a stable functional ingredient in meat products.

**Outcome:** Value-added patties, sausage and nuggets have been produced from nontraditional products (goat and rabbit meat). Also, defatted muscle proteins were formulated from beef, rabbit and goat hearts and used as stabilizers in beef, goat and rabbit patties. These products were found to be nutritionally sound and highly acceptable with the potential to impact the nutritional status of residents of the state of Louisiana. The nutritional products developed from goat and rabbit meat have the potential to enhance the health status of individuals with a high incidence of obesity and other chronic diseases. The introduction of these products into the marketplace has enormous potential of enhancing production with great benefits to the food processing industries. Furthermore, the economic potential of these products to the small-scale producers will be enhanced once these products are stabilized in the market. Studies are underway to address safety and regulatory measures before products are fully put on the market. High quality, pathogen-free, value-added meat patties will be available in the marketplace, thus enhancing the economic potential of goat and rabbit producers.

**Publication/Presentation:**

McLean-Meyinsse, P., Atkinson, Cheryl. "An Analysis of Household Consumption of Rabbit Meat in the Southern United States". **Journal of Food Distribution Research**. March 2004 .

**Impact:** Thus far, goat and rabbit meat were combined with oat gum and oatrim (effective binders with hypocholestermic properties) and formulated into traditional meat products– patties, sausage and nuggets. The formulated products were found to be texturally enhanced, nutritionally sound (low fat, low cholesterol, and high protein) and were highly accepted by a consumer panel. They offer a healthier alternative than some popular meat products that are formulated with fat and are common in the marketplace. The results of this study may be useful in increasing the utilization of value-added agricultural raw materials and ultimately increase the economic viability of goat and rabbit farms.

**Scope of Impact:** This is a multi-disciplinary project involving collaboration between the Animal Science Department at LSU and the Human Nutrition, Health, Family and Consumer Sciences Programs at SUAREC.

High quality, pathogen-free value-added meat (goat and rabbit) patties will be available in the marketplace. These products will have the potential to enhance the health status of individuals with high incidence of obesity and other chronic diseases. Also, the introduction of these products into the market place could potentially enhance the economic potentials of goat and rabbit meats, thus providing producers with sources of additional revenues.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana.

## **5. Effects of Low-Cost High Tunnel and Formulated Media on Production of Selected Horticultural Crops for Niche Market**

Niche market urban gardening that involves the use of low-cost production systems and the utilization of low-cost agricultural biomass as a medium for production is of great value to small and limited resource farms which account for 60% of farms in Louisiana. The niche market production of out-of-season high cash-value vegetables and nutraceutical crops that are in demand by consumers can help farmers to fetch a higher market price to sustain farm profitability. The use of biomass wastes for crop production can enhance state economy by reducing expenses needed to dispose such biomass wastes. Thus, urban niche market gardening can not only enhance food security for the metropolitan areas but also has the potential to generate private entrepreneurship because it is easily adaptable to individual and family lifestyles. Therefore, the proposed research is designed to develop low-cost sustainable production systems for niche market in and around metropolitan areas.

**Key Theme:** Economical and sustainable production system



**Output:** Seven high tunnel and 12 low tunnel frames have been constructed and assembled for future experiments. A preliminary field study was conducted to evaluate the performance of hibiscus, *Hibiscus sabdariffa* for the production of calyces under Louisiana weather conditions without protective covers. Four fertilizer treatments were used: Organic fertilizers, Agreux and Fertrell, 13-13-13 and control. Nutrient content, chlorophyll content, plant height and width, and calyx moisture content and seedpod production are being analyzed. A preliminary field evaluation of catnip as a new herb/essential oil crop under two fertilizer treatments (8-8-8 and ammonium nitrate at 373 lbs./ac) was conducted in the field. Ongoing experiments in the greenhouse includes evaluating three media (hydroponics, peat. moss/perlite mix and baggasse) on the growth of Asian basil and two growing systems on the performance of leafy lettuce.

### **Publications/Presentation**

Three Southern University Agricultural and Research Center circular publications were produced:

Kit L. Chin, Yadong Qi, and Mila Berhane. 2005. Vertical Gardening. SUAREC CIRCULAR – Sustainable Plant and Animal Production Systems No. 301  
[http://www.suagcenter.com/fact\\_sheets.html](http://www.suagcenter.com/fact_sheets.html)

Kit L. Chin, Yadong Qi, and Mila Berhane. 2005 Biological Characteristics, Nutritional and Medicinal Value of Catnip, *Nepeta cataria*. SUAREC CIRCULAR – Sustainable Plant and Animal Production Systems No. 302  
[http://www.suagcenter.com/fact\\_sheets.html](http://www.suagcenter.com/fact_sheets.html)

Yadong Qi, Kit L. Chin, Fatemeh Malekian, Mila Berhane, and Janet Gager. 2005. Biological Characteristics, Nutritional and Medicinal Value of Roselle, *Hibiscus Sabdariffa*. SUAREC CIRCULAR – Urban Forestry Natural Resources and Environment No. 604 [http://www.suagcenter.com/fact\\_sheets.html](http://www.suagcenter.com/fact_sheets.html)

Two news letter articles were published in the Baton Rouge Hibiscus Society Newsletter:

Yadong Qi, 2005. Introduction of Roselle, *Hibiscus Sabdariffa*. Baton Rouge Hibiscus Society Newsletter, April issue, 2005

Yadong Qi and Fatemeh Malekian 2005. Food and Nutritional Value of Roselle, *Hibiscus Sabdariffa*. Baton Rouge Hibiscus Society Newsletter, May issue, 2005.

**Outcome:** In addition to instant access to the website publications through the World Wide Web, the extension publications have been disseminated through various Ag Center conferences, seminars, earth day, farmers' market, SUAREC field days, and local hibiscus chapter meetings, about 800 copies per article have been disseminated thus far.

Two research abstracts on hibiscus and catnip research have been submitted to the 2006 research conferences, the findings will be presented at these conferences.

**Impact:** The project has attracted local, regional and international attentions through publications on the Southern University Ag Center website, conferences, seminars, and field days. The scientists at SU have received requests for information from local hibiscus growers in Baton Rouge, farmers from Georgia, researchers and scholars from India, Tanzania and Malaysia. The project is providing technical assistance to our clientele and hopes to establish further collaborations with them. The project has also provided roselle seeds to the interested hibiscus growers. The project has resulted in a growing interest from growers, consumers, researchers and citizens to Hibiscus sabdariffa, using in tea and food products because of its high anti-oxidation effect. This preliminary study has shown that roselle has a potential to be grown in the warm region of southern USA as a cash crop, to meet the market needs. The catnip, due to its vigorous growth under Louisiana weather conditions, is another promising cash crop and a new crop for Louisiana farmers, to meet the commercial demand for raw catnip for essential oil production.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

**Collaboration:** Scientists at Rutgers University are collaborating with this project. We are also collaborating with our clientele locally, nationally, and internationally.

**Scope of Impact:** State, regional, national and international users may benefit tremendously from this study.

## **EXTENSION PROGRAMS:**

The following outreach programs were conducted for clients in the state to enhance their capacity to carry out an agricultural production system that is highly competitive in the global economy.

1. Small Farm Viability
2. Adding Value to New and Old Agriculture Products
3. Louisiana Agricultural Mediation Program (LAMP)
4. Outreach and Assistance to Socially Disadvantaged Farmers and Ranchers  
Louisiana Family Farm Technical Assistance Project (2501 Project)

### **1. Small Farm Viability**

Small farm viability and sustaining the family farm continues to be a very important initiative for the Southern University Agricultural Research and Extension Center. Our target audiences primarily consist of limited resource producers who are categorized as being socially disadvantaged. According to the most recent Census of Agriculture data (2002), all minority groups, to include African Americans are significant contributors to agriculture and their numbers have increased since the last census in 1997. The 2002 Census of Agriculture reported a total of 2,317 African American farmers in Louisiana

compared to 1166 reported in 1997. This represents a 98.7% increase in the number of African American farmers being counted.

**Output:** Financial management workshops and training meetings focused on planning, analyzing, marketing of products, risk management, legal issues, alternative enterprises, alternative markets, and being able to control business performance by clients. Clients were trained on the techniques of record keeping to enhance their knowledge/skills to enable them to maintain records of their alternative crops, alternative markets, income, expenses, profit/loss, assets, liabilities, etc. Additional information was provided on tax preparation, farmers markets, sustainable agriculture, new and available programs and services at various locations. Over 22,400 persons benefited from the workshops, training sessions and individual contacts by the agricultural faculty and staff. Nineteen small farmers from East Baton Rouge and surrounding parishes enrolled in the Beef Education Program “From Producing to Packaging”. The participants attended classes the first Wednesday of every month from September 2004-June 2005. Topics covered during the training sessions were: Best Management Practices of Beef Cattle, Farm Management and Record Keeping, Understanding Farm Taxes, and Estate Planning.

Six hundred small producers received farm safety and pesticide certification training and of that number, 250 persons were either certified or recertified as pesticide applicators. Field days and farm demonstration tours were conducted throughout the state to provide educational information to producers. Over 10,000 pieces of extension materials were distributed in the form of newsletters, newspaper articles, technical reports, research highlights, special publications, informational flyers, television broadcasts and fact sheets to the clientele. Environmental issues, water quality, farm safety and pesticide certification continue to be hot topics among agricultural producers. Several meetings were held addressing these issues.

**Impact:** Five hundred and fifty small producers received farm safety and pesticide certification training and of that number, 250 persons were either certified or recertified as pesticide applicators. Producers have a better understanding of their farm situation and outlook and an awareness of what skills and resources would be necessary to improve their individual situation. Forty-two percent of the clients adopted practices introduced to them.

Nineteen small farmers from East Baton Rouge and surrounding parishes received certificates of completion during the Center’s first graduation ceremony, concluding the Beef Education Program “From Producing to Packaging”. Knowledge gained is applicable to cattle operations/businesses, and ultimately impacts economic development in the community.

**Scope of Impact:** Small and limited resource producers throughout the State of Louisiana.

**Sources of Funds:** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **2. Adding Value to New and Old Agricultural Products**

SUAREC's goals were to help producers become effective managers of the enterprises they currently operate, and to help find new and alternative enterprises to give producers in the state of Louisiana a comparative advantage due to the scale of production and/or effective marketing strategies. Target enterprises include meat goats, beef cattle, pastured poultry, rabbit processing and vegetables. Trainings, workshops and meetings were held to provide education and information to the clientele concerning the various ways they can add value to their commodities and also to inform them of alternative enterprises which may be suitable for their individual situations and circumstances. About 10,500 contacts were made and information disseminated on meat goats, beef cattle, pastured poultry, rabbit processing, home gardens, vegetables and ornamentals. Marketing is a major concern of producers, SUAREC focused on ways of assisting them through diversification and adding value to their commodities. About 915 producers in the state received individual and commodity specific marketing assistance.

**Impact:** About 1,665 livestock and vegetable producers increased their awareness and adopted one or more value-added approaches or practices such as developing direct, regional and terminal marketing channels. About 50 percent of these producers are now selling at Farmers Markets and/or directly to consumers.

**Scope of Impact:** The Southern University Agricultural Research and Extension Center, in collaboration with the Louisiana Department of Agriculture, the Louisiana State University Agricultural Center and local grassroots farmer organizations delivered the educational programs to enhance the capacity of small-scale farmers in Louisiana to operate an agricultural system that is highly competitive in the global economy.

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **3. Louisiana Agricultural Mediation Program (LAMP)**

LAMP was established to provide USDA program participants an opportunity to resolve their disputes through mediation. Therefore, the target population/clientele were agricultural producers in the State of Louisiana who participated in and/or applied for programs provided by USDA. The majority of the participants of these programs were limited resource farmers; these persons were the primary target population of LAMP. The target area was the entirety of the State of Louisiana. All agricultural producers in the State are qualified for the program. LAMP was established to provide mediation services, and direct assistance needed to prepare for mediation, that assisted in resolving disputes between agricultural producers and their creditors, as well as disputes involving "adverse decisions" of various USDA agencies, such as Farm Services Agency (FSA), the Natural Resources Conservation Services (NRCS), and others. The mediation process would provide an alternative dispute resolution to the agricultural producers, i.e., mediation rather than their previous exclusive dispute resolution process of appealing the

decision. Through mediation, other mitigating circumstances were considered rather than merely if the agricultural producer complied with the “black letter” of the USDA regulations and the parties were able to develop alternative strategies to assist the farmers with qualifying for USDA programs.

Overall goals of LAMP are to: 1) assist with creating an agricultural production system that is highly competitive in the global economy; 2) assist by developing a program that enhances the greater harmony between agriculture and the environment. These goals are attained by: 1) availability of technical assistance components that would provide agricultural producers with information regarding legal issues that pertain to their agricultural enterprise, and 2) an educational component whereby a series of seminars would be held to enlighten agricultural producers across the state on topics of interest, such as the advantages of drafting and recording agricultural leases, the process of becoming creditworthy, the advantages of estate planning for the purpose of preserving farms and land for future generations, etc.

**Key Theme:** Alternative dispute resolution mechanism for agricultural producers

**Output:** The program has been conducting major media announcements across the State of Louisiana informing agricultural producers about LAMP and its purpose. The program analyst attended agricultural group meetings across the state for the same purpose. As a result of these informational mechanisms, the clientele responded and requested the services of LAMP. Successful mediations were conducted whereby clients were given a list of items to correct and their loan application would be reviewed at a later date, or other methods were utilized to find clients creditworthy. As a result of media coverage, agricultural producers also elicited information on other legal issues from the program analyst of LAMP, to resolve legal problems. Five clients were provided mediation and informal mediation was provided to 14 clients. The program conducted 14 educational/promotional seminars around the State, two were in conjunction with other 1890 programs (Kentucky State University and Prairie View University), a total of 883 participants attended these seminars. Mediation training was conducted and 25 participants benefited. Additionally, the program co-sponsored and co-chaired an Agricultural Legal Issues Conference with 60 participants from the southern states.

**Outcome:** Many of the clients who were assisted by LAMP were party to the Black Farmers Lawsuit. These persons lost their faith in the USDA due to the appearance of impropriety that had been perceived to have been exerted by various USDA agencies. LAMP helped to reestablish agricultural producers’ faith in the USDA programs. In future, if they receive adverse decisions from those agencies, they have an alternative to resolve their disputes at no cost to them. This process will eliminate the perception of bias.

**Impacts:** In this period, approximately 1,000 individuals benefited from this program. In FY 2005, five (15 since the inception of the program) have been provided the no cost mediation service to assist with their adverse decision. In the State of Louisiana, legal

fees commence at \$150/hour and increase from that point, whereby retainer fees generally require a minimum of 10 hours. The mediation process that was provided, allowed our clients to save the cost of employing expensive legal counsel, as well as the cost of litigation. Furthermore, the citizens did not have to face the drastic result of losing their farm or being prevented from farming for the season. Additionally, USDA was saved the cost of appeal and perhaps the cost of litigation as well. Of those persons attending the legal seminars, at least 80 percent indicated via surveys that they found the information beneficial and enlightening, and thought such seminars should continue to be presented. Agricultural producers became educated on matters that would assist their enterprises regarding leases that would prevent future costly legal issues. Finally, the 883 participants in the legal seminars also received valuable legal information and education at no cost to them and were provided an excellent base of preventative legal information.

**Scope of Impact:** State of Louisiana and Southern States.

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

#### **4. Outreach and Assistance to Socially Disadvantaged Farmers and Ranchers Louisiana Family Farm Technical Assistance Project (2501 Project)**

This project is an effort to directly address the most significant problem confronting small and mid-size farms, low net farm income. This can be a result from many different factors, or combination of factors. Unless a solution can be found to increase individual farmer's net income and total net farm income, rural communities and their associated infrastructures will continue to decline. The overriding goal of this project is to improve the farm management skills and processes among cooperating farmers and to expand opportunities for new and existing farmers to achieve higher net farm income. This goal will be achieved by helping farmers adopt the best practices in marketing, farm management and enterprise selection as well as improving their ability to access available governmental programs and other services. The specific objectives of this project include the following: (i) provide technical assistance related to record keeping, production practices, farm and risk management; (ii) Increase awareness of basic agricultural knowledge, resources and services available at the local, state, regional, national and international levels; (iii) increase youth awareness and participation of agricultural programs, careers and related activities; and (iv) increase marketing potential through the use of commodity selection and other viable avenues.

**Output:** The 2501 Project has provided technical and educational assistance to approximately 115 farm families in Concordia, Franklin, Tensas, Morehouse, Ouachita, East Carroll, West Carroll, Madison and Richland Parishes. The program assisted twenty-six producers in the targeted parishes in developing viable farm and home plans which are crucial tool used in borrowing operating expenses from the Farm Services Agency.

This year, there were eight new borrowers. The program serves as either the advisor or co-advisor for each of these youth loans.

In January 2005, the 2501 project, in coordination with the Louisiana Agricultural Mediation Project and a Risk Management Education grant at the Southern University Law Center held the first Agricultural Legal Issues Training Conference in Baton Rouge, Louisiana. This conference focused on those legal issues most often faced by socially disadvantaged, limited resource farmers and ranchers. The targeted audience for this conference was change agents, extension, 2501 personnel and researchers at the 1890 institutions as well as others who work with the clientele. Approximately 60 persons attended this conference.

**Outcome:** Of these 115 families, 66 are currently participating in the USDA – Natural Resources Conservation Service, Environmental Quality Incentives Program (EQIP) cost share program. Eight youth borrowed \$36,000 from Farm Service Agency to begin their own agricultural operation as a separate entity from their families and 24 youth participated in the Louisiana Department of Agriculture and Forestry Youth Loan program borrowing \$60,000 to begin their livestock operations. During the last year, the 2501 project outreach specialist has assisted producers in the targeted area with borrowing approximately \$898,000 in guaranteed loans and in excess of \$3.4 million in direct loans.

Much energy and many educational efforts have been made relative to beef cattle production. As a result of the 2501 efforts, 23 agricultural producers have diversified their enterprises to include beef cattle production. The specialist currently provides the majority of the education to this audience to include herd health, nutrition, and management and even assist in locating quality animals to improve the quality of the herd or even to be used to begin the herd. Raising beef cattle has become a popular and financially rewarding enterprise for small, limited resource producers. Currently, the 2501 specialist is working with 93 adults and youth in this endeavor.

**Impact:** Producers benefited from a 90 percent cost share allowed (to have approximately \$363,000 worth of environmental and conservation practices installed on their land), and at an out of pocket expense of \$33,000 or an average of \$5000, these practices were implemented on each farm. Two of the producers purchased approximately 400 acres to increase the size of their operation. Four percent of the producers have graduated to borrowing from commercial lenders.

As a result of encouragement, planning and coordination by the 2501 project, three Community Based Organizations exist. These small farmer organizations continue to receive the majority of their primary organizational programming instruction and education from the 2501 staff. In FY 2005, eight limited resource producers in the targeted area of Louisiana vied for and were elected to positions of the various NRCS boards in the different parishes. This is a significant increase from the one just a few years ago.

The beef cattle initiative has increased the producers' income by more than \$257,000 collectively. The minimum dollar increase per family was \$2,500 and the maximum was \$40,000.

**Scope of Impact:** State of Louisiana - In areas of the state where the 2501 efforts are focused, there seems to be a changing face of agriculture. More youth are expressing an interest in learning more about agriculture and even exploring options relative to agriculture such as livestock projects and/or community gardens. Increased numbers of youth are applying to and participating in summer programs offered by the Southern University Agricultural Research and Extension Center and the College of Agricultural, Family and Consumer Sciences.

**Funding Source(s):** USDA/CSREES 2501 Project and matching funds from the State of Louisiana

## **National Goal 2: A safe and secure food and fiber system.**

SUAREC's research and extension programs collaboratively addressed National Goal 2 as follows:

### **RESEARCH PROJECTS:**

No research was specifically conducted under Goal 2 for FY 2004

### **EXTENSION PROGRAMS:**

According to USDA/Food and Nutrition Service, the number of food stamp recipients grew by about 4 million between FY 2001 and FY 2003. In the state of Louisiana, data indicate an increase of almost 79 percent during the same period. About 250,388 families receive food stamps in the state to feed at least 655,300 people. The average amount given is \$228.07 per household with an average household consisting of 2.3 people. However, despite the increased numbers of individuals receiving governmental assistance in the form of food stamps, there are still food insecure households in Louisiana. Nationally, Louisiana ranks fifth in food insecurity and ninth in hunger-filled households. Sadly, most of these households are comprised of a large percentage of young children and the elderly.

The following extension programs were conducted to achieve National Goal 2: A safe and secure food and fiber system.

1. Families First – Nutrition Education and Wellness System (FF-NEWS)
2. Preventing Foodborne Illness in a Vulnerable Lower Mississippi Delta Population



## **1. Families First – Nutrition Education and Wellness System (FF-NEWS)**

The Families First – Nutrition Education and Wellness System targets food stamp eligible and food stamp participants to assist the state of Louisiana in combating food insecurity and also in providing nutrition education and intervention activities. A major component within the Families First – Nutrition Education and Wellness System program is assisting families, with not only stretching their food dollar, but also in incorporating low-cost healthy menu selections within their meal plan. Educational materials were distributed to targeted FF-NEWS parishes which have full-time Nutrition Program Assistants that provide nutrition information. These parishes include: East Baton Rouge, East Feliciana, Ascension, St. James, East Carroll, West Carroll, Avoyelles, Evangeline, Calcasieu and Lafayette. This program is currently in the process of expanding its outreach to include Orleans and St. Tammany parishes.

Since 2000, the Southern University Ag Center and ten other 1890 universities formed a consortium to help limited-resource families improve dietary and health behaviors through intensive nutrition education. Nutrition Program Assistants in six targeted parishes have provided nutrition information to persons receiving or eligible to receive food stamps. The FF-NEWS program is a nutrition intervention program designed to help with selection and preparation of meals consistent with cultural traditions while improving overall health.

Recent behavior risk survey data indicated that lack of knowledge of chronic disease prevention, lack of adequate healthcare facilities within communities, as well as engaging in risky behavior are the major reasons for limited change in limited-resource families. Many of these risk factors are eating patterns, limited or no doctor visits/health insurance, smoking, and other substance abuse.

**Key Theme:** Food Accessibility and Affordability

**Output:** Information was provided through one page fact sheets entitled, “Nutrition Nibbles”, that utilized concepts presented in lessons from the FF-NEWS curriculum. Some of the topics, were:

- “Breaking the Fast” (the importance of starting your day with breakfast);
- “The Skinny on Fat” (how to reduce your fat intake);
- “Aim, Build, and Choose for Good Health” (Dietary Guidelines);
- “Spice up Your Life without Added Salt”;
- “Don’t Be a Chicken, Use Your Turkey Smarts (food safety tips for the holidays);
- “Don’t be a Food Scrooge for the Holidays” (tips on healthy holiday eating).

A total of 93,840 individuals (direct and indirect contacts) were reached through the FF-NEWS program. Of this total 31,155 were direct nutrition contacts and 62,685 indirect

contacts. Some of these contacts were evacuees of Hurricanes Katrina and Rita who relocated to other parts of the state.

**Outcome:** Pre and Post test are provided to measure behavior change. In the Food Stamp and Food Supplemental Distribution Sites, behavior measures were difficult to assess due to the clientele not reporting to the sites on a consistent basis, such as monthly or quarterly. In these instances Nutrition Program Assistants/Associate success stories were used to measure qualitative behavior change among participants. Evaluations to assess the program were conducted on a quarterly basis. Results of these evaluations show, that 91.5 percent of monthly contacts and 95 percent of quarterly contacts felt that the information presented in the program was useful; 93 percent of monthly participants felt that they had learned at least one nutrition fact that would help them make healthy changes in their eating habits; 100 percent of quarterly contacts reported they are now shopping from grocery lists as opposed to impulse shopping and 100 percent have begun to pay attention to food safety guidelines when preparing food.

Assessment of program participants provided the following:

- 1) The participants enjoyed the lesson on “Spice up Your Life without Added Salt,” and they discussed how they have to watch their salt intake because they are coping with high blood pressure. After tasting the recipe, “Mexican Chicken Dip”, they stated it was very good. Apart from making chicken salad with canned chicken, they received from the distribution, they now have another method of using the canned chicken.
- 2) A young mother tasted the Texas Caviar recipe and stated she liked it and was going home to prepare this recipe for her family’s evening meal along with some chicken.
- 3) A participant stated that his family enjoys the 100 percent wheat bread suggested by the program.
- 4) Participants at the Food for Families/Seniors distribution sites are eager to receive the fact sheets because they are factual and easy to read.

**Impact:** The results of a survey conducted by the Office of Planning and Evaluation at SUAREC show that 95 percent of the participants in the nutrition classes said they benefited from the activities. They also stated that nutrition classes helped them improve dietary habits and to reduce health risk factors. The results also indicated that 57 percent of the respondents met and/or exceeded their goal of a healthy weight. Additionally, 97 percent of the respondents added more fruit and vegetables to their diets, 100 percent used less salt, 100 percent ate less fast foods, and used more herbs. The program has been particularly helpful in assisting over 50,000 hurricane evacuees when they were living in shelters and as they attempt to resettle. Our estimate is that participants may have saved over \$500,000 in health and related care costs.

**Scope of Impact:** SUAREC in collaboration with the United States Department of Agriculture/Food and Nutrition Services, the Louisiana Department of Social Services/Office of Family Support and local parish community and health agencies provides nutrition programs to citizens of Louisiana.

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **2. Preventing Foodborne Illness in a Vulnerable Lower Mississippi Delta Population**

The terrible plight of hunger of the Lower Mississippi Delta's (LMD) impoverished people was identified in the 1960s. Although anti-hunger efforts including Food Stamp Outreach, Nutrition Education, WIC, support for local food pantries and increasing School Breakfast, School Lunch and Summer Feeding Program are in place, low-income people in the Delta still suffer inadequate access to good nutrition. Poor nutrition and health hinder both physical and mental development. The inability to perform mentally and physically may be major contributors to the perpetuation of poverty in these individuals. Food-insecure individuals comprise a vulnerable population at increased risk of illness and for whom medical treatment may not be readily accessible. The situation is particularly serious in the LMD where an estimated 684,000 people in Louisiana face hunger each year (Second Harvesters, 1998).

Disadvantaged urban and rural populations of the Lower Mississippi Delta (LMD) are at risk from poor nutrition, a higher incidence of foodborne illness vectors, and their generally more compromised health resulting from lack of resources, medical services, and knowledge about nutrition and food handling practices. Access to safe, nutritional food through food recovery operations can help, but personnel handling these foods must be aware of the sanitation and thermal maintenance requirements implicit in perishable food distribution. Food recovery encompasses the food's history, from its release by the donor, through delivery, storage, preparation and consumption. The investigators surveyed existing food recovery operations and observe their food storage and handling facilities and current food-handling procedures. Existing Louisiana, Mississippi and Arkansas universities' research, extension and teaching faculty and appropriate government agencies were marshaled to standardize procedures and training protocols throughout the LMD regions and to extend their availability to LMD food handling personnel through direct-contact and distance learning outreach channels. Research was conducted in two areas: evaluations of the effectiveness of food recovery organizations' food handling practices by temperature audits and HACCP-based analyses and the effectiveness of the training curriculum. This curriculum, developed specifically for food recovery agencies, include lesson plans, fact sheets and two videos. Once trained in the curriculum, food recovery managers were used to train their personnel.

**Key Theme:** Food Safety

### **Output:**

**Publications:** Fact Sheets on the following subjects were published and disseminated to clients:

- What Causes Foodborne Illness?
- Preventing Foodborne Illness

Keeping Food Out of the Temperature Danger Zone  
Personal Hygiene and Handwashing Procedures  
Cleaning and Sanitizing  
Handling and Serving Food Safely  
Food Storage  
Transporting Food Safely  
HACCP for Control of Food Safety  
Cleaning and Inspecting Fruits and Vegetables

The “Serving Food Safely” Curriculum is currently being taught in three states, Louisiana, Mississippi and Arkansas. SU Ag Center staff has made a total of 2,630 contacts since putting the curriculum in use.

**Outcome:** Results suggest that 100 percent of participants attending the train-the-trainer sessions thought that they were successful and would be of great benefit to their establishments and clients. A follow up of participants indicated that the curriculum was used successfully to improve food safety knowledge for the subjects overall, and for subjects in each of the participating states. In addition, results from the behavior survey administered immediately after the food safety curricular instruction, indicated that the majority of food recovery personnel are already using or plan to use proper food safety practices in their agency or at home.

**Impact:** The “Serving Food Safely” Curriculum is currently being taught in three states, Louisiana, Mississippi and Arkansas. The program helped clients increase knowledge and awareness for food safety. It also assisted approximately 50,000 hurricane evacuees in Louisiana as they lived temporarily in shelters and as some were preparing to move back to their homes.

**Scope of Impact:** SUAREC in collaboration with LSU Ag Center, University of Arkansas, and Mississippi State University.

**Funding Source(s):** Smith-Lever Act, Section 1444. USDA – National Integrated Food Safety Initiative and matching funds from the State of Louisiana

### **National Goal 3: A healthy, well nourished population.**

## **RESEARCH PROJECTS**

SUAREC’s research projects conducted to ensure a healthy, well nourished population are as follows:

1. Nutrition Label Use, Nutritional Knowledge, and Food Security in Louisiana
2. Early Nutritional Intervention Strategies for Head Start Teachers in Louisiana
3. New Technologies for the Utilization of Textile Products

## **1. Nutrition Label Use, Nutritional Knowledge, and Food Security in Louisiana**

Heart disease, cancer, stroke, and diabetes are four of the leading causes of death in the United States. All have been linked to poor diets. Louisiana has the second highest obesity rate in the United States, and the highest death rates from heart disease, cancer, and diabetes. Because of these dismal statistics, Congress passed the Nutrition Labeling and Education Act (NLEA) in 1990 to help consumers to make healthier food choices. The Act was implemented in 1994. The passage of the Welfare Reform Act (WRA) in 1996 dramatically changed the way the government provides assistance to poor families and children. Louisiana has a high poverty rate therefore; the WRA could adversely affect the food security of Louisiana's poorest families.

This project is designed to assess how the NLEA and the WRA have affected label use, nutritional knowledge, and the level of food security in Louisiana. The goal is to determine the effectiveness of NLEA and WRA on buying and eating habits, nutritional knowledge, and food security in Louisiana. A stratified random telephone survey was conducted in Louisiana in Fall 2002. The survey contained 1,300 respondents. Socioeconomic data were collected on respondents' age, household composition and size, educational levels, household income, ethnic origin, and gender. The survey also generated information on levels of nutritional knowledge and awareness, attitudes toward diet and health, and levels of food insecurity in the state. From the survey, about half of the respondents were less than 45 years of age; 32 percent were married without children; 43 percent had not attended college; 75 percent had household incomes below \$50,000; 74 percent were Caucasians, and 73 percent were women.

**Key Theme:** Nutrition and Food Security

**Output:** Develop strategies to get nutritional information where it is needed most, so as to foster better eating habits.

On a five-point rating scale (5=excellent and 1= poor), respondents expressed relatively weak impressions of the healthiness of their diet. Less than four out of ten respondents indicated that their diet was excellent (9 percent) or very good (27 percent). The highest percentage of respondents described their diet as "good" (39 percent). Almost one-fourth assessed their diet as fair (18 percent) or as poor (5 percent). These assessments were strongly correlated with income levels. High and middle-income households were more likely to rank their diets as excellent or very good, while low-income households were more likely to regard their diets as unhealthy.

Ninety percent of high-income households and 89 percent of middle-income households agreed that diet can make a big difference in a person's chances of getting a disease, such as heart disease or cancer. Conversely, a large proportion (86 percent) of low-income residents agreed that choosing a healthy diet was a matter of knowing what foods were good for you and what foods were bad for you. Fifty percent of these respondents also felt that the foods they were eating were already healthy; therefore, there was no need to

change their diet. Additionally, 41 percent of low-income respondents agreed with the statement that some people were born to be fat and some were born to be thin. Consequently, there was nothing they could do about their genetic composition.

**Publication/Presentation:**

Measuring Consumers' Awareness of the Major Health Problems Caused from Excessive Sodium Consumption. Forthcoming. *Journal of Food Distribution Research*, March 2006.

**Extension and Education Reports:**

Chew on These Fat Facts. *Diet and Health Issues*, Report Number 9, July 2005.

How Sweet Is Your Tooth? *Diet and Health Issues*, Report Number 8, June 2005.

Can Louisiana Residents Identify Health Problems Related to Overweight and Obesity? *Diet and Health Issues*, Report Number 7, June 2005.

Bone-Up on Calcium. *Diet and Health Issues*, Report Number 6, June 2005.

Slow Down, Danger Ahead—High Sodium. *Diet and Health Issues*, Report Number 5, June 2005.

The Low Down on High Cholesterol. *Diet and Health Issues*, Report Number 4, May 2005.

Feasting with Fiber. *Diet and Health Issues*, Report Number 3, May 2005.

McLean-Meyinsse, P. E. and D. Jones. 2004. "The ABCs for Good Health: How Do Louisiana Consumers Rank Selected Recommendations from the Dietary Guidelines for Americans?". The 2004 Conference of the Food Distribution Research Society, Morro Bay, California, October 10 – 13, 2004.

McLean-Meyinsse, P. E., D. Jones and C. Ferrygood. 2004. "How Do Louisiana Consumers Rank the Dietary Guidelines for Americans?". *Diet and Health Issues*. Research Report Number 2, July 2004.

McLean-Meyinsse, P. E. and D. Jones. 2004. "Nutritional Information Sources, Label Use, and Attitudes Toward Food Labels". *Diet and Health Issues*. Research Report Number 1, February 2004.

**Outcome:** The end results show (a) how well Louisiana residents understand the information on the nutrition facts labels, (b) the level of label use in purchasing decisions, (c) the degree of accuracy in linking diets and health-related illnesses, and (d) the level and intensity of hunger and food insecurity in the state.

Other indicators are, dietary changes through greater nutritional awareness; changes in dietary practices; and a healthier population both in Louisiana and the nation.

To date, the major product is the completed survey. Ancillary products will include the following: (a) more research briefs distributed by extension personnel; (b) stronger ties

and unity between extension and research as we intensify our efforts to help stakeholders change their eating habits and, ultimately, improve their health; and (c) wider dissemination through presentations at conferences and publications in professional journals.

Additionally, research highlights have been published in bulletins and are being disseminated by extension agents to clients who are predominantly low income and socially disadvantaged.

**Impact:** One of the benefits of a healthier population is lower healthcare cost. Given that the State of Louisiana spent \$1.4 billion between 1998 and 2000 on medical expenses related to adult obesity, any cost savings in this area could help fund worthy projects, particularly education.

Two undergraduate students worked on the project in the summer, and one is now using a subset of the data for his senior thesis. The students indicated that by working on the project, they had broadened their awareness about diet and health, and this had caused them to increase their usage of the Nutrition Facts panels to make better food choices. Additionally, by conducting the literature searches, they now had a greater appreciation for scientific investigation and the economic challenges the United States will continue to face as the costs for treating diet-related illnesses continue to rise. Given their increased awareness, the students volunteered to distribute copies of the research reports to family members. Additionally, published research highlights are being disseminated to clients who are predominantly low income and socially disadvantaged.

**Scope of Impact:** The study will provide needed empirical data about food insecurity in Louisiana, the level of nutritional knowledge, awareness, and attitudes towards diet and health. The impact of the findings of the study will extend beyond the state of Louisiana.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

## **2. Effectiveness of Early Nutritional Intervention Strategies for Head Start Teachers in Louisiana**

Obesity is a major concern in children and adults in the United States. Childhood obesity can be prevented or corrected if their diet is modified to decrease intakes of fat, saturated fat, salt, and calories. Prevention of hypertension, heart disease, and diabetes in children with a family history include avoiding becoming overweight or obese, moderating intake of fat, salt, and calories and exercising regularly. Childhood is an important time in human development and is also an ideal time for establishing healthful eating habits and exercise patterns. When children begin eating more meals away from home and when they begin making decisions about what to eat is a good time to provide nutrition education. Nutrition education can increase children's knowledge about nutrition and help to shape attitudes and food behavior.

The objectives of this project were: 1) to assess the dietary intake and health status of preschool Head Start children; 2) to develop detailed in-center/in-home nutrition intervention strategies (protocols) for Head Start teachers, preschool children and their families, and 3) to assess the effectiveness of intervention protocols in improving dietary intake and health status of preschoolers and their families, as measured by change in knowledge and behavior of teachers and families, the dietary intake, and physical and parameters of children. Supplies and materials were provided to Head Start Teachers including storybooks, puzzles, coloring books, teacher manuals, and food models for use in teaching nutritional interventions. All participating Head Start Centers had the participants to plant fruit and vegetables indoors and outdoors in garden plots and containers to promote healthier food choices.

**Key Theme:** Healthy nutrition education

**Output:** A teacher and parent workshop on early nutritional interventions was developed and presented during the year. (2) Head Start Teacher Workshop on the Dietary Guidelines was also developed and presented in FY 2005. (3) Obesity and Organ Wise Workshop for Head Start Teachers was presented on October 20, 2004 at the SUAREC Center. (4) About 1,500 dietary guideline newsletters were prepared and distributed to Head Start parents, teachers, and administrators. The newsletters featured the following dietary guideline guidance: fitness and exercise, eating plenty of fruits and vegetables daily, choosing plenty of grain daily, and childhood obesity. Supplies and materials were provided to Head Start Teachers including storybooks, puzzles, coloring books, teacher manuals, and food models for use in teaching early nutritional interventions. Materials included the following: Feast for 10 Book; Eating the Alphabet Fruits and Vegetables A-Z; Carrot Seed Book; Exercise and Keep Moving; Rabbit Food; My Five Senses; Nutrition Sense and Food Friends Activity Book; Fruit Puzzle (wooden); Food Models (plastic). All participating Head Start centers had the children to plant fruit and vegetables indoors and outdoors in garden plots and containers to promote healthier food choices. Garden crops included the following among others: Strawberries; Cabbage; Mustard greens; Pumpkins; Green peas; Corn; Squash; and Radishes. Dietary Guidelines (DG) guidance was incorporated into these subjects: math, science, health, nutrition, reading, story time, free play, mealtime, music, and art.

**Publications (Manuals)**

Southern University Agricultural Research and Extension Center. 2003. Early Nutritional intervention for Head Start Teachers in Louisiana Curriculum Guide (Pending)

Iberville Parish Head Start. 2003. Aim for Healthy Weight and Be Physically Active Daily. Nutrition Newsletter, August.

Iberville Parish Council Head Start. 2003. Dietary Guideline: Interventions for Teaching Child Nutrition and Menu Plans.

Harris, E. 2003. "Managing for Excellence Through Research and Teaching". Paper Presented at the Head Start Regional Conference Proceedings.



**Outcome:** Head Start Centers participating in the research began incorporating dietary guidelines information in the lesson plans and activities. Results and findings from the study will be disseminated to nutrition clinicians, child care administrators, and the research community. Participants at the workshops pledged to make healthier choices in their lifestyles.

**Impact:** The impact of the research is in enhancing the nutritional status, health, and physical well-being of Head Start teachers, children and their families. Adoption of recommended strategies hopefully will help to ensure healthy nutrition in preschool and Head Start children by developing healthy eating habits early in their lives. Post-test survey indicates the following impacts:

40 percent increase in physical activities

96 percent increase in Food Guide Pyramid use

62 percent increase in fruit and vegetable consumption

64 percent increase in moderation in cholesterol and trans fat intakes.

Potential impact is the reduction in prevalence of obesity related childhood diseases such as diabetes, hypertension, femoral epiphysis, and lower cholesterol and other lipids.

**Scope of Impact:** Preschools in Louisiana will benefit first from the results of the study. The dietary guidelines can be helpful in promoting positive dietary behavior, healthful lifestyles, and food safety among Louisiana citizens. Additionally, the research could also be of great benefit to preschools in the nation.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

### **3. New Technologies for the Utilization of Textile Materials**

Kenaf research is designed to improve kenaf fiber for apparel and craft applications. Digital printing research targets the characterization and study of the digital printing process. Limited research has been conducted on digital textile printing, thus the information obtained from this research is very significant. The research has provided new information on the processing of digitally printed fabrics in the following areas: color change during processing, optimum steaming time for color fixation, and instrumental color measurement of digitally printed fabrics. This information has the potential to lead to development of a new standardized test method for color measurement of digitally printed fabrics. The American Association of Textile Chemists and Colorists is the organization charged with approving the new test method. If such a test method is accepted, it will be used internationally.

Studies were done to determine the effect of various parameters during steaming on color intensity. Individual one-inch CMYK bands were repeatedly printed at 100% strength using an ENCAD 1500 TX ink-jet digital textile printer using fiber reactive dyes. Roll position did not have significant effect on overall color change. However, the middle rolls/layers had the highest intensity because the inner layers underwent less hydrolysis. Steaming the fabric for 30 minutes yielded the highest color intensity. It is recommended

that when steaming, wrap the steaming core with another fabric two or three times before rolling on your printed fabrics. An additional three layers should be wrapped around the outermost layer. Fabrics should be steamed for no more than thirty minutes in a regular upright steamer. Steaming time may vary for pressured steamers.

Studies were conducted to determine optimum conditions for pre-treatment that will lead to the best color depth of digitally printed cotton fabrics. Specific research questions are as follows: (1). What is the effect of roller speed during padding on the color depth of digitally printed cotton fabrics? (2). What is the effect of fabric layers during padding on the color depth of digitally printed cotton fabrics? (3). What is the effect of roller pressure during padding on the color depth of digitally printed cotton fabrics?

**Procedure:** 100% Double –knit cotton fabric was padded with a pre-treatment fabric solution for digital textile printing. The pre-treatment padding solution formulation was obtained from North Carolina State University. The ingredients were weighed and blended for 5 minutes to create a smooth consistent, lump-free liquid. The liquid was poured into the padder reservoir. Two layers of double –knit 100% cotton fabric were padded using a 36” wide padder. One yard fabric samples were padded at speeds of 20, 40, 60 rpm and at a constant roller pressure of 33psi. The fabric was then hung and allowed to air dry overnight. Color bands of cyan, magenta, yellow, and black were printed on the fabric using reactive dyes on the ENCAD TX1500 digital textile printer. The samples were steamed separately in a low pressure steamer for 30 minutes. Each sample was post-treated using 1g/liter of cotton wash solution, and then washed in a commercial washer for 6 minutes. The samples were then dried individually in a commercial dryer. Color readings were taken from each of the samples using the Colorguide 45/0 spectrophotometer at every stage of processing (printing, steaming, and washing). Data were analyzed using SPSS ver. 10.0. The GLM procedure was used to compare means of DE\*, L\*, a\*, b\*. Post hoc multiple comparisons were made using the LSD model. Descriptive statistics were computed. **Major Findings:** Results indicated that roller speed had a significant effect of the shade depth of the fabric. Fabrics padded at 40rpm produced the darkest shades. Padding at a lower speed of 20 rpm did not produce the darkest fabrics as expected because the increased uptake of the padding formulation due to slow speed resulted in higher viscosity, which interfered with dye penetration. There was no significant difference in the two layers of fabric on all color dimensions. This finding is significant because wider fabrics can folded and padded on the 36” padder without compromising color quality.

**Key Theme:** Textiles development and health care

**Output:** Kenaf was extracted from stems through biological and chemical retting. The bacterially and chemically retted kenaf fibers were blended with cotton in varying percentages of 10/90, 25/75 and 50/50 kenaf/cotton blend fibers. The new digital printing laboratory was set-up. Print designs were developed using U4ia and Photoshop software. Sample fabrics were printed using the Encad Digital Fabric System. The following studies have been completed:

- 1) Determination of Dimensional Stability of Knitted and Woven Fabrics Using Accelerated Testing and Computer Imaging Procedures
- 2) Effect on Steaming Time on Colorfastness to Laundering of Digitally Printed Cotton
- 3) Change of Color Intensity of Digitally Printed Cotton Fabrics Due to Steaming

**Publications/Presentations:**

Namwamba, G. W. (2005). Digital Textile Printing. Charleston, SC: BookSurge Publishing.

Namwamba, G. N. (2005). Apparel Quality Indicators: Perceptions of Male and Female Shoppers. Accepted for publication in the proceedings of the 2005 ARD/AED Conference.

Namwamba, G.W., Dixon, D.L. (2004). Microscopic Characterization of Bacterially and Chemically Retted Kenaf Fibers. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). in the proceedings of the 2004 AATCC International Conference.

Dixon, D. L. and Namwamba, G. W. (2004). Effect of Steaming Time and Distance from Steam Source on Color Intensity of Individual CMYK Bands of Digitally Printed Cotton Fabrics. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). in the proceedings of the 2004 AATCC International Conference.

Namwamba, G., Scott, P., Dixon, D., Jackson, B. (2003). Summer Splash: African inspired outfit made with digitally printed fabric, an original design. Design abstract accepted for publication in the proceedings of the 2003 International Textiles and Apparel Association Conference in November.

Namwamba, G.W., Dixon, D.L. (2003). Effect of Steaming and Washing on Shrinkage of Inkjet Printed Cotton Fabric. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). in the proceedings of the 2003 AATCC International Conference.

Namwamba, G.W., Dixon, D.L., Ghebreiyessus, Y., Chen, Y., and Zhang, T., Kimmel, L. (2003). Effect of Retting Method on the Color of Kenaf Fiber. Abstract published on-line at [www.aatcc.org](http://www.aatcc.org). Poster presented at the 2003 AATCC International Conference.  
 Namwamba, G. and Dixon, D. L. 2003. "Colorfastness to Crocking and Laundering of Digitally Printed Cotton Fabric". Beltwide Cotton Conferences Proceedings.

Namwamba, G. N. and Dixon, D. L. 2003. "Change of Color Intensity of Digitally Printed Cotton Fabrics Due to Steaming". Published in the proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Namwamba, G. N. and Dixon, D. L. 2003. "Bacterial Retting and Fiber Softening of Everglades Variety Kenaf for Apparel Applications". Published in the Proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "The Effect of Steaming Time on the Colorfastness to Laundering of Digitally Printed Cotton Fabrics". Published in the Proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "Determination of Dimensional Stability of Woven and Knitted Fabrics Using Accelerated Testing and Computer Imaging Procedures". Published in the Proceedings of the 13<sup>th</sup> Biennial ARD Conference.

Namwamba, G. and Dixon, D.L. 2003. "Colorfastness To Crocking And Laundering Of Digitally Printed Cotton Fabric". Beltwide Cotton Conference, January, Nashville, Tennessee.

Namwamba, G. N. and Dixon, D. L. 2003. "Change of Color Intensity of Digitally Printed Cotton Fabrics Due to Steaming". Paper Presented at the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "The effect of Steaming Time on the Colorfastness to Laundering of Digitally Printed Cotton Fabrics". Paper presented at the 13<sup>th</sup> Biennial ARD Conference.

**Poster Presentations:**

Namwamba, G. W. (2005). Advances in Curriculum Development and Delivery. Invited presentation at the 2005 USDA Project Director/SERD Conference in New Orleans, LA.

Namwamba, G.W., Dixon, D.L. (2004). Microscopic Characterization of Bacterially and Chemically Retted Kenaf Fibers. Poster presented at the 2004 AATCC International Conference.

Dixon, D.L. and Namwamba, G.W. (2004). Effect of Steaming and Distance from Steaming Source on Color Intensity of Digitally Printed Cotton Fabric. Poster presented at the 2004 AATCC International Conference.

Wardrobe Planning Seminar, Baton Rouge College. September 2004.

Technology in Textiles and Apparel: Presentation to students from Tallulah, Louisiana. May 6<sup>th</sup>, 2005.

Namwamba, GN. And Dixon D. L. (2004). Mass Customization: Is it the future of the apparel industry? Su. Ag. Center Seminar Series.

Namwamba, G. N. and Dixon, D. L. 2003. "Bacterial Retting and Fiber Softening of Everglades Variety Kenaf for Apparel Applications". Poster Presented at the 13<sup>th</sup> Biennial ARD Conference.

Dixon, D. L., and Namwamba, G. N. 2003. "Determination of Dimensional Stability of Woven and Knitted Fabrics Using Accelerated Testing and Computer Imaging Procedures". Poster presented at the 13<sup>th</sup> Biennial ARD Conference.

**Bulletins, reports, circulars, pamphlets, fact sheets**

Textiles and Apparel Newsletter: Know your Fabrics. Natural and Man-made fibers.

Textiles and Apparel Newsletter: Know your Fabrics. Recycling Your Clothing.

Textiles and Apparel Newsletter: Know your Fabrics. Caring for Your Clothing.

Digital Textile Printing: A Quick Guide.

Textiles Research and Digital Textile Printing Brochure.

**Magazines or newsletter articles**

Article on 3D Body Scanning – Published on SU Ag Center News and on the website in May 2005.

**Outcome:** New affordable pre-treatments that can be applied in a small scale were developed and tested. Because of increased interest and expansion of the digital printing industry, the research information yielded has a major impact on the scientific community. This information will be used for outreach to clientele who may be interested in conducting a digital printing business.

Because kenaf has to be blended with a high percentage of cotton (at least 50 percent), increased use of this fiber will expand the uses of cotton, which is an important crop in Louisiana. The products resulting from kenaf have unique aesthetic properties that closely resemble the more expensive linen and that appeal to many consumers that are interested in "natural-looking" fabrics.

**Impact:** This project was used as leverage for a successful grant of about \$128,271 from the Louisiana board of Regents Support Fund. One group that will be impacted by this research is small business. Individuals can use results of the research and small businesses to set up and operate enterprises that produce customized digitally printed products. Digital textile printing has great potential to revolutionize coloration of textile products. In traditional printing, the development cost for strike-offs and samples are \$4,000 to \$8,000 per design and takes 2-5 weeks. Digital printing eliminates these monetary and time costs. The findings indicate that digital printing has a great potential of increasing the profitability of textile products. This may translate into cheaper, better quality and more affordable products for consumers. Digital printing permits unlimited colors to be printed, unlimited repeat sizes and print quality that could be impossible on traditional rotary machines. It also eliminates the necessity of engraving costly nickel screens and allows for a clean processing environment. The process opens new ways of applying surface designs to a fabric and reduces production time for textile prints. The research being conducted will provide information that will be useful in characterization

of digitally printed textiles and to develop optimal methods of improving the process. Environmental compatibility is a major selling point for many products.

**Scope of Impact:** This technology is gaining prominence. Recently, the wife of the Governor of Iowa was featured in a major paper in Iowa for wearing a customized digitally printed gown to the Inaugural Ball at the White House. The gown was designed, printed and made by two Iowa State University professors conducting digital textile printing research.

This project is a multi-state project and the results have been shared with the following institutions:

- Southern University Agricultural Research and Extension Center
- Mississippi State University
- Louisiana State University
- University of Nebraska
- University of Kentucky
- Kansas State University
- Purdue University
- University of Wisconsin-Madison
- Auburn University
- University of Tennessee - Knoxville
- University of Arkansas – Fayetteville
- Colorado State University, Fort Collins, CO
- University of Georgia, Athens, GA

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

## **EXTENSION PROGRAMS**

The following educational programs were conducted to address National Goal 3:

1. Health Risk Factor Reduction
2. Nurse Managed Family Health Care
3. Healthy Community Advisory Councils

The citizens of Louisiana are becoming more concerned about the nutritional value, quality, safety of their diets, and affordability of food. The consumer's knowledge level about the relationship of food, diet, nutrition, fitness, and disease is vital to maintaining a healthy society. According to the Center for Disease Control (CDC) and a recent research published in the Journal of American Medical Association (JAMA), the leading causes of death in the U.S. in 2000 were tobacco (435,000 deaths; 18.1 percent of total U.S. deaths), poor diet and physical inactivity (400,000 deaths; 16.6 percent), and alcohol

consumption (85,000 deaths; 3.5 percent). The 2003 Louisiana Health Report Card (p.41) reports that “Of the total of 41,495 deaths among Louisiana residents in 2001, the leading causes were: diseases of the heart; malignant neoplasms (cancer); cerebrovascular disease (stroke); accidents; and chronic lower respiratory diseases”. Sixty-five percent of all deaths in Louisiana in 2001 were attributable to these five causes. The same report also states that “Although the last two decades have seen a dramatic downward trend in diseases of the heart, these conditions are Louisiana’s number one cause of death”. Over the last decade (1991-2001), the percent of overweight and/or obese Louisiana residents increased from 49 percent to 60 percent. Obesity is a health risk factor that has been observed to affect the health status of low income and minority populations.

## 1. Health Risk Factor Reduction

An individual’s health and future health can be changed by controlling certain health risk factors. The removal of even one factor may reduce the threat of several diseases. The following are considered health risk factors that can be controlled:

- i. **Physical Inactivity:** An active lifestyle prevents heart problems and other diseases
- ii. **Obesity:** Excessive weight puts a strain on the heart and circulatory systems.
- iii. **High blood pressure:** This condition is the major cause of heart and circulatory problems.
- iv. **Smoking:** This habit causes problems in the circulatory and respiratory systems.
- v. **Stress:** Negative stress and tension places a strain on the heart and circulatory systems.
- vi. **High cholesterol:** Fatty materials are directly related to cardiovascular problems.

**Key Theme:** Health Education

**Output :** For FY 2005, fourteen seminars/workshops and seven health fairs were conducted for 5,430 participants. Topics covered were preventing the spread of HIV/AIDS, the health effects of stress, how to set up a health ministry, mothers helping mothers to become physically fit through nutrition and weight loss, and understand your health and nutrition. Various church and local community organizations collaborated in conducting these programs including St. James Episcopal Church, Mount Pilgrims Baptist Church, Greater King David’s Baptist Church, 100 Black Men, and West Baton Rouge Parish. A radio show (Jaguar Journal) had about 5,100 listeners, the SU Ag Center’s Health Education Program discussed health issues during the National Black HIV/AIDS Awareness and Information Day. Listeners were able to call in and ask health related questions and have them answered by the State Health Specialist. Six issues (September/October, November/December, January/February, March/April, May/June, and July/August) of *Healthy Prescriptions Newsletter* were used as mediums to reach people in the state. Nine thousand copies (1,500 copies for each issue) of *Healthy Prescriptions* newsletters were circulated throughout the state. Some of the topics covered at the seminars were HIV/AIDS, A Healthy Lifestyle Game Plan, Health Care as a Career Choice, and OrganWise Guys (Healthy Heart Challenge).

**Outcome:** A survey conducted by SUAREC's Office of Planning and Evaluation shows that 100 percent of respondents indicated that they benefited from nutrition classes, health fairs, fitness workshops, food safety demonstrations, and other activities conducted by the Center. The respondents further stated that these activities helped them improve dietary habits, reduce health risk factors, and enabled them to carry out physical exercise practices.

**Impact:** Results from new epidemiology studies are being reported every day. They show that if people take charge of their lifestyles, together with help and advice from their health professionals, they may expect to have a period of good health for a long time. Results from a survey of participants indicate that 57 percent of the respondents met and/or exceeded their goal of a healthy weight. Of the respondents who said they lost weight, 20 percent lost less than 5 pounds, 46 percent lost 5 – 10 pounds, 28 percent lost 11 – 20 pounds, and about 6.5 percent lost over 21 pounds. Additionally, 97 percent of the respondents added more fruit and vegetables to their diets, 100 percent used less salt, 100 percent ate less fast foods, and used more herbs. Hurricanes Katrina and Rita evacuees benefited from this program to enable them to reduce stress, obesity and other health related factors.

**Scope of Impact:** The existence of risk factors for a large number of diseases has led to a surge of interest in improving one's lifestyle in order to head off ill-health. Knowing the health risks factors associated with specific health problems can alert people to steps to take to reduce these risks.

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **2. Nurse Managed Family Health Care**

The obstacles faced by underserved, vulnerable populations are vastly different because they face a unique combination of factors that create disparities in health care. Economic factors, cultural and social differences, educational shortcomings, and the sheer isolation of living at or below the poverty level has impeded them in their struggle to lead a normal, healthy life. According to the *National Healthcare Disparities Report (NHDR): Summary* February 2004, while disparities in health care potentially affect all Americans and individuals from any group, they are not uniformly distributed across populations. For example, rural populations are clearly at risk of having a lack of access to health care and receiving poorer quality care. Examples as cited from the *NHDR*:

- Minorities are more likely to be diagnosed with late-stage breast cancer and colorectal cancer compared to whites.
- Patients of lower socioeconomic position are less likely to receive recommended diabetic services and more likely to be hospitalized for diabetes and its complications.



- Blacks and poorer patients have higher rates of avoidable hospital admissions (i.e., hospitalizations for health conditions that, in the presence of comprehensive primary care, rarely require hospitalization).

The objectives of this project were: to improve accessibility of primary health care services to underserved, vulnerable populations; and to promote health and disease prevention for women of childbearing age, infants, children, and adolescents in urban and rural medically underserved communities. Through collaborations with the SUAREC Cooperative Extension Program, community agencies, and both public/private health professionals from a wide range of settings, mobile outreach services are provided to outlying rural parishes and inner city Baton Rouge to address local community health needs. Emphasis is placed on health promotion, disease prevention, and early detection of health problems.

Specific strategies utilized in this project were designed to extend primary health care services to vulnerable populations that have been identified as “hard to reach” through traditional means. This population has little or no contact with the health system, and/or lives relatively far from medical providers. The SUSON Nurse Managed Family Health Care Center which includes the *Mobile Health Unit (The Jag Mobile)*, through a collaborative practice, interdisciplinary model that utilizes the expertise from the SUAREC Cooperative Extension Program, makes accessible the provision of culturally and ethically sensitive primary health care programs for vulnerable populations. In addition to community outreach to identify mothers and children in need of health services, the mobile unit provides primary health care services at user-friendly places and times. Referral and follow-up systems provide for continuity of care in addition to assisting families in accessing services beyond the scope of care of the project.

**Key Theme:** Health accessibility and education

**Output :** Implementation of this collaborative, interdisciplinary model is accomplished through a nurse managed health center that provides direct access to health care services (nursing, medicine, health education, and nutrition) by graduate prepared nursing faculty, nursing students enrolled in the RN program, registered nurses enrolled in the masters level Nurse Practitioner program, collaborating physicians, health education specialist, as well as nutrition faculty and students. The fully equipped stationary clinic located in the Southern University School of Nursing and a mobile unit (The Jag Mobile) is used by faculty and students to assist vulnerable populations. Community-based mobile outreach services covered the East Baton Rouge (EBR) Parish and surrounding rural parishes within a 50 mile radius. The clinics offered: 1) primary health care to women and children; 2) KidMed program, including Early Periodic Screening, Diagnosis, and Treatment (EPSDT); 3) Medicaid Enrollment assistance; and 4) Women, Infant, and Children (WIC) program, a supplemental nutrition program for women, infant and children, providing nutritional counseling for prenatal, postpartum and breastfeeding women, to ensure healthy pregnancy outcomes and provide optimal nutrition and health for their babies.

A total of 4072 WIC clients were served in the clinic from October 2004 to September 2005. Relevant topics from the Healthy Prescriptions Newsletter were used to assist with

health teaching for the following topics: childhood immunizations, safety, dental health, nutrition, etc. Fifty nine KidMed participants have been served by the Family Health Care program for FY 2005. Of the 59 beneficiaries, 55 received medical screenings, 42 received vision screenings, another 42 received hearing screenings, and 59 were immunized. The KidMed participants were from less than one year to 21 years. The following components of the KidMed Health Screenings were also administered by nurses through the SUSON Family Health Care Center and the SUAREC Health Education Program: 1.) Complete health and developmental history, 2.) Comprehensive unclothed physical examination or assessment, 3.) Age-appropriate immunizations, 4.) Laboratory tests (including appropriate neonatal, iron deficiency anemia, urine, and blood lead screening), and 5.) Health Education.

The *Mobile Health Unit (Jag Mobile)* had a total of 34 requests during FY 2005 of which it responded to 20. Services offered included: physical examinations, health screenings and vision screenings, blood pressure screening, hearing screening, height and weight measurements, and glucose screening. Health education was provided to participants by SUAREC faculty to enhance their awareness of health promotion and disease prevention strategies, while increasing self-care capabilities. Areas of health teaching included nutrition, dental health, aging, childhood immunizations, safety, breast self-examination, hypertension, and diabetes education, etc.

**Outcome:** The Nurse Managed Family Health Center partners with the SUAREC Cooperative Extension Program, and the College of Agricultural, Family and Consumer Sciences, Dietetic Internship program. Working with extension agents, the Nurse Managed Clinic staff meets with leaders in rural communities to discuss the purpose of the Mobile Health Unit and to receive feedback from the community. The goal is to address attitudes and fears associated with healthcare before the mobile unit arrives in the community. The Health Education Specialist of Cooperative Extension Program assists in identifying and scheduling the specific dates, times, and locations for operation of the mobile health unit. The dissemination of information and follow-up is one of the roles that extension has played with this project. The extension program is uniquely positioned to work with communities on a broad array of agricultural and family issues including safety and environmental health, consumer health education, health literacy, and community planning. The extension agents deliver health education programs to assist and motivate individuals, families and communities to examine, improve, and maintain healthy lifestyle practices.

When surveyed, 100 percent of the recipients of the program indicated that their health knowledge and awareness were improved. They also indicated that they will use knowledge gained to improve the health conditions of their family members and friends.

**Impact:** Statistics show that 50 percent of American adults (90 million people) have difficulty understanding health information. For underserved and populations placed at risk, the proportion is even higher than 50 percent. Beneficiaries of the Family Health Program increased knowledge and awareness and also received treatment. Several studies indicate that poor health status is disproportionately high among patients with low functional health literacy. People with low functional health literacy are more likely to incur higher health care

costs. Additionally, with escalating health care costs, and an average cost of \$80 - \$100 per primary care visit, our estimate is that the program saved citizens approximately \$500,000 in health and related care costs.

**Scope of Impact:** This project potentially impacts (through primary health care services) large numbers of individuals, groups, inner city and rural communities. On a national, as well as state level, statistics continue to validate a persistent disparity in both morbidity and mortality rates between members of minority groups and their non-minority fellow citizens. Unfortunately, state as well as local statistics mirrors the problems at the national level. The percentage of African Americans in Louisiana is more than twice the national average. Health disparities are a challenge, as only 69.1 percent of African American women receive adequate care compared to 86.5 percent of their counterparts.

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

### **3. Healthy Community Advisory Councils**

Traditionally, the relationship between health service providers and the public has been one of expert to client. However, the need for much greater participation in prioritizing, planning, and implementation of health services and programs is recognized as a cornerstone for health reform. The best interests of health restructuring are achieved by the broadest possible public input. As a result, a Healthy Community Advisory Council was established in three Louisiana parishes.

The councils provided a voice for volunteers, health care professionals, and community members to become directly involved in community health issues. Each council explored health needs and priorities in their communities and made recommendations to SUAREC on key health education programs.

**Output:** Several workshops on the following topics were held as a result of recommendations from the advisory councils: 1) Childhood Obesity Prevention and 2) Men's Health Awareness. Once again, Lafayette Parish Health Initiatives Subcommittee, identified childhood obesity as a great concern. Networking with Lafayette Park and Recreation, a major part of the summer camp 2005 main focus was on health through physical activities (swimming, ball playing, jumping rope, and dancing) and eating healthy food choices. Youths ages 8-13 were selected to participate. A total of 250 children participated in the workshops.

Another recommendation from the advisory council was a men's health awareness program. The program was conducted with an emphasis on prostate health, hypertension, and diabetes. A total of 50 men participated in the event. The workshop informed men of the recommended screening guidelines for the early detection of prostate cancer, the signs and symptoms of hypertension and diabetes, and the importance of regular health screenings to check blood pressure and blood glucose levels.

**Impact:** Of the 250 children participating in the summer camp, within two weeks, 75% of the children participated in all the physical activities, ate more nutritious food items, and drank less soft drinks and more water. Due to an increase in physical activity many of the children began to drop a few pounds. After the Men's Health Awareness program, 48 out of 50 men who attended the workshop went to their family doctor to get a check up, one found out that he was diabetic and is undergoing treatment.

**Scope of Impact:** In order for Healthy Community Advisory Councils to be successful, they have to develop positive working relationships and open lines of communications with the staff at SUAREC and with their community members. Advisory councils are one important mechanism for participation in our health system

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **National Goal 4: Greater harmony between agriculture and the environment**

### **RESEARCH PROJECTS**

Two projects were conducted as part of National Goal 4. They include:

1. Quantifying the Impacts of Biobased Plant Residues on Nutrient Management and Growth of Selected Urban Landscape Trees
2. A GIS-RS Supported NPS-Management Information system for Urban Agriculture

Research emphasis will continue in the area of natural resource management and the protection of urban forest health. SUAREC scientists are hoping to generate useful research information relating to natural resource management systems. Information generated will assist the public in better understanding the global problems that threaten the quality of air, water and soil resources.

### **1. Quantifying the Impacts of Biobased Plant Residues on Nutrient Management and Growth of Selected Urban Landscape Trees**

Mulching is an agricultural practice in which a layer of organic or inorganic materials are placed on the soil surface or mixed into the top few inches of soil. In the past, biobased organic mulches were used to produce ornamental, fruit, and forest. But with the advent of modern agrochemicals, this soil management system was largely displaced, except in some tropical areas where organic mulching represents an important alternative for improving soil fertility. Current concerns regarding the need to find methods to protect

and conserve soils and the increased availability of organic residues from cities are renewing an interest in the use of organic mulches, both in the traditional application of crop residues, and in the use of composted and uncomposted urban wastes. This project will test the potential impact of biobased mulches on growth of selected landscape trees. In addition, this study will quantify the contribution of several mulches to the rhizosphere.

The objectives of this project are: 1) to determine the effect of selected biobased mulches chemical composition, N addition and particle length on the decay and N mineralization rates of available organic materials; 2) to determine the effects of several urban biobased mulches on the dynamics, growth and development (physiology, morphology, and anatomy) of selected landscape trees and their associated rhizosphere dynamics; 3) to determine the impact of several urban biobased plant residue mulches on carbon cycling and sequestration; and 4) to determine the effects of biobased mulch on root disease severity of selected landscape tree rhizosphere, microbial population dynamics, and saprophytic survival of selected soil borne plant pathogens.

**Key Theme:** Biological adaptation, mulching, soil fertility, soil conservation

**Output:** This study is using a field design on two sites in Baton Rouge, Louisiana (eleven biobased mulches with contrasting differences in their chemical compositions). Six biobased mulches are selected to study the effect of N fertilization on their decay rates. Analysis of Variance (ANOVA) will be used to test statistical differences in mulch weight and N remaining over time. ANOVA will also be used to test differences in decomposition rates due to mulch types, N addition and particle length. The impacts of several mulches on growth and physiology of landscape trees will be quantified. Carbon sequestration, pathological, and microscopic examinations of the mulch, plant and soil will be determined and compared.

Since hurricanes Katrina and Rita, two workshops and several presentations and site visits have been made. Over 46 persons mostly small landscape and lawn care business persons attended the workshops at two locations – Baton Rouge and New Orleans.

**Publication/Presentation:**

Ning, Z. and K. Abdollahi, 2005 Organic Mulch and Its Effects on Live Oaks and Urban Soil. *Microscopy and Microanalysis* 11(2):1146-47.

Tarver, G. and Z. H. Ning 2005. Composting urban waste wood for home garden use. *Urban Forestry, Natural Resources, and Environment* Vol. 2 No.501 Southern University Agricultural Research and Extension Center, Baton Rouge, Louisiana.

Ning, Z. K. Abdollahi, D. Collins, and A. Johnson. 2005 Assist Minority Communities and Small Businesses in Urban Wood Waste Utilization. Submitted to the USDA Forest Service Region 8 for publication.

Ning, Z. 2005. Hurricanes and urban forests. Submitted to the Communities and Forests for publication.

Abdollahi, K.K. “Landscape Workshop: Greening New Orleans after Katrina”. Nov 2005. SU Ag Center, Baton Rouge, Louisiana.

Abdollahi, K.K. “Landscape Workshop: Greening New Orleans after Katrina”. Dec 2005. Marriott Hotel, New Orleans.

Johnson, A. 2005. Utilizing wood wastes from urban trees. At Making New Orleans Green Again Workshop, Dec. 6, New Orleans.

Johnson, A. 2005 Economical benefits of utilizing wood wastes. At Making New Orleans Green Again Workshop, Dec. 6, New Orleans, Louisiana.

Johnson, A. 2005 Carbon loss data from urban wood wastes. At Making New Orleans Green Again Workshop, Dec. 1, Baton Rouge, Louisiana.

Ning, Z. 2005. Marketing pine straw as mulch in urban area. At Branding and Marketing Community Based Forestry Products Workshop, St. Helena Island, NC.

Sankella, N. 2005. Wood waste as an alternative fuel. At Southern University graduate students seminar. Baton Rouge, Louisiana.

**Outcome:** The experiences of the recent hurricanes Katrina and Rita, their aftermath and devastating impact on the Gulf Coast and especially the New Orleans area make this project timely, relevant and necessary. Two workshop titled “Making New Orleans Green Again” have been organized in two locations – Baton Rouge and New Orleans by the SU AgCenter. The results of a survey conducted at the workshops indicated the following:

- 87 percent said the workshop highlighted the problems faced by lawn care and landscaping service providers;
- 78 percent said the workshop identified problems confronting the small landscape and lawn care business persons;
- 70 percent said the workshop provided important remedies to their business problems;
- 85 percent said they received information on how to obtain and restore permits for small landscape and lawn care business owners;
- 89 percent said knowledge and skills gained at the workshop will be useful to them and/or their businesses; and
- 85 percent said the workshop answered important questions they had about making New Orleans green again.

**Impact:** This project is in its first year, field trials are being implemented. However, two masters thesis are being developed by urban forestry graduate students. The results obtained from this study will contribute to the knowledge of urban wood waste utilization and mulch management. This knowledge will allow more efficient and economic use of

urban wood wastes by way of organic mulches. Also, the result of this project has the potential of reducing the costs of caring for trees in urban areas and improving the quality of the environment. A website that will provide information to the public for addressing their needs is currently under construction.

**Scope of Impact:** Local, state, national, and possibly international. The Natural Resources Recovery, Inc (NRRI) is collaborating on this project to promote the utilization of compost and organic materials in Louisiana, Southeast Region and the Nation.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

## **2. A GIS-RS Supported NPS-Management Information System for Urban Agriculture**

The objectives of this study were to a) identify factors that influence nonpoint source pollution arising from urban agriculture in Louisiana; b) investigate the spatial relation between agricultural landcover and nonpoint source pollution; c) design a spatial decision-making model relating the impact of urban agriculture to water quality in urban agriculture in Louisiana, and d) disseminate the findings as nonpoint-source Education for Urban Agriculture.

**Key Theme:** Safe agriculture, urban area, and the environment

**Output:** Sources of non-point pollution in East Baton Rouge Parish (EBR) and nearby urban areas were identified. Of the identified sources of non-point source pollution, those related to urban agriculture were identified and documented. Base maps of the area pertinent to the research were collated. New maps were digitized from hardcopy to GIS format.

### **Publication/Presentation:**

Namwamba, F., Abdollahi, K., Wells, A. R., and Lyles, L. 2004. Urban Forest Management Using GIS/Remote Sensing: Management Plan for Burden Center. In Ning and Abdollahi (Eds): Urban and Community Forestry: Working Together to Facilitate Change. Moran Printing. Baton Rouge, LA.

Namwamba, F., Abdollahi, K., Namwamba, J. B., and Lyles, L. 2004. GIS and GPS-Based Urban Forest Statistics for Urban Forestry Ecosystem Analysis. In Ning and Abdollahi (Editors): Urban and Community Forestry: Working Together to Facilitate Change. Moran Printing. Baton Rouge, LA.

**Outcome:** The research conducted is adding, collating and documenting knowledge sources of non-point source pollution in East Baton Rouge Parish.

**Impact:** Identification and documentation of agriculture related sources of non-point pollution in EBR and surrounding urban areas is a major step in the process of delineating sources of health hazards in the community. The study is providing vital information to agricultural producers and the parish government in their effort to minimize pollution. This project was used as leverage for a competitive grant submitted to the National Science Foundation in the amount of \$1.5 million. Two graduate students gained professional experience in GIS while working on the project.

**Scope of Impact:** The results of this study are beneficial to producers and parish governments throughout the state.

**Funding Source(s):** Evans-Allen (USDA/CSREES) and matching funds from the State of Louisiana

## **EXTENSION PROGRAMS**

One program was conducted:

Sustainable Agriculture

### **1. Sustainable Agriculture**

Through outreach and education, agricultural producers have gained a greater understanding of the concept of sustainable agriculture. While no new specific programs have been implemented to address this issue, agents and specialist began to incorporate sustainable agricultural ideologies into the majority of their conversations with the clientele. Primary focus has been through efforts designed to reduce the use of pesticides, and on cultural management strategies, land management and resource management. SUAREC faculty and staff partner with the various USDA agencies, especially Natural Resources Conservation Service (NRCS) to provide the forum for discussions on the various conservation programs available. Additionally, on farm sustainability is explored by methods to include, but not be limited to, the use of farmer's markets, road side market stands and on-farm market outlets.

**Output :** Approximately 5,400 producers, gardeners, landowners, and educators have gained knowledge on the principles and concepts of sustainable agriculture by participating in SUAREC's sustainable agriculture activities during the year. Three Sustainable Agriculture Field Days were organized with about 250 producers participating to learn about sustainable crops and livestock production. Some of the issues discussed were; Organic gardening, All About Peppers - Production and Nutrition, "Producing and Marketing Organic Produce", Pasture poultry production, producer-friendly environment, etc.

Five meetings on Farmer's market operation, management, sales attended by 150 producers were also conducted. Four meetings - Earth Day workshop were attended by 550 clients. Additionally, about 5,725 individual contacts were made through home, farm



and individual visits and nearly 7,000 published materials such as newsletters, research highlights, and other special publications were distributed.

**Outcome:** Producers in twenty parishes have implemented or are seriously considering incorporating segments of the sustainable agriculture techniques into their enterprises. Approximately 90 percent of participants in the workshops and field days said they gained new knowledge and skills and that the activities broadened their understanding of sustainable agriculture.

**Impact:** Five thousand agricultural producers and others with an interest in some form of agricultural production have increased their knowledge on sustainable agriculture and are more familiar with the various conservations programs, practices, laws and regulations.

**Scope of Impact:** SUAREC collaborates with the Louisiana Department of Agriculture, USDA/NRCS, LSU Ag Center, and other state and federal agencies dealing with natural resources and environmental issues in the delivery of educational programs.

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **National Goal 5: Enhanced economic opportunity and quality of life for Americans**

### **RESEARCH PROJECTS**

No research was specifically conducted under Goal 5 for FY 2004

### **EXTENSION PROGRAMS**

The following extension programs were conducted to achieve goal 5:

1. Youth Development: Youth Educational Support (YES) After School Program
2. Youth Development: Livestock and Poultry Show
3. Academy for the Academic Enhancement of High School Students in the Food and Agriculture Sciences
4. Community and Faith-Based Development
5. Center for Rural and Small Business Development
6. Child Care Program
7. Family Strengthening Program

# **YOUTH DEVELOPMENT**

## **Overview**

According to the 2004 U.S. Census Bureau statistics, 17.8 percent of U.S. children live in poverty. The percentage of children living in poverty is even greater in the state of Louisiana. Although poverty has increased throughout the U.S., it remains considerably high among youth in Louisiana with a large percentage accounting for youth under age 18. According to the 2004 data, Louisiana ranks in the lower one-third percentile among 50 states for quality of life for its youth. The state is ranked number one in the number of youth living in poverty, single parent families, health problems, and parents without high school education. These factors place about 60 percent of Louisiana's youth at risk. Additionally, U.S. adults who engaged in service-learning during their school years were more likely than the rest of their peers to be politically and socially connected to their communities, serve as role models for young adults, understand the importance of lifelong learning, attain a higher level of education, and engage in service according to recent study. Some studies indicate the need for character and quality education, parental involvement, and civic and citizenship education to help ensure the long-term positive development of youth. Through SUAREC's educational programs, strategies have been developed to support academic learning by all members of the family.

## **1. Youth Development: Youth Educational Support (YES) After School Program**

The Youth Educational Support (YES) After School Program works with families that have limited resources. This program provides information that promotes long term commitment to the education of children via their family environment, school, community and Extension staff in selected parishes. The goals of the program are: (i) to expand and cultivate the need for family and community involvement; (ii) to develop positive self-concept (self-esteem) at adolescent level; (iii) to recognize strengths and weaknesses within the family; (iv) to identify alternative methods for redirecting undesirable behavior and applying positive discipline techniques; (v) and to recognize and use public and private service providers as needed. YES program incorporates education and fun in scholastic activities, expands the role of the parent/guardian with academic learning and builds support, self-esteem and confidence through completion of tasks and projects. YES is operational in ten parishes during the academic school year. In FY 2005, YES Program focused on youth, parents, volunteers, school staff and community members at-large, working together on a community-based project that required total involvement.

**Output:** During the period, SUAREC extension staff made contacts with youth through meetings, YES recruitment, workshops, and by disseminating various publications. Approximately 62 publications were distributed to 3,750 contacts. Also, 193 meetings were conducted throughout the period and a total of 4,879 youth attended. Additionally, 374 individual (one-on-one) contacts were made through visits. In addition to math,

science and literacy sessions, a series of lessons were taught including, development of self-esteem, food guide pyramid, science, building careers, goal attainment, youth gardening; nutrition, conflict resolution, personal hygiene, problem solving, understanding leadership, creativity, youth peer group, peer mediation, anger management, and communication skills. Getting Ready for Back to School workshop was conducted and youth used math games and other educational activities to reinforce math skills using fraction and solving verbal math problems.

**Outcome:** Teachers and volunteers surveyed by the extension agents to assess the impact of YES Program on the youth gave comments expressing that youth participating in the program showed a difference in their character. Extension agents polled youth participants after each session, and 100 percent agreed that they were learning new skills and will definitely apply them. They also indicated that they would recommend the program to their peers.

**Impact:** The on-going efforts of the YES Program allowed agents and volunteers to make contacts with youth, parents, volunteers, school staff and community members at-large by providing hands-on activities in science, math, reading and character education. In a youth survey conducted by the Office of Planning and Evaluation, the participants responded as follows about the YES Program:

100 percent – improved test taking skills;  
66 percent - improved and used their skills;  
97 percent – improved in standardized test scores;  
100 percent – did better in homework;  
30 percent - participated in outreach programs/activities.

**Scope of Impact:** State specific

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **2. Youth Development: Livestock and Poultry Show**

In March 2005, Southern University hosted its 62<sup>nd</sup> Annual Livestock Show. SUAREC State Livestock and Poultry Show is a comprehensive program to help youth develop leadership and character skills. The Youth Rabbit Show and the Horse Show also provide opportunities for youth to enhance those skills. In preparation for these shows, youth work with the livestock (beef breeding, dairy, sheep, swine, goats, and poultry) rabbits, and horses concerning proper nutrition and grooming. During the shows, youth are required to exhibit their animals and are judged on industry standards in the areas of showmanship, control and appearance of the animal. The animal is judged for quality and overall appearance according to industry standards. Youth are also provided with the opportunity to sell their animals at an open auction; thus, learning economic, business, and financial management practices. Corporate sponsors of the show are: Coca-Cola Bottling, Winn Dixie, Louisiana Cattlemen's Association, Southern

University Teacher and Parents Federal Credit Union, Pilgrims Pride, Gerry Lane Enterprise and House of Raeford.

**Output:** During FY 2005, 10 Special Publications mainly brochures and publicity information were distributed to 12,845 youths and parents in the state. Fourteen meetings attended by over 555 livestock participants were held to assist producers with production, management and marketing practices. Additionally, the Director and the Assistant Director of Livestock conducted six media informationals for about 93,279, visited 30 parishes and made 460 individual contacts in the state to promote the shows. They also solicited and obtained corporate sponsorships for the shows. A total of 149 volunteer leaders were recruited.

**Outcome:** About 460 youth exhibitors with 651 entries from 30 parishes participated in the SUAREC State Livestock and Poultry Show. The Annual Horse Show hosted 750 participants with over 853 spectators; while the Delta Dairy Goat Show attracted 37 exhibitors at the Maurice A. Edmond Livestock Arena. These shows also attracted inner city children ages 2 to 18 years who learned about farm animals.

**Impact:** Approximately 80 percent of youth exhibited leadership skills relative to showmanship of their animal. Four hundred and sixty youth exhibited at the Southern University State and National Rabbit Show. Evaluations of the exhibitors indicate that over 85 percent of the participants said the shows motivated them to try new ideas. One significant impact of the livestock show is that it helps participants to market their products. Over \$70,450 worth of products were sold during the 62nd Annual Livestock Show. In a youth survey conducted by the Office of Planning and Evaluation, the following results were obtained:

80 percent of the respondents said the shows helped them improve and use their skills;  
40 percent said the shows helped them participate in outreach programs/activities;  
20 percent said the shows helped them stay in school;  
99 percent said the shows enabled them improve their problem solving skills;  
99 percent said the shows helped them to be more active in class and school.

The positive side impacts of the shows according to parents and youth participants interviewed are that it enables them (parents and youth) do things together which encourages improvement in communication. Secondly, the shows help to keep youth participants from being idle and in the process engages them as useful citizens. These participants serve as role models to recruit their peers into their clubs especially those who are from single parent homes.

**Scope of Impact:** Statewide

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

### **3. Academy for the Academic Enhancement of High School Students in the Food and Agriculture Sciences**

High school students in Louisiana who score a minimum of 20 points on the ACT and earn at least a 2.5 on a 4.00 GPA scale are eligible for free college tuition - Tuition Opportunities Program for Students (TOPS) as long as they maintain a good GPA (at least 2.5 on a 4.00 scale) in their college career. Many economically and socially disadvantaged minority high school students cannot qualify for this free tuition opportunity due to their background. They often turn to student loans for financial support. Twenty six students were selected to reside and participate in the program at Southern University for five weeks. Students received academic instructions in mathematics, sciences, English, and humanities. Princeton Review provided 20 hours of group and individualized instruction on test taking skills and strategies in an attempt to better prepare the students for the ACT tests.

**Output:** During Phase I, 26 students from across the state of Louisiana attended the five week residential program at Southern University Ag Center where they received instruction from certified public school teachers in English, mathematics, sciences and the Humanities. Princeton Review was contracted and provided 20 hours of instruction specifically on test taking skills and strategies.

During Phase II of the Academy, 21 of the 26 Phase I students returned to work with an USDA agency or in some instances with the 1890 Cooperative Extension Program or with city government to participate in a professional internship for seven weeks. Each student was assigned an on-site mentor and developed a plan of work for their internship experience. All of the mentors interviewed indicated that the interns really provided a beneficial service to their agency. The interns have each reported that they are better prepared for the “real world” and now have an ideal of what working a “real job” is like. They all felt that after participating in Phase II that they have a clearer vision of what the Food and Agriculture Sciences entails and are better prepared to enter college and do well. Additionally, these 21 students have an advantage that most of their peers do not have, real professional work experience before they begin college.

A no cost extension was requested and granted. With the remaining funds, efforts have been geared towards working with upper elementary and high school students displaced by Hurricanes Katrina and Rita. Workshops, lectures and mini classes are being offered across the state related to the basic life and career building skills from the original proposal.

**Outcome:** As a result of participating in the Academy program, 14 of the 26 students achieved the minimum score of 20 to qualify for the TOPS award, which would allow them free college tuition in state. During Fall Semester 2005, 13 of the 21 students who completed Phase II enrolled in one of the orientation courses offered in the College of Agricultural, Family and Consumer Sciences.

**Impact:** The average annual cost of education at a public university in the state of Louisiana is currently about \$50,000. Due to their participation in the Academy, participants scored higher on their ACT and are eligible for the TOPS award. The result is an annual saving of over \$14,000 for each student (about \$56 per student for four years of college) and a total savings of over \$1,456,000 for 26 participants for four years of college education. Additionally, one student received the USDA Multicultural Scholars Award worth an estimated amount of \$50,000. The success of this project can serve as a model for middle and high schools and community colleges, or for anyone who works with students before they enter four year degree granting programs.

## **COMMUNITY DEVELOPMENT**

### **Overview**

The citizens of Louisiana continue to suffer economically and socially because of earlier dependency on depressed petroleum and agricultural industries. Louisiana is ranked among the top ten states for poverty and for the opportunities of mainstream America. The economic and community development program works with faith-based and other social and civic organizations to explore and develop enterprises that will foster long-term economic viability.

For almost forty years, community based organizations have struggled to address problems of social, economic and physical distress in low to moderate-income communities throughout the United States. Despite the impressive growth of community based organizations in Louisiana during the past decade, these organizations face numerous human and organizational deficiencies. To flourish in an economy that demands increased accountability, community based organizations need strategies and directions to be effective in their endeavors.

The presence of a strong community development educational program is emerging as a critical need in many land-grant universities in the south. Agriculture, still a powerful economic engine in many parts of the rural south now finds itself sharing the economic stage with several other sectors, including manufacturing, services, and retail trade. Many community economies are growing and diversifying, while others are in an economic tailspin. Technological advances are creating a demand for better-educated, more skilled workers, resulting in the displacement of thousands of Southern workers having little more than a high school education. Our region is witnessing dramatic compositional shifts in its population, including the rapid expansion of the South's Latino and African American populations. While some communities – both urban and rural – have attracted many new residents, others have struggled to hang on to the few residents that remain.

These are a sampling of the complex conditions facing communities in the Louisiana today. The challenges are many, but the opportunities are equally considerable. Enhancing the capacity of communities to build their own future requires guidance, information, and education.

## 4. Community and Faith-Based Development

Extension specialists developed a comprehensive program to assist faith-based leaders by developing a Statewide Faith and Community Based Development Initiative that focuses on housing development, economic development, evaluation, strategic planning, organizational development, and health care. The programs were presented at the annual conference, and through various workshops and individual contacts. The Faith and Community Based Initiative consists of two program areas. The Annual Faith and Community Based Conference is a four-day event with over forty-four workshops, several speakers and various vendors from the federal, state and local levels along with several national nonprofit service providers that assist the faith-based community. The second program areas are technical assistance (TA) and Capacity Building that is provided by individual consulting from extension specialists and agents who assist the Faith and Community Based community with organizational development, strategic planning, and project selections. Collaborators involved in the project are the Federal Reserve Bank, FDIC, various banks, U.S. Department of Housing and Urban Development, Louisiana Department of Economic Development, Louisiana Department of Health and Hospitals and the United States Department of Health and Human Services.

**Output:** In FY 2005, the conference was held in Monroe, Louisiana from February 17-19, 2005. Altogether, 35 sessions were available for participants to update their skills in administration, management, faith-based development, with topics including: Individual Development; Handling Job Related Stress; Earned Income Credit & Faith Based Organizations; Powerful Planning & Church Strategic Planning; Faith-Based and Family; Improving Your Child Care Facility; Housing & Community Collaborations; etc. More than 700 persons attended the conference and participated in the sessions.

**Impact:** A survey of participants at the conference showed that about 94 percent of the Faith and Community Based Organizations had desire to collaborate with their peers in providing services to clients. Furthermore, 100 percent said they gained new skills and knowledge; 94 percent said that knowledge and skills gained will be useful; 97 percent said they will definitely apply knowledge and skills gained at the conference; and 97 percent said the conference improved their understanding of community and faith-based issues. SUAREC has forged a collaborative relationship with several African American denominations such and the AME church, and the Church of God in Christ (COGIC). The City of Baton Rouge and the Governor of Louisiana have created faith-based task forces to assist faith-based organizations with accessing Federal HOME funds and State Funds.

**Scope of Impact:** State and Regional Specific

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## 5. Center for Rural and Small Business Development

Rural dwellers in the United States continue to experience high levels of poverty due to lack of economic opportunities. The low quality of life of rural Americans has been a major concern for many, including both federal and state policy makers. About 17 percent of Louisiana residents live below the poverty level. However, poverty rates in some of the state's rural parishes (counties) are as high as 27 percent. The majority of rural communities lack business start-ups, business expansions, housing, economic development and growth. The objective of this initiative was to provide assistance to under represented groups in traditionally agricultural or other natural resource dependent communities in the State of Louisiana for the purpose of encouraging business and economic development.

SUAREC specialists and field agents along with the staff from the Center for Rural and Small Business Development assisted in the creation and sustainability of small business development in the state. Seven parishes (counties) in the south eastern part of the state are targeted – St. Helena, Iberville, East Feliciana, West Feliciana, West Baton Rouge, East Baton Rouge, and Pointe Coupee. A majority of the rural communities in these parishes lack business start-ups, business expansions, housing and economic development and growth. The Center also provides support to surrounding parishes – St. James, Livingston, Ascension, Tangipahoa, and rural communities – Gonzales, Donaldsonville, Denham Springs, Albany, Gramercy, and Litcher. The outreach efforts took place with seminars and one on one business consultations. The small business owners and potential owners were assisted in business plans, strategic planning, credit rating and loan packaging. The collaborators were the U.S. Department of Small Business (SBA), small business development centers and local area chamber of commerce.

**Output:** For FY 2005, four Louisiana rural parishes were targeted for business development; these parishes were East Feliciana, Iberville, St. Helena, and Tangipahoa. According to the U.S. Census figures, the poverty rates for these parishes range from 23 to 27 percent, and the median income ranges from \$24,970 to \$31,630. During the period, 10 workshops/seminars were held; 316 businesses received various forms of assistance; 69 field trips and 157 office visits were made by staff. About 214 inquiries from clients were processed.

**Outcome:** During the year, 168 loan packages totaling \$2,878,900 were processed; 71 loans were approved; 30 new businesses were started; 56 businesses expanded; 10 community development projects recorded; and BISNet acquired 100 additional computers.

**Impact:** Thirty new businesses were started with loans from the SBA Community Express Loan Program; 71 business loans were approved for \$1,409,400; and 70 new jobs were created/retained.

**Scope of Impact:** State Specific



**Funding Source(s):** Rural Business Cooperative Service (USDA/RBCS);  
Smith-Lever Act, Section 1444

## **6. Child Care Program**

Louisiana, has the highest child poverty rate in the south—29 percent and the second highest nationwide, according to the U. S. Census Bureau. It is estimated that there are around 14,000 children who are not receiving services through any other programs. In an attempt to reduce these alarming figures, we have continued our efforts to make available professional development classes for more than 15,000 child care providers across the state. Twelve thousand of these frontline workers are in licensed child care center facilities or registered family child care homes. The SUAREC Child Care Training Program provides a comprehensive and consistent child training program in eight parishes statewide. The program thus offered centers and family child care providers an opportunity to maintain their license by taking the required 12 hours of educational training. The state requires that child care providers have 12 hours of continuing education hours annually, especially if they are to receive monetary benefits from the state for services rendered to limited income families. Some child care providers operate business with limited resources and limited educational training. This lack of knowledge coupled with economic disparity prevents them from rendering quality care and being successful in the business. Therefore, our efforts are to increase educational obtainment in child development and quality care so those children from impoverished areas are able to be placed and taught in an environment that is education-friendly.

**Output:** In order to ensure that childcare providers deliver quality care, providers in eight Louisiana parishes have received 12 hours of professional training. Quality childcare exists in homes or facilities when the childcare providers interact with children; maintain safe environments, provide opportunities for children to learn social skills; and help children appreciate diversity in others. These training sessions were offered at convenient times, and held in accessible locations for providers in rural and urban areas of the state. Classes taught to the providers were based on the competency levels of the Child Development Associate (CDA) Credential. As a result of the training, providers have told us about their deficiencies. SUAREC specialists will structure a curriculum that meets the educational needs of most providers and prepare them for the CDA.

Training sessions for Providers:

Clock Hour Training Classes are researched-based classes designed to provide the academic information that corresponds with the Child Development Associate Credential. These child care providers attend classes under the tiers of Learning Environment, Working with Families, Physical and Intellectual Development, Social and Emotional Development, Professionalism in the Workplace, Management, Child Growth and Development, and Observation. During the year, 44 classes were offered with 1,269 participants in attendance. Participants attended class sessions which supported their academic training, enhanced or updated their skills in the classroom.

Training sessions for Parents:

During the year, 3,849 mothers and 3,590 other parents attended the first and second sessions respectively. They learned about budgeting, caring for the baby, child development and expectations, communicating with people, car seat safety, etc.

**Outcome:** About 44 classes were offered with 1,269 providers in participating. The classes were made available to a diverse population of participants who included: African-Americans, Caucasians, Hispanics, and other races. All providers attending the classes also completed. About 12 percent and 51 percent of the parents who attended the classes graduated from the first and second sessions respectively.

**Impact:** About 130 family-based child care providers who attended classes to update their licenses each saved \$350 per month (or \$45,000) and \$546,000 per year. Also family-based child care providers saved a total of \$25,000 by attending classes provided by SUAREC as opposed to private consultants. Additionally, regular child care center saved over \$55,000 by attending classes provided by SUAREC as opposed to private consultants.

Class sessions held for parents enabled them to care, communicate, and provide safety for the children. Evaluation of the participants also reflected knowledge gained and some behavior changed as a result of attending the training. Some direct quotes from participants can be summarized as follows:

“The classes made me more conscious of how to budget”.

“The classes helped me learn more about child development and what to expect”.

“I gained more knowledge about caring for a baby”.

“I am better able to communicate goals, and prepared for crisis situations”.

“The class gave me more information on car safety and why rules and requirements are important to follow”.

20 percent of the providers indicated that they would acquire Child Development Credentials.

89 percent of the providers stated that they learned more because the training was sensitive to all learning styles.

91 percent of the providers stated that the structure of the training sessions, and the hands-on activities made it easier to gain more knowledge and increase skills.

74 percent of the providers indicated that child care classes gave them more ideas for class interaction with children and other center teachers.

87 percent of the providers indicated that they benefited more from the sessions than was intended.

**Scope of Impact:** Initially for eight parishes however, more parishes were impacted through the training sessions.

**Funding Source(s):** Smith-Lever Act, Section 1444 and matching funds from the State of Louisiana

## **7. Family Strengthening Program**

Families lack skills and knowledge in strengthening their family structure and developing a sense of community. Families statewide also lack knowledge in communicating with other family members and individuals in their communities. Extension educators have provided workshops and conducted an annual program that acknowledges families and the culture of families statewide. The programs were couched in the concepts of strengthening families (e.g., communication, contentment, and community). There were other class sessions that helped parents grasp children's stages of development, and modeling and understanding the appropriate behavior for children. These programs reached a total of 9,250 families.

**Impact** – Families and other individuals were given a basic background in communication and participated in sessions that allowed for some pragmatic experiences among families. Evaluations reflect that participants attending workshop sessions developed a better sense of communication within the family structure. The short-term objectives for program participants were accomplished in sessions where 95 percent of the family members and other individuals were able to define communication, express the value of communication in their family, and identify methods that could improve their settings. Program participants (40 percent) acquired research-based information which allowed them to change the methods they used in communicating with family members. As a result of these workshops and other meeting sessions, SUAREC extension services saved tax payers about \$81,180.

### **EVALUATION FRAMEWORK:**

Evaluation is a continuous process which is embedded in SUAREC's entire program development process. It begins with stakeholder inputs where results are used to establish priorities, goals and objectives consistent with state, regional and national issues based on the land-grant philosophy and mission. At the state level, performance indicators are used to measure progress in accomplishing the objectives set by the Center. To ensure that data reported on performance indicators are consistent, valid and reliable, guidelines for reporting data on performance indicators were issued. Follow up reviews to validate information reported quarterly by research and extension personnel are conducted regularly. Additionally, to ensure reliability, supporting documentations are required of all data reported such as, sign-in sheets, meeting/workshop agenda, pictures, travel/contact logs, etc.

Finally, the Center conducts evaluation of research and extension programs to ascertain the impact of such programs on the clientele and to determine the usefulness of the programs in addressing the needs of clientele as follows:

1. Impact studies were conducted to determine the benefits of research and extension programs for clients who participated in different programs and activities.

2. Impact studies were conducted to determine the percent of clients who adopted recommended practices to enhance their operations; or percent of clients who utilized educational information to change their behavior.

3. Follow-up surveys were conducted each year to determine possible reasons for client drop out from participation in research projects or extension programs.

Educational programs implemented by the Center are available and useful to all citizens of Louisiana and primarily to clients in the areas of food, agricultural and human sciences, and to urban and rural dwellers, youth, government officials, faith and community leaders, and families.