2018 Southern University and A&M College and Louisiana State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

The fiscal year 2018 report is a combined report of the LSU Agricultural Center (LSU AgCenter) and the Southern University Agricultural Land Grant Campus (SUALGC). The LSU AgCenter and the SU ALGC integrate the functions of research and the Cooperative Extension Program to address NIFA Priority Science Areas, NIFA National Challenge Areas, and other pressing needs of Louisiana residents.

The aim of the LSU AgCenter and SU Ag Land Grant Campus is to enhance the quality of life for the people of Louisiana through statewide basic and applied research and extension programs that develop the best use of natural resources, conserve and protect the environment, enhance the development of existing and new agricultural and related enterprises, develop human and community resources, and fulfill the acts of authorization and mandates of state and federal legislative bodies. Together, the Ag Centers disseminate information to the citizens of Louisiana in a manner that is useful in addressing their scientific, technological, social, economic and cultural needs.

The LSU AgCenter is one of 9 campuses in the LSU System. Headquartered in Baton Rouge, LA, the LSU AgCenter shares some physical facilities with the LSU A&M campus. In addition to the Baton Rouge location, the LSU AgCenter maintains a statewide presence through 64 parish extension offices (one/parish); 5 research extension, education centers; and 12 research stations. The LSU System continues to work on the LSU Strategic Plan 2025 of which the LSU AgCenter is an integral part. The core challenges addressed by the plan include advancing arts and culture; bridging the coast, energy, and environment; fostering research and catalyzing research and development; improving health and wellbeing; transforming education; and developing leaders.

In FY 2018, approximately 14.34% of the LSU AgCenter's overall budget was provided by federal funds; 54.00% by state funds and 31.66% by self-generated funds, grants, contracts and gifts. Limited resources at all levels have made it challenging to maintain vital LSU AgCenter programs. State budget cuts exceeding 20% since 2008 have significantly affected programs jointly funded with state and federal dollars.

The Southern University Agricultural Land Grant Campus is one of five campuses in the Southern University System. The campus consists of the SU Ag Center and the College of Agricultural, Family and Consumer Sciences. Headquartered in Baton Rouge, Louisiana, the SU Ag Center shares some physical facilities with the main campus at Southern University and A&M College, Baton Rouge (SUBR). SUALGC still experienced budget reductions in FY 2018, however, the severity was not as harsh as was the case for nine years prior to FY 2018. Between FY 2008 thru FY 2016, we endured severe budget cuts with special onetime increase in 2013. State funding for the land-grant mission was reduced by about 50 percent since 2008. In FY 2018, over 50% of the SU Ag Land Grant Campus research and extension operational budget was from federal appropriations and the remaining less than 50% by state funds.

These funding proportions put the SU Land Grant Campus at risk of not meeting the 1:1 match. Again, we are strongly requesting the State for increase in our Land Grant funds during the 2019 Louisiana

Legislative Session. Projections of state revenues indicate that there may actually be surplus funds so, we are hopeful that the request for 1:1 match may be granted. Loss of employees and the uncertainty of replacing them, reduced funding for planned activities, travel, materials and supplies, negatively affected projected outcomes as a consequence of previous state budget reductions. Funding for FY 2018 was more steady than in previous years and may continue to improve. During the period, the SUALGC's faculty and staff applied for and received **ten** external grants and contracts for about **$3.3 million** to conduct research and extension activities and provide research-based educational information and services to residents throughout the state.

Our general goal of developing and implementing programs and activities in research and extension at the SUALGC is to have a positive impact on alleviating poverty among low income, limited resource and underserved citizens of the State. It was with this goal in mind that the Southern University System governing board implemented a reorganization plan and SU Ag Center combined with the College of Agricultural, Family and Consumer Sciences (CAFCS) to become the Southern University Land Grant Campus and headed by chancellor-dean for the Land Grant Campus. Having a separate campus enables us to apply for and manage land grant funds effectively and efficiently as required by USDA/NIFA. The SUALGC has faculty and staff located in 34 of 64 parishes (counties). Funding received through external grants and contracts allow the SUALGC to have a presence in 54 of 64 parishes of the state. Our future plan is to locate staff and have a presence in all 64 parishes of Louisiana.

Despite funding issues, SU Ag Center and LSU AgCenter made significant steps in addressing critical issues facing Louisiana residents. North Baton Rouge (where Southern University is located) is classified as "Food Desert"; in FY 2018, three program areas of research and extension (Sustainable Agriculture, Youth, and Nutrition/Health) continued to collaborate to establish seven community gardens. Other food deserts designated areas in north Louisiana also participated. They produced tomatoes, cucumbers, mint, sunflowers, hibiscus, eggplant, melon, and okra in the spring and cabbage, kale, broccoli, cauliflower, strawberries, mustard greens, and collards in the fall. Southern University Ag Center's programs implemented activities in 45 school sites covering 15 parishes (counties) where there were a higher concentration of poverty. We reached over 8,900 children however, 1,085 of them actually participated in the physical activity related events. Over 85% of the participants said they have asked their parents to start garden in their backyards. They also indicated that they now appreciate and enjoy the taste of fresh vegetables from the garden versus frozen ones from the store. In addition, over 15,000 lbs of fresh vegetables estimated to be worth over $30,000 were produced, consumed and/or sold by participating schools located in mostly food desert designated areas.
Apart from providing nutrition benefits through increased access to fruits and vegetables for consumption, the community gardens also provided educational environmental benefits. Other benefits include: families working together, physical activity to ensure fitness and health, etc. Since some of the gardens are located on prison grounds and homeless shelter, we have used them to provide gardening skills to homeless and incarcerated youth and adults.
Physical activity from gardening helped participants stay healthy. One significant gain from gardening is that it provided a medium to exercise not only the body, but also the mind. This engagement did not only help reduce incidents of obesity, it also saved families and governments millions of dollars in healthcarerelated costs.

Fifteen (15) statewide Creating Healthy and Enjoyable Foods (C.H.E.F.) camps were conducted for youth. Survey results showed that 80% of the participants increased their food selection preparation skills for healthy food; and 88% increased their nutrition knowledge, while 92% increased their kitchen and food safety knowledge. As in previous year, a workshop was conducted at the SUALGC satellite campus Sustainable Agriculture and Rural Development Institute (SARDI) for youth participants during the 2018 summer program and 89% of the participants leaned about biofuel for the first time while 96% said they gained new knowledge of biofuel production.
Availability of credit has tempted and/or pressured some U.S. citizens to over-borrow, get into severe debt

or even to bankruptcy. Personal financial management courses are not universally taught in high schools, colleges or communities. Many Americans lack the financial wisdom to navigate the increasingly complex world of finance. The result is continuing escalation in debt burden and default. The SU faculty and staff developed a booklet "Lessons on Money" and other resources based on the National Financial Capability Survey to instruct participants on financial literacy. Eight hundred and ten 810 participants gained substantial knowledge on managing finance and increased savings along with reduced number of those filing for bankruptcy. Based on post-test, 90% of the participants agreed that the financial literacy lessons changed their views about their money and 89% agreed that they now had a better understanding of how interest and car payments were determined. About 92% of previous year's participants indicated that they no longer buy as much on credit, have started some sort of savings account, inquiring more about interest rates before obtaining loans, and are learning more about different types of investment opportunities. This effort could potentially save Louisiana citizens hundreds of thousands in unnecessary debt and default.

Both the LSU AgCenter and the SU Ag Center support the following main program areas--Animal Sciences, Natural Resources, Plant and Soil Sciences, Food & Nutrition, and 4-H Youth Development--and Associate Vice Presidents/Program Leaders provide oversight of programmatic efforts for both Extension and Research. This structure allows for coordinated and integrated programming across the organization. At the LSU AgCenter, regional Directors in each of the five (5) geographic regions of the state administratively supervise faculty and staff at the agricultural experiment stations and parish extension offices within their regions. Program leaders, regional directors and department heads in both AgCenters work together to direct to develop focused programs and address the state's most critical needs.

The LSU AgCenter and SU Ag Land Grant Campus directed research and extension education programs in 9 priority program areas:
Childhood Obesity focusing on increased consumption of fruits and vegetables, increasing time in physical activity and related adult nutrition issues;
Climate Change focusing on the state's forestry industry, wildlife conservation, wetland plants, water resources and waste management and their effects on the environment;
Family and Human Development focusing on issues affecting individuals and families;
Food Safety focusing on seafood, raw produce, agricultural and processed commodity- safety, certification programs and consumer food safety issues;
Global Food Security and Hunger focusing on increasing the sustainability and profitability of Louisiana's animal, aquaculture and plant systems and food accessibility, affordability and policy;
Horticulture focusing on consumer horticulture; landscape ornamentals and turf; and home, school and community gardens;
Resilient Communities and Economies place-based and people-based projects and programs focusing on economics and community development; disaster preparedness, mitigation and recovery; risk awareness; sustainable housing; agrosecurity and agritourism;
Sustainable Energy focusing on feedstocks, alternative biofuels, and biomass processing; and
Youth Development focusing on citizenship, healthy living, and science literacy.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	260.0	39.0	120.0	39.5
Actual	276.9	37.4	112.5	41.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Internal University Panel
- External University Panel
- External Non-University Panel
- Combined External and Internal University Panel
- Expert Peer Review
- Other (Representative Stakeholders)

2. Brief Explanation

Strategies for conducting program reviews on a regular scheduled basis were identified, evaluated and implemented. Review comments were solicited from peer scientists and state extension specialists. During the year, we requested external entities to assist in reviewing research and extension proposals some of which we were seeking partnership/collaboration. The comments and recommendations were provided to the project directors or team of faculty by the administration. State-level commodity groups met at least annually, and research and extension faculty continued to make presentations and receive comments/suggestions regarding future research and educational programming needs from these key groups. External extension advisory councils continued to validate outreach programs. In 2018, the LSU AgCenter sought information from Louisiana Master Gardeners, members of the Louisiana Nursery and Landscape Association, and Louisiana Fruit and Vegetable Growers Association about specific changes that were needed to the state horticulture program. Internal groups made up of multi-disciplinary faculty provided review and focusing of statewide research and extension efforts. An internal Horticulture Extension Committee was established to assess publication needs. Both Southern University and LSU Agricultural Centers conducted program reviews to assess program effectiveness and to establish program priorities.

As a result of the FY2017 needs assessment process conducted with stakeholders in the horticulture program, a need to update information associated with variety tests was identified. In response to this need, variety trials with home owners were established around the state and a brand new variety trial was added at the Northeast Research Station. The results suggested that the trials were successful and beneficial to users. As part of the internal Horticulture Extension Committee needs assessment process, Extension publications were targeted for updates and modifications. Two changes were prioritized: 1) simplifying documents for electronic viewing, particularly on mobile platforms and 2) creating educational videos of strategies related to weed control, variety selection, and insect management. These changes have been very beneficial and productive to our horticulture program clients.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals

- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals

Brief explanation.

Input was sought from both traditional and nontraditional audiences and the advisory committee and commodity groups were the major vehicles through which stakeholders provide input. Multiple methods were used in FY 2018 to seek input from stakeholders in a fair and impartial manner that allowed all participants equal contribution. While some individuals were specifically sought out to provide input because of their role in the program community, others were recruited using a variety of strategies. Public meetings were announced using tools such as press release, flyer, email, newspaper, radio, Websites, Twitter, YouTube and blogs. Stakeholders were encouraged to attend as they were able. To satisfy ADA stipulations, accommodations like accessible room locations and interpreters were provided for individuals with special needs. Surveys were conducted at many planned workshops or training sessions to determine the degree to which program activities conducted met and addressed the needs of participants. In addition, surveys were conducted to gather input from individuals who could not attend meetings. Stakeholders were engaged in not only the planning, but also the implementation and evaluation of program efforts.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

Different methods were used to identify individuals and groups to provide input into the programming process. One-on-one contact was often-used method by which extension and research staff identify individuals and groups which have interest in guiding programming. Advisory committee members were a great help in identifying other stakeholders. The key was ensuring that individual stakeholders represented a common subset of the total target population so that the needs of all can be identified and considered. A concerted effort was made to allow various individuals of diverse age, racial, ethnic, gender, and educational backgrounds to participate in the process by rotating advisory committee members while maintaining equal representation of the target audience on the stakeholder committees. Listening sessions and focus groups also provided opportunities to identify individuals and groups to participate in providing stakeholder input.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public

Brief explanation.

Input was collected from stakeholder groups and individuals through the advisory committee process for all key programs, through external focus groups on various issues and by using various needs assessments and survey tools. Advisory committee meetings with traditional and non-traditional stakeholder groups continued to be used more frequently. Surveys of both traditional and nontraditional stakeholder groups were used to gather such input. Utilizing Web-based survey tools became another method-of-choice to collect input from stakeholders who could not always participate in meetings. Occasionally, focus groups and meetings with key individuals in a community were used to collect input. The nominal group technique or some modified version thereof was normally used to identify and prioritize issues in advisory committee meetings. Extension agents and program area specialists held meetings regularly with various stakeholder groups to obtain their feedback regarding programs and activities. Meetings with non-traditional groups and individuals such as community leaders, parish officials, and other agency officials to seek input were also carried out both at the local and state levels. Formal and informal meetings were held. Faculty and staff participated in community activities where they were able to meet and interact with non-traditional groups and individuals throughout the state. With already-established relations with federal and state agencies, community groups, leaders, the faith community and individuals, both research and extension personnel utilized available resources at their disposal to interact and obtain important inputs. As part of several workshops, seminars, trainings, classes, and conferences input was collected through the use of surveys, open discussions and questions/answers sessions on targeted issues.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

Brief explanation.

The major means of utilizing stakeholder input continued to involve assisting faculty and staff in identifying emerging issues and in evaluating ongoing programs. Stakeholder advisory groups helped to redirect extension programs and research projects when necessary. Prioritization of issues needing attention was a major role of advisory committees. Input from the parish (county) level was often directed to one or more state level faculty for their consideration. Also, state-level advisory groups provided input directly to state specialists, and this information then went back to the parish groups for their consideration. Issues requiring research attention were directed to the program area through already established channel.

Stakeholder input was also used to redirect program resources from programs having less impact to those with greater impact or impact potential. As a result of stakeholder input, we redirected extension activities in youth development, nutrition and health, and family and human development to increase focus on gardening especially in schools. To address emergency situation such as flood and/or other natural disaster, we also redirected resources to address the immediate needs of Louisiana residents. Based on input, we continued to assist families and individuals affected by the flood in such areas as food safety, housing, establishing gardens, rehabilitating farms and businesses, and credit/financing. While stakeholders were not typically included directly in the hiring process, their input was considered in identifying the need to fill key positions. Stakeholders were involved in an advisory capacity, frequently participated in the interview process and provided input to the position selection committees. Legislative and regulatory actions affecting the future of our stakeholders were important variables in the process of planning for future program focus and prioritization of faculty positions.

Brief Explanation of what you learned from your Stakeholders

Increasing number of our citizens are using technology in their daily personal and business activities. However, some rural areas are still lacking the connectivity to the internet and some do not have regular access to utilize computers.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{No Data Entered}	{No Data Entered}	{No Data Entered}	{No Data Entered}

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	5547253	1710473	3953435	2048928
Actual Matching	11547253	1710473	3953435	2048928
Actual All Other	13521835	0	32734336	7624
Total Actual Expended	30616341	3420946	40641206	4105480

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	0	0	0	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Childhood Obesity

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	0%	0%	22%	0%
502	New and Improved Food Products	0%	0%	10%	0%
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	5%	0%
701	Nutrient Composition of Food	0%	5%	5%	10%
702	Requirements and Function of Nutrients and Other Food Components	0%	5%	20%	10%
703	Nutrition Education and Behavior	50%	40%	18%	40%
704	Nutrition and Hunger in the Population	0%	0%	10%	0%
724	Healthy Lifestyle	50%	50%	10%	40%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	5.0	4.0	3.0
Actual Paid	14.5	6.1	4.3	2.2
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
666696	195498	151109	110657
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
6666696	204284	151109	143263
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1625121	0	1223461	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The childhood obesity issue was addressed through a multi-disciplinary programming approach led by research and extension experts in nutrition, youth development, and school and community gardens.

• EFNEP and SNAP-Ed programs jointly implemented by both SU and LSU continued to provide key education and outreach to limited resource youth and adults. The primary curriculum used was "Let's Eat for the Health of It." Several billboards were still used all over the state to promote these programs. In addition, television spots were purchased to advertise the work and activities of EFNEP and SNAP-Ed.
• The 4-H Healthy Living initiative emphasized increased fruit and vegetable consumption and increased minutes of physical activity through a variety of delivery modes including the school garden program, the summer camp nutrition educational track, food and fitness boards at the state and local levels, and special interest workshops and day camps. The summer nutrition camp, Creating Healthy Enjoyable Foods (CHEF) Camp, continued during the period with participation around the state. Participants received hands-on training from nutrition experts on how to select, prepare and consume healthy meals.
• Youth gardening activities also continued and youth participants benefited from learning new techniques about gardening, which helped youth achieve the following: increase nutritional awareness through research and outreach, assist with lowering the obesity rate, save money in low-income households, increase leadership development skills and self-esteem among youth, increase environmental stewardship, and decrease health risks associated with diabetes and heart disease. Those who participated in these activities were introduced to a variety of nutrition-related technology, gardening, and physical exercises. A well-trained group of adults were used to manage these efforts which ensured great success.

2. Brief description of the target audience

The target audience for the 4-H Healthy Living program were youth in grades 4-12, parents, school administrators and faculty, and 4-H and Master Gardener volunteers. It was also necessary to train program staff and volunteers to ensure effective and efficient delivery of educational information. The target audience for EFNEP and SNAP-ED were limited resource youth and adults.

3. How was eXtension used?

The Eat Smart curriculum located on the eXtension site is used for training EFNEP and SnapEd paraprofessionals for the Nutrition Educator Certification Exam.

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	69008	1201851	81976	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2018

Actual: 1

Patents listed

AG-2014-36-03 Water-Soluble, High-Molecular-Weight Chitosan Powders

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	11	11

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Web page views

Year	Actual
2018	34404

Output #2

Output Measure

- Number of youth who participate in Smart Bodies Program
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of elementary schools participating in Smart Bodies program
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of research & extension outreach publications developed (in-house)

Year	Actual
2018	29

Output #5

Output Measure

- Number of educational program activities

Year	Actual
2018	5351

Output #6

Output Measure

- Number of USDA published materials distributed

Year	Actual
2018	144118

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Children practice healthy eating
2	Children engage in healthy levels of physical activity
3	Parents and caregivers learn the importance of healthy eating and physical activity.

Outcome #1

1. Outcome Measures

Children practice healthy eating

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A major challenge faced by low-income Louisiana families is obesity. Obesity is a severe epidemic that continues to grow. It cuts across race, ethnicity, income, and location. Obesity rates have tripled in the past 30 years, a trend that means, for the first time in U.S. history, American children may face a shorter life expectancy than their parents (A Healthier America, 2016). More than one-third of children and adolescents in the United States were overweight or obese; overweight was defined as having excess body weight for a particular height from fat, muscle, bone, water or a combination of these factors; obese was defined as having excess body fat (CDC, 2016). Consequently, childhood obesity is now the number one health concern among parents in the United States, topping drug abuse and smoking (Heart.Org, 2015). Because of childhood obesity, children today now suffer from diseases that were previously only seen in adults. These include high blood pressure, type 2 diabetes and cardiovascular diseases. They are also at greater risk for bone and joint problems and sleep apnea (CDC, 2016).
In Louisiana, the statistics are even more alarming. Louisiana has the fifth highest adult obesity rate in the nation, according to The State of Obesity: Better Policies for a Healthier America (August, 2017). Louisiana has the 6th highest childhood obesity rate in the nation and the state?s cost of childhood obesity associated illness increased from $35 million to $127 million over the past two decades, which equates to a 263% increase (Louisiana State University, 2015).

What has been done

Southern University Ag Center's Nutrition Education program implemented activities in 45 school sites covering 15 parishes (counties) where there were a higher concentration of poverty, and

some areas were classified as food deserts. We reached over 8,900 children however, 685 of them actually participated in the physical activity related activities. The project staff intentionally emphasized the following:
* Diet quality and physical activity
* Food Resource Management
* Food Safety
* Food Security
The main approach was to encourage the establishment of school and community gardens for the children to grow various kinds of vegetables that they would love to cook and eat.
Some key educational messages were:
* Be physically active every day as part of a healthy lifestyle.
* Eat fruits and vegetables, whole grains, and nonfat or low-fat milk or milk products every day.
* Balance calorie intake from foods and beverages with calories expended.
* Utilize gardening as a means of healthy eating, food security and physical activity.
In addition to gardening activities, we also conducted the Cooking Healthy Enjoyable Foods (C.H.E.F.) Camp which targets youth ages 9 to 15 and is designed to teach youth basic cooking principles and nutrition education based on the USDA's, "MyPlate" food guidance system and Dietary Guidelines. Fifteen (15) Statewide Youth C.H.EF. Camps were conducted during the period with 148 children participating.

Results
* Participants gained knowledge of how to grow various vegetables and how to prepare them for consumption such as, collard greens, brussel sprouts, green onions, carrots, broccoli, cauliflower, cucumber, mustard greens, cabbage, etc. and also herbs (mint, lemon grass, rosemary, basil, etc.) and their health benefits.
* Of participants whose parents have gardens, one hundred percent (100%) of them who participated agreed that they were assisting their parents more regularly in gardening and cooking than they did before participating in the activities.
* They also indicated that they can now appreciate and enjoy the taste of fresh vegetables from the garden versus frozen ones from the store.
* Most (98%) of the children who participated in gardening activities said they were more likely to sleep better at night and were also looking forward to attending school punctually.
* Over 85% of the participants said they have asked their parents to start garden in their backyards.
* They also indicated that they now are able to appreciate and enjoy the taste of fresh vegetables from the garden versus frozen ones from the store.
* In addition, over 15,000 lbs of fresh vegetables with estimated value of $30,000 were produced, consumed and or sold by participating schools.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Children engage in healthy levels of physical activity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Physical inactivity contributes to increased chronic disease and obesity. Programming that addresses increases in physical activity and decreases in screen time and physical inactivity are paramount to the success of obesity education programs.

What has been done
The LSU AgCenter conducted 1582 physical activity programs for both youth and adults through school programs, after-school programs, 4-H summer camp and special interest workshops from October 1, 2014 through September 30, 2018.

Results
Physical activity (PA) attitudes were assessed and were represented by the mean value of three items measured on a 5-point, semantic differential scale (-2=Really like me, -1=Like me, 0=I'm not sure, 1=Like me, 2=Really like me). This particular scale used anchor words at each end of the response categories. More affirmative words anchored the positive end of the scale while more negative words were used on the opposite end of the scale. Analysis revealed a statistically significant increase ($t6 = 2.682$, $p < .05$) in youths' attitude toward physical activity (Pretest Mean -0.17; Posttest Mean 1.00; Change 1.17; $p < .05$). There was no statistically significant change in adults' attitude toward physical activity.

Participants' perception of time engaged in sedentary activities each day was also evaluated. Analysis showed that, at pretest, adults spent about 30 minutes a day performing sedentary activities, while youth spent one hour a day doing these activities. At posttest, neither adults nor youth showed a change in their perceived amount of time spent in sedentary activity. While both adult and youth scores decreased slightly, but there was no statistically significant change in their perception of time spent in sedentary activity from pretest to posttest.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle

Outcome #3

1. Outcome Measures

Parents and caregivers learn the importance of healthy eating and physical activity.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Obesity is a critical health threat to families across the United States and closely linked to cancer. The medical costs for people who are obese are generally higher than those of normal weight. The prevalence of obesity has steadily increased over the past 35-40 years among children and youth in the United States. Louisiana youth are among the unhealthiest in the nation; 36% of 10-17 year olds are overweight and 53% don't exercise regularly. In Louisiana, 40.5% of African Americans are classified as overweight or obese. Transitioning to college is a critical period for college students and the first years of college life are associated with significant weight gain for

many students. The average increase in weight the first semester in college has been 3.5 to 7.8 pounds (1.5-3.5 kg [10]. The term "freshmen 15" has been used as a reference to the fifteen pounds (~7 kg) accumulated during the first year of college.

What has been done

SU Ag Center's Nutrition and Health Program received a grant to conduct research in "University Freshmen Moving Toward Becoming Ambassadors for Healthy Communities and Future Generations." Twenty-three (23) African Americans freshman students were recruited to participate in the study. Most of these students either have children, taking care of children, or will be taking care of children. These students were weighed before and after the study. The study was conducted in two semesters (one fall and one spring semester) which lasted 15 weeks each semester. The study design was a cross over design with each student being their own control. Half of semester received Whey Protein and Resistant Starch bar (7 weeks), then one week of wash out, and the other 7 weeks they did not receive the bar. The goal was to determine benefits of consuming whey protein /resistant starch bars for breakfast in reducing body fat. Nutrition education and physical activities intervention were incorporated into the study. Majority of the participants experienced weight loss up to 13 pounds.

The PI and research associate attended several national conferences and shared the results of the study with the scientific community as well as the extension community beyond Louisiana.

Results

* Some participants in the study recorded weight loss up to 13 pounds.
* Participants who did not lose weight, did not gain weight either.
* A participant said: ?In my opinion, the Jag Bar weight loss program has been an amazing experience. It taught me to be more aware of what I put into my body, and how I take care of my body. Our instructors and personal trainer were extremely exemplary, and their commitment to supporting us and continuing to believe in us was unbelievable. All and all, I loved my experience with the program, and it has inspired me to want to be a better, healthier me?? OPINION, THE JAGBAR WEIGHT LOSS
* Participants lost as much as 10% of their body weight on average. The results of this study have practical and promising significance in decreasing risk of obesity-related diseases and medical expenses for families.
* Participants reported that by eating breakfast (Jag Bar), paying close attention to what, and how much they ate in the family settings, being physically active, they lost weight, felt better, and were performing better at school.
* In 2018 one of our undergraduate students presented a poster titled ?Eating Healthy on The Go? at the One Health Symposium organized by Southern University Ag Center.
* In 2019 we will present a poster in similar study at the 19th Biennial Symposium of 1890 Association of Research Directors (ARD) in Jacksonville, Florida

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Like most states we are preparing by conducting trainings for the implementation of the Food Safety Modernization Act (FSMA). This rule could impact on the types and quantities of produce available to consumers especially in the rural areas. Extension staff have participated in the trainings in order to disseminate information to citizens and assist farmers/producers in their ability to properly carry out produce safety practices. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Obesity is a critical health threat to families across the United States and closely linked to cancer. The medical costs for people who are obese are generally higher than those of normal weight. The prevalence of obesity has steadily increased over the past 35-40 years among children and youth in the United States. Louisiana youth are among the unhealthiest in the nation; 36% of 10-17 year olds are overweight and 53% don't exercise regularly. In Louisiana, 40.5% of African Americans are classified as overweight or obese. Transitioning to college is a critical period for college students and the first years of college life are associated with significant weight gain for many students.
SU Ag Center's Nutrition and Health Program received a grant to conduct research in "University Freshmen Moving Toward Becoming Ambassadors for Healthy Communities and Future Generations." Twenty-three (23) African Americans freshman students were recruited to participate in the study. They were weighed before and after the study. The study was conducted in two semesters (one fall and one spring semester) which lasted 15 weeks each semester. The study design was a cross over design with each student being their own control. Half of semester received Whey Protein and Resistant Starch bar (7 weeks), then one week of wash out, and the other 7 weeks they did not receive the bar.
Summative evaluation results from the project indicate that 100 percent of students

participating in Whey Protein and Resistant Starch study significantly increased their knowledge about the health benefits of eating healthy to reduce body fat and especially decrease Body Mass Index (BMI). They became more aware that they could eat whey protein bar or any healthy food instead of the usual fatty foods for their favorite breakfast. 89 percent said they increased knowledge about the importance of simple daily exercise in promoting health by reducing BMI. 80 percent of the participants lost as much as 10% of their body weight on average. The results of this study have practical and promising significance in decreasing risk of obesity-related diseases and medical expenses for families.

Key Items of Evaluation

None

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change (Natural Resources & the Environment)

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	50%	0%	5%	0%
111	Conservation and Efficient Use of Water	0%	0%	5%	0%
112	Watershed Protection and Management	10%	0%	0%	0%
123	Management and Sustainability of Forest Resources	20%	10%	5%	10%
124	Urban Forestry	0%	50%	0%	50%
125	Agroforestry	0%	5%	0%	5%
132	Weather and Climate	0%	10%	0%	10%
133	Pollution Prevention and Mitigation	0%	10%	0%	10%
134	Outdoor Recreation	0%	5%	0%	5%
135	Aquatic and Terrestrial Wildlife	5%	0%	5%	0%
205	Plant Management Systems	15%	5%	30%	5%
216	Integrated Pest Management Systems	0%	0%	5%	0%
303	Genetic Improvement of Animals	0%	0%	5%	0%
305	Animal Physiological Processes	0%	0%	5%	0%
307	Animal Management Systems	0%	0%	10%	0%
308	Improved Animal Products (Before Harvest)	0%	0%	10%	0%
403	Waste Disposal, Recycling, and Reuse	0%	5%	5%	5%
605	Natural Resource and Environmental Economics	0%	0%	10%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	2.0	22.0	4.0

Actual Paid	7.5	0.0	31.5	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
666696	0	1106962	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
666696	0	1106962	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1625121	0	9672584	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activities conducted include, extension outreach using group and individual methods and mass media; social media tools; research experiments; result demonstrations; and field days incorporating the latest technologies. During the plan period, the following activities/interventions were also conducted:

- Communicate research results and other information with clients through extension personnel in the form of publications, conferences, workshops, field days, home/office visits, demonstrations and other educational resources.
- Identify and promote the use of crop varieties and animal breeds with climate adaptive traits.
- Educate consumers about the effects of climate change on the state's natural resources and mitigation strategies.
- Research the environmental benefits of urban forests, wetlands, carbon sequestration and the urban forest effects on air quality.
- Research and quantify urban forest effects on UV exposure in relation to proper vegetation design.
- Assist areas affected by past hurricanes and other natural disasters to rebuild their tree population.
- Collaborate, cooperate and partner with local, state and federal agencies, institutions, groups, private organizations/associations in seeking and delivering services to citizens.
- Conduct both commercial and private pesticide applicator certification programs.
- Promote and expand participation in the Louisiana Master Farmer Program.
- Maintain and coordinate the natural resource extension Coastal Plants program.
- Continue research activities conducted by the Center for Natural Resource Economics and Policy (CNREP).

2. Brief description of the target audience

Target audiences were Louisiana farmers and livestock producers, coastal managers, wetlands stakeholders, commercial and recreational fishermen, hunters, forest land owners/ managers, community leaders/stakeholders, interested agencies and organizations and youth.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	72424	2222266	12356	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2018

Actual: 5

Patents listed

AG-2018-025 Clearfield Jazzman (CLJ01) Long Grain Variety
AG-2018-026 LAH169-Hybrid Rice Variety
AG-2014-41-02 Rice Cultivar Designated PVL01
AG-2015-16-01 Glycosoaminoglycans from Alligator mississippiensis
AG-2017-029-01 Systems and Methods for Predicting Crop Yield

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	173	173

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Web page views

Year	Actual
2018	519804

Output #2

Output Measure

- Number of farmers completing the educational phase of the Louisiana Master Farmer program

Year	Actual
2018	189

Output #3

Output Measure

- Number of private pesticide applicators receiving initial certification

Year	Actual
2018	113

Output #4

Output Measure

- Number of commercial pesticide applicators receiving initial certification

Year	Actual
2018	281

Output #5

Output Measure

- Number of private pesticide applicators recertified

Year	Actual
2018	2280

Output #6

Output Measure

- Number of commercial pesticide applicators recertified

Year	Actual
2018	2839

Output #7

Output Measure

- Number of research & extension outreach publications developed (in-house)

Year	Actual
2018	75

Output #8

Output Measure

- Number of educational program activities

Year	Actual
2018	1217

Output #9

Output Measure

- Number of logging industry individuals completing base certification educational phase

Year	Actual
2018	30

Output #10

Output Measure

- Number of tree care workers and arborists completing educational program for licensing
  Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Forest landowners adopt recommended practices for profitability and environmental sustainability
2	Adoption of recommended practices by farmers that lead to reduced non-point source pollution in Louisiana waterways.
3	Development of new knowledge and technologies

Outcome #1

1. Outcome Measures

Forest landowners adopt recommended practices for profitability and environmental sustainability

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Adoption of recommended practices by farmers that lead to reduced non-point source pollution in Louisiana waterways.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Development of new knowledge and technologies

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Stratospheric ozone depletion has resulted in a significant increase in solar ultraviolet radiation (UVB, 280-315nm and UVA, 315-400nm) on the earth's surface. With the future uncertainty of stratospheric ozone recovery and global climate change, there is a critical need for systematic evaluation of UV impacts on trees and urban forest. Urban forests are an integral part of urban green infrastructure, providing enormous ecological and social benefits to urbanites. Today more

than 80% of US population lives in urban settings, yet we have limited understanding on how urban trees/forests cope with the harmful UV and protect our living environment.

What has been done

Southern University collaborated with Colorado State University and Louisiana State University to receive a grant which studied urban tree interception of UV (A/B) radiation and its genetic consequences. In the study, we quantified urban forest influences on UV (A/B) distribution in urban environment, and discovered effect of UV(A/B) on DNA damage/repair capability in select group of southern broadleaf tree species. The funding enabled us to configure and streamline the existing UVB Monitoring Station at Southern University with the USDA UVB Monitoring and Research Program (UVMRP) at Colorado State University. The project trained the next generation of the workforce including 13 students comprising of one postdoc researcher, 8 MS-PhD graduate students, 2 undergraduate students, and 2 summer high school interns. The training has enhanced their knowledge in UV-B monitoring and research, forest ecology and tree genetics and their critical thinking and problem-solving skills. We also conducted seminars and workshop to disseminate research findings with extension agents and community organizations. In addition, research results were shared with our peers in the 1890, 1862 and other scientific communities.

Results

The project has so far generated the following:
* One automated mobile UVB and UVA monitoring station for the study of tree canopy interception of UV radiation
* One Web link to USDA-UVB Monitoring and Research Program
* 2 analytic protocols for isolating and quantifying DNA/RNA in urban trees, and measuring CPDs and 6,4PPs to determine UV (A/B) induced DNA damage in tree leaves.
* 7 journal publications
* 10 conference papers/abstracts
* 8 presentations
* One honor thesis
* 3 MS-capstone research projects
* 3 Databases for UV monitoring, genomic DNA/RNA, and UV induced DNA damage in select southern tree species
* The project has so far trained 13 students including 1 postdoc researcher, 8 MS-PhD graduate students, 2 summer intern students, and 2 undergraduate students

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
124	Urban Forestry
132	Weather and Climate
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife
605	Natural Resource and Environmental Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events. Several laws were passed during the FY 2018 Louisiana Legislative Session, but most were not effective until January 2019, we cannot ascertain their impacts yet.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

None

Key Items of Evaluation

None

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Family and Human Development

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
724	Healthy Lifestyle	0%	15%	0%	15%
801	Individual and Family Resource Management	0%	40%	0%	40%
802	Human Development and Family Well-Being	0%	40%	0%	40%
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%	5%	0%	5%
	Total	0%	100%	0%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	4.0	0.0	3.0
Actual Paid	0.0	5.2	0.0	5.3
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	297949	0	199862
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	280987	0	165624
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	550

V(D). Planned Program (Activity)

1. Brief description of the Activity

The following activities/intervention wre conducted:

1. Extension and Research faculty worked cooperatively to develop and disseminate educational materials devoted to helping the family set goals and manage limited resources.
2. Community Volunteers (advisory committee, Community organizations, etc.) organized to help disseminate information, increase awareness and implement programs.
3. Consumer curriculum designed to support objectives on financial planning and management.
4. Partnerships with banks and other financial agencies solicited and their expertise utilized.
5. We communicated research results and other information to citizens through extension personnel in the form of publications, conferences, workshops, home/office visits, demonstrations and other educational resources.
6. We collaborated, cooperated and partnered with local, state and federal agencies, institutions, groups, private organizations/associations in seeking and delivering services to citizens.
7. Others include: Nutrition Classes, Child Care Classes, Second Chance 2-Recover workshops, Parenting Workshops, Parish and home visits, Demonstrations, Training sessions for adults and children, etc.
8. Conducted workshops/training to promote positive home environments and encourage community involvement
9. Promoted physical fitness & healthy eating
10. Conducted health fairs (in collaboration with Nutrition and Health Program staff, communities, health organizations, schools, etc)
11. Compiled and disseminate resource directory (pamphlet)
12. Conducted educational trainings on emergency preparedness
13. Conducted educational trainings to help those incarcerated stay connected with their families, prepare to re-enter society and find gainful employment upon release.

2. Brief description of the target audience

We worked to serve large numbers of low income and limited resource families who reside in the target areas. Most of these families lived below the poverty level. They lacked knowledge, information, and/or skills to utilize existing resources to improve their parenting and child care skills, family nurturing, learning, resource management, and quality of life. Children and adolescent who are placed at risk and those that are potentially at risk benefited from the services provided by the planned program.

3. How was eXtension used?

The eXtension site was used for training parent educators especially in areas of nutrition and health living for families.

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	9361	168246	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2018
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	13	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research & extension outreach publications developed (in-house)

Year	Actual
2018	13

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Clients increase knowledge/skills or gained awareness about Family and Human development issues
2	Clients change behavior, attitude or lifestyle

Outcome #1

1. Outcome Measures

Clients increase knowledge/skills or gained awareness about Family and Human development issues

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Louisiana has about 15,000 child care providers and over 215,900 children are enrolled in or in need of child care. About 12,000 of the workers are in licensed child care facilities or registered family child care homes. Children living in low income families are usually less likely to be enrolled in child care center. There was an overwhelming need for early child care along with continuous and comprehensive training for parents with limited or no resources and a lack of self-sufficiency. There is a strong connection between high quality early childhood programs and later success in school. Parenting programs help parents develop skills that will provide positive and effective parenting. The culturally sensitive program provides educational information basis norms and family values.

What has been done
The state of Louisiana 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. To ensure that childcare/head start providers deliver quality care, 933 providers received at least six hours of professional training. Classes taught were based on the competency levels of the Child Development Associate (CDA) Credential. In FY 2018, sessions were conducted in partnership/collaboration with faith based-organizations ministries, and families. Additionally, workshops were organized for parents, head start and child care centers. Childhood obesity prevention was part of the course offered during the training for child care providers.

The Parents Preparing for Success Program (PPSP) was conducted in 14 parishes (Avoyelles, East Baton Rouge, East Carroll, East Feliciana, Evangeline, Livingston, Morehouse, Orleans, Rapides, St. James, St. Tammany, Tangipahoa, Washington, and West Carroll). We received

over $377,000 in grant funds from the state for the trainings. In addition, funds from the 1890 Facilities Grants Program were used to renovate the Child Development Laboratory which will open in FY 2019. This facility will among other things house hands-on trainings for professionals who need re-tooling and students who need to participate in practicum.

Results

* The 933 Child care/ Head Start providers who attended classes conducted by the SU Ag Center saved over $279,900 in fees and charges.
* The newly renovated Child Development Laboratory will greatly enhance hands-on and practical training of childcare/Head Start providers and an interactive environment practicum offering for our students who will be graduating with concentration in child development and also nursing.
* Survey of the participants showed knowledge and skills gained and some behavior changes as a result of attendance at the training.
* Childcare/head start owners who participated in the training sessions said they will ensure that their employees continue to participate in such trainings to ensure quality and efficient services for their clients.
* A total of 107 participants graduated after completing all requirements for certification.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #2

1. Outcome Measures

Clients change behavior, attitude or lifestyle

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Personal financial management courses are not universally taught in high schools or in colleges. Therefore, many Americans lack the financial acumen to navigate the increasingly complex world of finance. Economists and others in the financial service industry are deeply concerned about Americans low levels of financial literacy and the high societal costs of their financial illiteracy. Research suggests that financial illiteracy has caused many Americans to become mired in debt, to pay exceeding high interest fees, to face emergency expenses without adequate savings cushion, or to file for bankruptcy, among others. Because of low levels of financial literacy, many youth/college students do not understand how to budget, save, invest, or the importance of credit. U.S. student loan debt now exceeds $1.48 trillion; delinquency rate is 11.2%, and the average loan for the Class of 2016 graduate is $37,172. The lack of financial knowledge and ability among America?s youth is a serious problem that is not going to improve on its own.

What has been done

Research was conducted to assess levels of financial literacy among a selected group of youth and undergraduate students, to track the effectiveness of instruction on basic financial concepts, and to examine the role of socioeconomic and demographic characteristics on knowledge, attitudes, and behavior. The study was conducted in 2017 and 2018. Using questions from the National Financial Capability Survey (http://www.usfinancialcapability.org/), we developed a booklet Lessons on Money which covered topics such as interest rate computation, inflation, mortgage payments, and stock market risk. The booklet and other resources were used to instruct participants on financial literacy. Assignments requiring participants to complete monthly budgets and compute simple and compound interest and car payments under various hypothetical scenarios were also conducted. To test knowledge gained, two financial quizzes were implemented. Pre-and-posttests were conducted based on topics covered. Participants included youth and undergraduate students. The same booklet was provided to more than 310 adults who participated in workshops and seminars conducted.

Results

Early results suggested that a majority of the participants did not know how to (i) use the Rule of 72, (ii) compute the growth in an investment over a given time period; (iii) determine the future values of an investment at a specific interest rate. Questions were derived from the National Financial Capability Survey which measured knowledge of interest computation, inflation, mortgage payments, and stock market risk, participants performed better on the posttest than on the pretest.

* However, among previous participants in the financial literacy classes 92% indicated that they no longer buy as much on credit, have started some sort of savings account, inquiring more about interest rates before obtaining loans, and are learning more about different types of investment opportunities.
* Based on post-test results, 90% of the participants agreed or strongly agreed that the financial literacy lessons changed their views about their money and 89% agreed or strongly agreed that they now had a better understanding of how interest and car payments were determined.
* Participants gained substantial knowledge on managing finance leading to reduced debt burden (especially student loan defaults) and increased savings along with reduced number of those filing for bankruptcy. Society with gain positive economic freedom.
* Knowledge and skills gained were shared with friends, family members and groups, to educate them on the need to be financially literate.
* An undergraduate student mentored by through the project used a subset of the project?s data to prepare and present a paper at a professional meeting and received the First Place Award for

her paper.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events. Several laws were passed during the FY 2018 Louisiana Legislative Session, but most were not effective until January 2019, we cannot ascertain their impacts yet.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Economists and others in the financial service industry are deeply concerned about Americans low levels of financial literacy and the high societal costs of their financial illiteracy. Research suggests that financial illiteracy has caused many Americans to become mired in debt, to pay exceeding high interest fees, to face emergency expenses without adequate savings cushion, or to file for bankruptcy, among others. Because of low levels of financial literacy, many youth/college students do not understand how to budget, save, invest, or the importance of credit. U.S. student loan debt now exceeds $1.48 trillion; delinquency rate is 11.2%, and the average loan for the Class of 2016 graduate is $37,172.

The lack of financial knowledge and ability among America's youth is a serious problem that is not going to improve on its own.

Research was conducted to assess levels of financial literacy among a selected group of youth and undergraduate students, to track the effectiveness of instruction on basic financial concepts, and to examine the role of socioeconomic and demographic characteristics on knowledge, attitudes, and behavior. The study was conducted in 2017 and 2018. Using questions from the National Financial Capability Survey (NFCS) (http://www.usfinancialcapability.org/), we developed a booklet Lessons on Money which covered topics such as interest rate computation, inflation, mortgage payments, and stock market risk. Pre-and-posttests were conducted based on topics covered. Participants included youth and undergraduate students.

Pre and post test results, N = 499 indicate that overall, participants' performance increased during the first section of the FY 2017/2018 study period. These results were statistical significance at the 5 and 1 percent levels of significance. However, performance fell on some aspects for the NFCS questions dealing with interest rate, inflation, and stock market risk. In future, more lessons on financial literacy with regular assignments will be implemented.

Key Items of Evaluation

Financial literacy rate continues to be lower for those with lower education, low income group and the youth. Basic financial literacy classes or workshops can help increase knowledge on topics such as interest rate computation, inflation, mortgage payments, etc.; and hopefully help to reduce the amount of debt and default rate.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Food Safety

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
502	New and Improved Food Products	0%	0%	19%	40%
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	0%	10%
703	Nutrition Education and Behavior	0%	35%	0%	5%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	80%	30%	28%	30%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	20%	10%	38%	10%
723	Hazards to Human Health and Safety	0%	0%	15%	0%
724	Healthy Lifestyle	0%	25%	0%	5%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	4.0	3.0	6.0
Actual Paid	2.4	3.5	7.3	5.4
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
111525	270127	256534	415961
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
111525	279821	256534	429532
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
271850	0	2077039	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Extension and research activities including result demonstrations, workshops, classes, certification programs, studies and effective use of a variety of media sources to address food safety-related issues were used to teach producers, consumers, handlers and processors about strategies of keeping food safe. Specific certification trainings such as Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs), trainings that satisfy FSMA requirements, Sanitation Control Protocol (SCP), Seafood HACCP; Meat and Poultry HACCP; Vacuum Packaging HACCP, Better Process Control School (BPCS) and ServSafe were conducted and certificates issued.

Specific research and extension activities conducted during this period were:

- Developed science-based food safety educational outreach programs in the form of GAPs/GHPs to provide Louisiana growers with the tools and resources needed to make knowledgeable and profitable management decisions pertaining to the production of safe, healthy and nutritious fruits, vegetables and nuts.
- Collaborated and conducted research on food safety and prevalent foodborne diseases;
- Promoted use of food safety, safe school food nutrition curriculums; and health tips to ensure food safety during school activities;
- Worked jointly to create awareness and generate knowledge in Louisiana residents about safe food handling practices through workshops, classes, demonstrations, home/office visits, publications, fact sheets, newsletters, and research reports and by using Web and other social media tools;
- We also collaborated, cooperated and partnered with local, state and federal agencies, institutions, groups, private organizations/associations in seeking and delivering food safety information to residents;
- We received grants funds and hire few personnel to build capacity to respond to clientele needs regarding food safety;
- Conducted certification trainings that satisfied FSMA requirements, Sanitation Control Protocol (SCP), Seafood HACCP; Meat and Poultry HACCP; Vacuum Packaging HACCP, Better Process Control School (BPCS) and ServSafe.
- Conducted research and disseminated research-based information on pre- and post-harvesting (animal and plant) best practices as recognized by FSMA.

2. Brief description of the target audience

Growers, consumers, commercial seafood processors, children and food handlers including restaurateurs and food vendors were target audience of this planned program. We continued to have a large number of low income and limited resource families in Louisiana. These families typically lack the

knowledge, information, and skills to utilize existing resources to improve their diet and ensure food safety. Children, the elderly and individuals with various health limitations are particularly vulnerable to food borne illnesses. Particular attention was focused on growers and food producers and processors as the primary means of reducing the prevalence of food borne illnesses originating during the production, packing and processing phases.

3. How was eXtension used?

eXtension was used as a resource in obtaining information relating to best practices to share with our clientele.

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	35435	256896	3540	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2018
Actual: 1

Patents listed
AG-2015-18-03 "Bioplastic Polymers and Composites"

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	35	35

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of individuals certified through food safety programs

Year	Actual
2018	723

Output #2

Output Measure

- Number of research & extension outreach publications developed (in-house)

Year	Actual
2018	14

Output #3

Output Measure

- Number of Web page views

Year	Actual
2018	233351

Output #4

Output Measure

- Number of educational program activities

Year	Actual
2018	866

Output #5

Output Measure

- Number of USDA published materials distributed

Year	Actual
2018	15094

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase adoption of recommended safe food handling practices at the individual, family and community levels.
2	Increase number of viable technologies to improve food safety
3	Increase adoption of recommended safe food handling practices at the production and supply system levels.

Outcome #1

1. Outcome Measures

Increase adoption of recommended safe food handling practices at the individual, family and community levels.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Agriculture is one of the largest sectors in Louisiana, accounting for a total economic value of more than 7.1 billion dollars annually (LSU, 2014). Louisiana consists of 28,093 farms of varied sizes. Most of these farms were owned and operated by small and mid-sized farmers with limited resources and knowledge to meet the basic regulatory and market-driven food safety requirements. With the recent enactment of The Food Safety Modernization Act (FSMA)? the FDA now has a legislative mandate to require comprehensive, science-based preventive controls across the food supply? (FDA, 2013). While FSMA exempts many smaller operations from various aspects of some rules, once the program is widespread, produce buyers will require the same safety procedures of all growers regardless of size.

What has been done
Food safety program in agricultural production was prioritized with an intent to help growers meet the FDA FSMA and the market-driven Good Agricultural Practices (GAPs) requirements. A network of food safety professionals, extension specialists, and individuals from state agricultural departments, food hubs, and cooperatives and other non-governmental organizations were established. Several series of educational materials, tools, and resources were developed and made available through the LSU AgCenter food safety web page. The team delivered Produce Safety Alliance (PSA) growers training, GAPs workshop, and basic food safety hands-on training.

Results
Through this program, we have provided GAPs/GHPs training to around 315 specialty crop growers and extension agents and Produce Safety Alliance growers training to 200 individuals in

Louisiana. This program has resulted in an increase in 69% (n= 22) of GAPs Certified farms in Louisiana between 2014 and 2018. In 2014, there were only 13 producers with USDA GAP certification, and the majority was sweet potato farmers (n = 10). This project assisted a variety of specialty crop farms including micro green producers; greenhouse produces, row crop, blueberry, citrus, and sweet potato producers in obtaining GAPs/GHPs certification. Also, there were more than 18,494 views of the LSU AgCenter food safety web page which indicates the quality and popularity of the publications on issues related to on-farm food safety. As a result of this program, specialty crop growers learned about the risk associated with food safety hazards and learned on-farm practices to mitigate the risks. Producers adopted GAPs/GHPs in their operations and addressed food safety risks and enhance product safety, thereby decreasing legal and production risks. Almost all the workshops attendees (95%) indicated that their knowledge of implementing USDA GAPs/GHPs increased to a high or very high level. A survey conducted among the workshop participants at the end of the project period indicated 90% had improved their on-farm food safety practices, 80% implemented good agricultural practices, 68% started keeping on-farm records, 46% performed workers health and hygiene training and 90% shared their increase in knowledge to other growers and producers. The growers also indicated an increase in sales after adopting on-farm food safety practices; 50% indicated an increased market opportunity, 8% increased their sales by 20%, and 30% of the growers indicated their sales were increased by 10% as a result of implementing GAPs/GHPs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
703	Nutrition Education and Behavior
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Increase number of viable technologies to improve food safety

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Increase adoption of recommended safe food handling practices at the production and supply system levels.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Foodborne illnesses caused by over 30 major pathogens are estimated to affect approximately over 9 million people in the United States every year. Millions of people become sick every year after eating food contaminated with pathogenic bacteria or their toxins, or through personal contact with people exposed to foodborne pathogens. Most cases of foodborne illness can be prevented through hygienic practices such as handwashing and by routinely following proper food handling and preparation recommendations. However, recent outbreaks of foodborne illness associated with fresh produce such as lettuce and spinach underscore the importance of preventing contamination at all levels of farm to table. It is vitally important that consumers properly wash their hands before handling food and they understand the reasons for proper handwashing. Educating public about following proper food safety practices are crucial. Food safety is a critical necessity for any dining and serving food experiences.
Food safety trainings need to be enhanced through extension programs. Actions are needed toward improving public health by improving the safety of food through education of consumers and food handlers. Public awareness of food safety has been increasing recently due to nationwide outbreaks of foodborne illnesses associated with several foods. In settings such as community events, camps, church dinners, fairs or in child and adult care centers, the individuals responsible for handling food may include volunteers and paid staffs that have inadequate training in food safety. Individuals, including volunteers, school personnel, teachers and staff are often unaware of the risks. They need to understand the risks involved with handling food during harvesting, handling, preparation and service of food and be knowledgeable about measures required to manage these risks. These and other "occasional" food handlers represent opportunities for Extension educational outreach efforts and on-going trainings

What has been done

ServSafe is a food and beverage safety training and certificate program administered by the National Restaurant Association. The program is accredited by American National Standards Institute (ANSI) and the Conference for Food Protection. Southern University Agricultural Land Grant Campus offers food safety (ServSafe) certification program to the public and Food Handler Trainings. Food safety is a critical necessity for any dining and serving food experiences. The Louisiana Department of Health and Hospitals requires that food facilities have at least one

ServSafe certified personnel on board. Also in order for the food facility owners to pass the health and food safety inspection required by State and Government, they have to have the ServSafe certificate.
Food handler training is a 5-weeks program and participants receive a certificate of completion. In 2017-2018 five food handler trainings were conducted 455 persons received their certificate of completion. Among the certificate recipients, the individuals who were interested in receiving the ServSafe training attended an all-day class, took (and passed) the recommended examination. The examinations were graded by ServSafe and the participants who passed the test received official certificate from ServSafe which is valid for five years. In FY 2018 we conducted 12 ServSafe trainings and certifications across the state for 73 restaurant owners, mobile food truck owners, school personnel and new food business owners.

Results

* 455 individuals representing several food handling organizations received food handler training and certification.
* 73 restaurant owners, mobile food truck owners, school personnel and new food business owners received ServSafe trainings and certifications from different parishes across the state.
* 15 extension agents received ServSafe trainings and certifications in order to educate the citizens of the communities on food and nutrition and healthy food preparation choices.
* As a result of the SU Ag Center's program, at least 52 food facilities in the state have at least one ServSafe certified personnel on board as required by Louisiana Department of Health and Hospitals.
* Follow-up survey of participants indicated that 100 percent of the participants gained new knowledge and skills and are putting knowledge gained into practice.
* They are also educating/recruiting other food facility owners/workers to attend the training for certification programs.
* Furthermore, the survey indicated that 100 percent of the participants in the ServSafe training have made some adjustments in the ways that food are handled in their facilities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Like most states we are preparing by conducting trainings for the implementation of the Food Safety Modernization Act (FSMA). This rule could impact on the types and quantities of produce available to consumers especially in the rural areas. Extension staff have participated in the trainings in order to disseminate information to citizens and assist farmers/producers in their ability to properly carry out produce safety practices. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

None

Key Items of Evaluation

None

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Global Food Security and Hunger

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%	5%	5%	5%
111	Conservation and Efficient Use of Water	0%	0%	5%	0%
123	Management and Sustainability of Forest Resources	0%	0%	10%	0%
204	Plant Product Quality and Utility (Preharvest)	0%	20%	0%	20%
205	Plant Management Systems	30%	0%	5%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	0%	5%	0%
212	Pathogens and Nematodes Affecting Plants	0%	0%	5%	0%
213	Weeds Affecting Plants	5%	0%	5%	0%
216	Integrated Pest Management Systems	5%	0%	10%	0%
301	Reproductive Performance of Animals	0%	10%	0%	10%
302	Nutrient Utilization in Animals	0%	20%	5%	20%
305	Animal Physiological Processes	0%	0%	5%	0%
307	Animal Management Systems	20%	30%	0%	30%
308	Improved Animal Products (Before Harvest)	0%	5%	0%	5%
311	Animal Diseases	5%	0%	5%	0%
313	Internal Parasites in Animals	0%	5%	0%	10%
402	Engineering Systems and Equipment	0%	0%	5%	0%
511	New and Improved Non-Food Products and Processes	0%	0%	5%	0%
601	Economics of Agricultural Production and Farm Management	0%	5%	25%	0%
704	Nutrition and Hunger in the Population	20%	0%	0%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	22.0	7.0	62.0	14.0
Actual Paid	23.1	5.5	47.7	20.1
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
1062610	258979	1676256	903358
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1062610	237906	1676256	950283
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2590190	0	13587041	5542

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activities include research and extension programs directed towards row crop, fruit and vegetable production; and animal and aquaculture production. LSU AgCenter programs addressed yield, cultural practices, and pest management resulting in development of new varieties and integrated pest management strategies for Louisiana's major row crops. SU Ag Center continued to address immediate and long term needs of small and limited resource farmers. Specific activities include:

1. Design and conduct educational programs and research projects on animal and plant enterprises, to address yield, cultural practices and pest management, new varieties, and animal health to producers and potential producers;
2. Conduct workshops, farm visits, livestock shows, demonstrations, field tours, grower meetings, training sessions;
3. Work with internal and external communication channels as well as traditional and social media to disseminate important commodity production information to clients and stakeholders.
4. Educate limited resource audiences about the availability of safe and healthy food supplies offered through farmers markets, local grocery stores, and school and community gardens.
5. Collaborate, cooperate and partner with local, state and federal agencies, institutions, groups, private organizations/associations.
6. Enhance marketing opportunities in traditional and alternative outlets such as farmer's markets, community supported agriculture (CSA), and other outlets.

Teaching methods will include group and individual methods; mass media; applied research studies; result demonstrations; and field days, which incorporate the latest technological advances and use of social media. Research outputs are measured through scientific presentations at field days, local and national meetings and publications.

2. Brief description of the target audience

The target audience for this program includes approximately 6,000 growers with 7.9 million acres of land in production and related agribusinesses:

- •Cotton--311 producers with 213,361 acres in production who produced 197 million pounds of cotton.

•Feed grains--1,278 producers with 503,948 acres in production who produced 91 million bushels of feed grains.
•Rice-- 859 producers with 392,000 acres in production who produced 3.0 billion pounds of rice.
•Soybeans--2,346 producers with 1.3 million acres in production who produced 69 million bushels of soybeans
•Sugarcane--439 producers with 439,000 acres in production who produced 1.8 million tons (3.6 billion pounds) of raw sugar and 78 million gallons of molasses.
•Sweet potatoes--47 producers with 9,292 acres in production who produced 3.9 million bushels of sweet potatoes.
•Wheat--58 producers with 15,640 acres in production who produced 605,000 bushels of wheat.

It also includes livestock and poultry producers, crawfish farmers and consumer groups related to enhancing the value of animal commodities. In addition, there are 4,100 producers with 6,631 acres of land in commercial production and an estimated 476,000 home gardens providing fresh vegetables, fruits and nuts.

The SU Ag Center specifically targeted small producers, limited resource producers, socially and economically disadvantaged individuals, the underrepresented, the underserved, women, and minorities. Others are youth 13 - 18 years, policy makers, community leaders/stakeholders, interested agencies and organizations.

3. How was eXtension used?

Information from eXtension was used in preparing presentations and newsletters, responding to questions by phone, responding to emails, publications, and extending information to the public

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	167891	1613687	46853	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2018
Actual:	6

Patents listed
AG-2018-006 Aflatoxin Mitigation Method
AG-2014-26-23 Delivery of Bioactive, Nanoencapsulated Antioxidants
AG-2016-053-02 Method for Isolation and detection of spiroplasma in TSE-Affected tissues, body fluids, or other samples
AG-2017-004-02 Biochar Fertilizer and Related Methods
AG-2017-005-03 Method for Controlling Hematophagous or Sap-Feeding Arthropods
AG-2018-001-01 Catalyst Composition Including a Biochar, and Related Methods

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	237	237

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Web page views

Year	Actual
2018	3121814

Output #2

Output Measure

- Number of research & extension outreach publications developed (in-house)

Year	Actual
2018	47

Output #3

Output Measure

- Number of field demonstrations

Year	Actual
2018	228

Output #4

Output Measure

- Number of grower field days

Year	Actual
2018	80

Output #5

Output Measure

- Number of educational program activities

Year	Actual
2018	4994

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increased awareness, knowledge/skills or changed attitudes regarding recommended animal and animal production practices.
2	Enhanced capacity of a sustainable global food system including new/improved animals, technologies and management systems
3	Increased awareness, knowledge/skills or changed attitudes regarding recommended plant and plant production practices.
4	Enhanced capacity of a sustainable global food system including new/improved plant, technologies and management systems
5	Individuals in vulnerable populations have access to healthy, affordable foods.

Outcome #1

1. Outcome Measures

Increased awareness, knowledge/skills or changed attitudes regarding recommended animal and animal production practices.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Gross farm income from beef cattle decreased 3.5%, from $427 million in 2016 to $412 million in 2017, significantly less than the average increase seen for all animal enterprises. Louisiana cow numbers in 2017 totaled 559,532 and producers were reported at 11,543. Cow numbers were up slightly from 553,945 cows, while the total number of producers was down marginally from 11,603 reported in 2016. In 2017, 64,551 yearling cattle (600-800 pounds each) sold for $61 million, an increase of roughly 2,400 head and nearly $9 million from 2016 levels. Feedback provided by beef cattle producers from around the state allowed dedicated resources to address issues that would improve the reproductive efficiency, pasture management, supplementation for the mature cow herd and stocker enterprises, and Beef Quality Assurance.

What has been done
Annually, the LSU AgCenter organizes field days at 3 beef cattle research stations and 2 others at strategic locations. On average, 120 producers attended them. Pasture walks and on-farm demonstrations were also held. Radio interviews, articles in producers' magazines, and newsletters are methods also used to reach a larger audience. The Louisiana Master Cattleman Program provides producers the opportunity to increase their knowledge about the fundamentals of beef cattle production. State and Parish Cattlemen Associations, Louisiana Beef Industry Council, Louisiana Forage and Grassland Council, veterinarians and approximately 75 private companies made financial contributions and/or provided support for these programs.

Results
A survey was conducted to evaluate the LSU AgCenter's role in improving the beef cattle industry

in Louisiana and 149 surveys were completed. Respondents were asked specific questions relative to how LSU AgCenter programming has benefited their operations in Animal Health, Reproduction, Nutrition, Financial Management, Pasture & Forage, Animal Handling, and Breeding & Genetics. Seventy-four percent of respondents indicated they administer all injections following BQA guidelines all of the time, while 18% said most of the time. When asked about implementing a defined breeding system, 53% indicated all of the time while 26% said most of the time. Fifty-two percent indicated they have a better understanding of the body condition scoring system. When asked about utilizing beef cattle low stress handling techniques, 58% indicated all of the time and 30% most of the time. Pertaining to financial management, 47% of respondents indicated they keep good, complete production records all of the time, while 35% said most of the time. These results show that the LSU AgCenter programs have fulfilled their responsibilities of transferring and adapting technologies for Louisiana?s beef cattle producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
313	Internal Parasites in Animals
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

Enhanced capacity of a sustainable global food system including new/improved animals, technologies and management systems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual

2018 0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Grazing land statistics are not collected annually in Louisiana, but the acreage is believed to be about 2.3 million acres of permanent pasture; 900,000 acres of native grassland; and 300,000 acres of marsh grasslands. These grazing lands support in large part the state?s beef, horse, sheep and dairy industries. Hay is produced on about 350,000 acres annually in the state. Most of the hay produced is grass hay, composed primarily of bermudagrass, bahiagrass or annual ryegrass. Hay yields are normally about 3 tons per acre. The gross farm value of this hay crop is normally about $130 million per year.

What has been done

The LSU Agricultural Center (LSUAC) has an ongoing pasture and forage crops educational program which is managed by two Extension forage specialists and about 40 parish Extension agents. During the past 4 years, Extension personnel have made numerous contacts with stakeholders dealing with forage issues and questions. These contacts were made via farm visits, phone calls and email messages. There were 80 parish and multi-parish meetings held dealing with forage and livestock production. The main forage topics covered included pasture and hay production. There were 32 regional and state-wide field days dealing with forage and livestock production. Many of these field days showcased various forage test plots that were managed by the Extension specialists and agents. There were 4 state-wide forage meetings held. The topics of this meeting changed every year, and Extension personnel had major impact on the topics that were on the program. The Extension specialists prepared a quarterly newsletter each year on forage crops that was distributed to over 200 participants. This newsletter included forage production information and results of forage research projects. The Extension specialists performed 12 radio and television interviews on forage production and management during this 4-year time period. These interviews were distributed to a state-wide audience.

Results

A survey that included questions on pasture and forage crops was compiled in January of 2019. The survey was sent via email to stakeholders. A total of 114 surveys were distributed and 42 were returned, for a return rate of 37%. Eighty-six percent of the respondents were producers, 12% were industry representatives and 2% did not designate any category. As far as the number of acres of forage either harvested or grazed, 19% responded that they have less than 50 acres; 22% have between 50 and 100 acres; 51% have between 100 and 500 acres and 8% have more than 500 acres. Sixty-seven percent of the respondents reported that they raise beef cattle, 14% raise horses, 6% raise dairy cattle and the remaining 13% raise sheep or goats. Fifty-four percent of the respondents reported that they have been involved in their forage operation for over 20 years. Only 11% have been involved in their operation for less than 5 years. Seventy-seven percent of the respondents were 56 years or older, while 43% were younger than 55 years old. Ninety-five respondents were male, while 5% were female. Ninety percent of the respondents indicated that they soil test periodically and 70% follow LSUAC fertilizer recommendations. During the past 4 years, 55% of the respondents reported that they participated in LSUAC educational programs 1 to 2 times per year, while 21% of the respondents participated 3 to 4 times per year. Sixty-three percent of the respondents indicated that they have obtained information from the LSUAC forage web page. When considering all of the practices they are currently using in their forage operation, 58% indicated they used primarily LSUAC information. Results of this survey reinforce the notion that LSUAC programs play a major role in influencing

the management decisions of many Louisiana forage and livestock producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
313	Internal Parasites in Animals
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Increased awareness, knowledge/skills or changed attitudes regarding recommended plant and plant production practices.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rice is one of the most economically important agricultural crops grown in the state of Louisiana annually. In 2018, rice was grown in 31 Louisiana parishes on approximately 436,000 acres. Average yield in 2018 was 7,130 pounds per acre. The gross farm value of the state?s rice crop was $375.2 million for 2018. The 2018 rice crop value added estimate of $124.9 million, when combined with farm-gate value, brought the total economic value of rice production in Louisiana

to $500.1 million dollars. Extension education programs for rice focus on providing producers, seedsmen, agricultural consultants, and other industry personnel with research established best management practices.

What has been done

The rice educational program of the LSU Agricultural Center is comprehensive involving both extension and research personnel on the state and local level. A strong stable working relationship exists between extension and research rice scientists, extension specialists and county agents. Educational methods include, but are not limited to producer meetings, newsletters (at both the state and local level), field result demonstrations, electronic mail, social media, newspaper articles, radio and television interviews, advisory committees, and individual farm visits.

Results

An on-line Qualtrics survey was distributed to Louisiana rice producers by e-mail and text message from current extension e-mail & text distribution lists. A total of 125 surveys were completed. The results were representative of 55 farming operations, 23 industry representatives, 26 extension personnel, 5 government agency employees, and 16 other rice related industry personnel. Approximately 69% of respondents indicated that they are involved in producing and harvesting rice. Approximately 72% farmed over 500 acres while 22% farmed between 100 and 200 acres. Approximately 76% of the respondents have been involved with rice farming for over 20 years. A survey of rice varieties grown in 2019 indicated that varieties developed at the LSU AgCenter represented the majority of the rice acres in Louisiana. Approximately 62% of respondents reported using LSU AgCenter best management practices. Respondents indicated that LSU AgCenter extension education programs influenced their selection of rice varieties (76%), fertilizer best management practices (82%), and planting date (86%). Approximately 75% of respondents indicated that they use the LSU AgCenter Rice Varieties and Management Tips publication to help make rice management decisions on their rice farming operation. Suggested improvements to extension and research programs included releasing new and improved rice varieties and hybrids, continuing research focused on improving agronomic practices to increase rice quality and yield while lowering cost of production, filling extension positions and continuing rice extension programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #4

1. Outcome Measures

Enhanced capacity of a sustainable global food system including new/improved plant, technologies and management systems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Louisiana sweet potato planted acreage has remained steady recently, averaging 8,700 planted acres annually, from 2013-2017. Average yields continue to increase and averaged just over 460 bu/year annually from 2013-2017. Louisiana remains fourth in sweet potato production acreage in the United States behind North Carolina, Mississippi, and California. Producers continue to deal with production and pest management constraints, including: labor issues, weather related issues during planting and harvest, weeds, insects and escalating cost of production. Early season management variables, including plant quality characteristics, date of planting and nutrient management based on soil tests results, are critical to ensure proper root initiation and season long crop development. Insects and weeds are often cited as the most limiting factors facing sweet potato producers. Soil insects are particularly problematic and an integrated management approach that includes the use of crop rotation, field level sanitation, scouting and the use of insecticides is needed. Minimal insect damage can drastically reduce marketability of the crop for both fresh market and processing sectors. Weeds compete directly with the sweet potato crop for nutrients, sunlight and water. There are only a few herbicides labeled for use on sweet potato, during the production season. Often, producers rely on hand weeding during the season which is labor intensive, inefficient and expensive. Refined and improved management strategies for insects and weeds are needed to ensure sustainability and profitability on farm. Nematodes are also problematic and have emerged recently as a key concern of the Louisiana sweet potato industry. Nematode species, including southern root knot nematode, reniform nematode and the Guava root knot nematode can negative impact yield, aesthetic quality and ultimately marketability of the crop. Sampling for nematodes in the fall and utilizing an integrated management approach inclusive of nematicides, resistant varieties and crop rotation, are

currently recommended. Production costs per acre, range from $2500-$4,000 depending on method of harvest. An industry once dominated by the Beauregard variety is now much more diverse and several LSU AgCenter breeding program varieties are now planted on a commercial scale, including Orleans, Bayou Belle, and Beauregard. The majority of the Louisiana sweet potato crop (60%) is marketed to the processing sector, with the remainder being sold to various fresh market outlets. Gross farm value of sweet potatoes in 2017, exceeded $52 million, with value added worth estimated at $93 million.

What has been done

Annually, the LSU AgCenter organizes a sweet potato field day, which is held either at the Sweet Potato Research Station or in cooperation with a sweet potato producer, at an on-farm location. On average, 130 producers and industry representatives attend the event each year. Additionally, several on-farm demonstrations are conducted each year, which focus on fertility, planting practices, variety development and pest management. We also reach our stakeholders and clientele through a variety of print and electronic media, including, a Sweet Potato Newsletter, radio and television interviews, articles in popular press outlets, email, text message application systems, extension publications and advisory meetings. The Louisiana Sweet Potato Commission, Lamb Weston and various other industry partners sponsor and support field days and extension educations efforts each year.

Results

A survey was conducted to evaluate the LSU AgCenter?s role in addressing the needs of the sweet potato industry in Louisiana. The overall response rate was 78%. Respondents were asked specific questions relative to how LSU AgCenter programming and recommendations are used in their respective operations. Topics included sweet potato varieties, foundation seed, time of planting, crop rotation, fertility testing, nutrient applications, nematode sampling and management, irrigation timing, and insect, disease and weed management. Fifty-five percent of respondents indicated that they used foundation planting material and 78% indicated that they followed crop rotation guidelines. Sixty-seven percent are utilizing soil testing and applying fertilizer based on recommendations. Only 44% indicated that they were sampling for nematodes on an annual basis. Fifty-five percent and 44% of respondents, indicated that they used AgCenter recommendations for weed and insect management decisions, respectively. Approximately 72% of respondents reported using AgCenter best management practices.

The main issues facing sweet potato producers in Louisiana, included labor, nematode and insecticides available. Respondents indicated that the AgCenter could strengthen programs by focusing on research for the processing sector, increase weed management research and an increase in the availability of foundation seed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants

213	Weeds Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. **Outcome Measures**

Individuals in vulnerable populations have access to healthy, affordable foods.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Like most states we are preparing by conducting trainings for the implementation of the Food Safety Modernization Act (FSMA). This rule could impact on the types and quantities of produce available to consumers especially in the rural areas. Extension staff have participated in the trainings in order to disseminate information to citizens and assist farmers/producers in their ability to properly carry out produce safety practices. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

None

Key Items of Evaluation

None

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Horticulture

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
202	Plant Genetic Resources	0%	0%	12%	0%
204	Plant Product Quality and Utility (Preharvest)	0%	0%	10%	0%
205	Plant Management Systems	85%	0%	34%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	0%	7%	0%
212	Diseases and Nematodes Affecting Plants	5%	0%	7%	0%
213	Weeds Affecting Plants	5%	0%	10%	0%
405	Drainage and Irrigation Systems and Facilities	0%	0%	10%	0%
601	Economics of Agricultural Production and Farm Management	0%	0%	6%	0%
604	Marketing and Distribution Practices	0%	0%	4%	0%
	Total	100%	0%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	14.0	0.0
Actual Paid	12.1	0.0	15.1	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
556064	0	530639	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
556064	0	530639	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1355446	0	4296340	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Key horticulture program areas will address issues related to home grounds; home, community and school gardens and ornamentals and turf. The Louisiana Master Gardener program will provide volunteers to assist in addressing the growing needs of horticulture audiences and increased emphasis will be placed on school and community gardening efforts. The Advanced Louisiana Master Gardener Program will continue to be refined. The Louisiana Super Plants Program will continue to be offered to local horticulture professionals.

Teaching methods will include appropriate extension and research activities such as result demonstrations, volunteer training, field days, studies, individual consultations, group meetings, mass media, publication distribution, plant health clinic, garden shows and extensive use of Web technology and social media outlets to reach target audiences.

2. Brief description of the target audience

Target audiences will include horticulture professionals, home gardeners, nursery industries, athletic field managers, Louisiana Master Gardener Volunteers and related agribusiness clientele.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	354218	9298580	30655	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2018
Actual:	2

Patents listed
AG-2018-027 Lignin-synthetic polymer conjugates as new biomaterial for biopharmaceutical applications
AG-2019-002 Method for inducing sweetpotato storage root formation in aeroponics

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	56	56

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Web page views

Year	Actual
2018	1664868

Output #2

Output Measure

- Number of Louisiana Master Gardeners completing training series

Year	Actual
2018	292

Output #3

Output Measure

- Number of service hours contributed by all Louisiana Master Gardeners

Year	Actual
2018	78109

Output #4

Output Measure

- Number of educational contacts made by Master Gardener volunteers

Year	Actual
2018	2349052

Output #5

Output Measure

- Number of educational program activities

Year	Actual
2018	1326

Output #6

Output Measure

- Number of research and extension outreach publications developed (in-house)

Year	Actual
2018	27

Output #7

Output Measure

- Number of school gardens established

Year	Actual
2018	0

Output #8

Output Measure

- Number of advanced Master Gardeners certified

Year	Actual
2018	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Louisiana Master Gardener volunteers supplement the delivery of consumer horticulture program to clients.
2	Increased adoption of recommended practices by commercial horticulture professionals and producers
3	Increased adoption of recommended horticultural practices by urban farmers and home gardeners.

Outcome #1

1. Outcome Measures

Louisiana Master Gardener volunteers supplement the delivery of consumer horticulture program to clients.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Louisiana has an estimated 633,519 home gardens of some kind, in addition to countless home landscapes requiring maintenance and development that. This horticulture presence relates to an ever-increasing need by consumers for research-based horticulture information, training and timely access to LSU AgCenter resources. Reduced numbers of personnel coupled with increased interest in consumer horticulture, home gardening and home grounds has exacerbated the need for trained volunteers to assist in the delivery of quality educational horticulture programs.

The Louisiana Master Gardener (LMG) Program involves a network of highly-trained volunteers and was developed to strengthen the capacity of the LSU AgCenter's Cooperative Extension Service ability to effectively and efficiently meet the educational needs of home gardeners in Louisiana. Over time, a need emerged for volunteers with advanced training to further support horticulture agents and faculty. The Advanced LMG (Adv. LMG) Program was designed to specifically address specific home lawn and garden management challenges faced by Louisiana residents.

What has been done
The Adv. LMG Program is open to current LMG volunteers in good standing who have completed all initial coursework and at least three consecutive years of volunteer service.
For the initial training (2015-2016), 71 LMG volunteers registered to participate in the advanced training program and graduated in May of 2016. The second training series (2018-2019) of the Adv. LMG Program opened in February of 2018. With only nine individuals, the approach has been much more hands-on in terms of instruction and class project participation.

Prior to acceptance into the program, individuals must obtain their private pesticide applicator

(PPA) license through the Louisiana Department of Agriculture and Forestry. After successful completion of the PPA requirement and nomination from the local coordinator, participants in the Adv. LMG training program must complete each of the five core classes before moving on to the elective classes. The core classes focus on communication skills, nutrient management, plant diagnostics, integrated pest management, and water quality & irrigation. For the 2015-2016 class, approximately 10% of individuals completed all items online through Moodle, while the remainder participated through a combination of online and in-person training. Participants in the 2018-2019 class are using the Google Classroom educational platform to review material prior to meeting in-person. Each student in the current class was also assigned a chapter from the revised Louisiana Yards and Neighborhoods handbook and instructed to create educational materials to support the information provided in the chapter. Program participants are also required to disseminate information covered in class through writing articles for newsletters and local newspapers and delivering presentations to their local LMG organization. Advanced LMG graduates and trainees are also required to fulfill the volunteer and continuing education hours requirement to maintain certification.

Results

Between October 1 2014 and September 30, 2018, Advanced LMG volunteers provided more than 30,000 volunteer hours in their local communities. They also accumulated nearly 6,500 continuing education hours.

Given that the Adv. LMG program was designed to specifically address home lawn and garden management challenges faced by Louisiana residents, program participants have to obtain a Private Pesticide Applicator license through LDAF. To pass the exam and receive a license, participants must achieve a score of 70% or more questions answered correctly.

Nutrient Management Qualitative Statements I work with an urban farm and they are constantly asking me questions about their soil and how to improve it. The information in this session was valuable and contributed to me educating gardeners about improving soil nutrition. I made a presentation at the library on soils and soil improvements. I am more aware of using too much nitrogen and phosphorus in the garden. I have begun to look at composting in a different way and fully believe that it has caused me problems before that I was not aware of. I give presentations on veggie gardening and this is part of the presentation.

Plant Diagnostics Qualitative Statements Use it in doing Plant Health clinics for the general public. Use it in my own garden. I did find this one very interesting. My sassafras trees had all died just the summer before and I did not know why. Now I know it was the Red Bay Ambrosia beetle. My eyes are always looking for the Crepe Myrtle Bark Scale, and today, the newspaper said the Emerald Ash Borer was found in the parish next to us so I called my neighbor and warned her to protect her Grancy Gray Beard trees that she loves so much. Her deceased husband had planted them for her. I look as boxwood plants that are dying and know why. I have used this class more than others. I was concerned that I had rose rosette on one of my bushes and used the information to decide that I did not and I have advised people regarding crepe myrtle bark scale symptoms and treatment.

Integrated Pest Management Qualitative Statements I am constantly removing dead plants out of my garden and encouraging those I work with to do the same. In addition, I am critically

inspecting entire plant leaves, stem, branches for changes in growth and health, pests, disease. As much as I may want to use more pesticides to kill pests, as many homeowners want to do, learning this topic provided understanding that overuse can lead to adverse side effects and environment of resistance. I have been able to inform community members regarding this situation. I've become more active in restraint with pesticides, particularly as regards pollinators. Showed some individuals that what they thought was a disease problem was actually an insect problem.

When asked to indicate their level of agreement with the following statements, ninety five percent agreed or strongly agreed their knowledge about environmental stewardship has increased because of the training I received. Ninety five percent agreed or strongly agreed their knowledge level about Integrated Pest Management methods for plant problems has increased because of the training I received. One hundred percent indicated a confidence in finding unbiased, research-based answers to most gardening questions. Eighty seven percent agreed or strongly agreed strongly agreed with having a confidence in teaching the materials presented throughout this program to home gardeners and other Louisiana Master Gardeners.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants

Outcome #2

1. Outcome Measures

Increased adoption of recommended practices by commercial horticulture professionals and producers

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Increased adoption of recommended horticultural practices by urban farmers and home gardeners.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Gardening is a recreational activity enjoyed by people of all ages, from early childhood through adult life. Beyond recreational value, gardening provides low impact exercise and is an excellent means to teach children the significance of agriculture. Louisiana's economy is heavily dependent on agriculture. According to the 2017 LSU AgCenter's AgSummary, vegetable crops represent a gross farm value of $79 million and fruit crops a gross farm value of $41 million for the entire state. These two examples are minor in terms of the economic impact of agriculture crops in Louisiana. However, fruit and vegetables are very relatable crops to children. Fruits and vegetables should be included in everyone's diet but especially encouraged in Louisiana youth. A recent study (2013) conducted by the Pennington Biomedical Research Center stated that 1 in 3 Louisiana youth are obese. Additionally, it has been suggested that Americans lack a knowledge and relationship with their sources of food. A surprising number of people believe their food comes from the store, not the farm. Vegetable gardens at schools and in communities have changed this way of thinking for participating youth and adults. Research suggests that when children are actively involved in gardening activities, fruit and vegetable consumption increases and in some cases the act of gardening and consuming from the garden can help prevent or reverse childhood obesity (Naprawa, 2016). What better way than gardening is there to teach Louisiana youth how to improve their diets, connect to nature, and learn about the importance of agriculture to their own state?

What has been done

The LSU AgCenter is committed to providing opportunities for Louisiana youth to become active in gardening. Between the years of 2014-2018 the LSU AgCenter has helped install or provide support for 250 school gardens throughout Louisiana. We have agriculture agents and 4H youth agents in most of the 64 parishes who provide either direct programming or consultation to help school gardens flourish. It is important to understand that school gardens should be completely maintained by the students. This helps foster a sense of ownership in the project. Therefore the LSU AgCenter does not physically maintain these gardens. We do provide instructional support for teachers through individual school garden visits, and coordinated efforts with county agents and master gardeners throughout the state. A quarterly published online garden newsletter is emailed to teachers, school garden volunteers and agents throughout the state. This newsletter offers insight into what to plant, relevant garden books for students, garden activities, spotlights on particular schools and more. The newsletter is titled Veggie Bytes and can be viewed by visiting https://www.lsuagcenter.com/topics/lawn_garden/school_gardens/newsletters

The LSU AgCenter hosts an annual Farm to School Conference. The last conference was attended by about 200 people including teachers, school nutritionists, and garden volunteers. The LSU AgCenter received private funding to install 14 new school gardens in Ascension parish.

In 2016 these schools were all impacted by a devastating flood. Therefore in 2017 instead of adding additional schools we rebuilt the original 14 school gardens so they could continue gardening. We have funds remaining in that account to begin an additional 10 school gardens in that parish. Additionally, we received USDA funding to begin 100 new school gardens but those funds cannot be spent until the 2019-2020 school year. A children's garden series was hosted in 2016, 2017 and 2018. Each year youth between the ages of 5-12 were invited to our Burden Research Center to participate in hands on activities related to gardening. We held 5-6 activities each year on select Saturday mornings. Activities ranged from knowing where fruit and vegetables come from, to feeding backyard birds with native plants and many more. In 2018, The LSU AgCenter hosted its first week long nature camp for students between 1st and 5th grades. The nature camp allowed students to connect to fruit and vegetable gardening as well as hiking, fishing and tree climbing.

Results

The farm to school conference made a significant impact to participants networking opportunities. Seventy-one of those attending participated in a survey. 90% of the survey participants interacted with the many booths and found the networking sessions valuable. The majority of attendees made between 3-4 new school garden connections with people they did not originally know. Forty-three percent of survey participants gained information at the conference on finding new funding for school garden activities. Sixty-five percent of the attendees were activity participating in some farm to school activity and of the remaining who were not, 96% were going to start participating in farm to school activities.

The Veggie Bytes newsletter is emailed to approximately 750 recipients. Many of those recipients have indicated that they in turn forward it to personal email lists as well. The individual children?s garden series events are well received by parents. We average 20 children at each event. There is a 90% knowledge gain per event. Each event targets one question. An example would be are worms beneficial to the garden. Children rise their hands yes or no at the beginning of the activity and again at the end.

The week long day camp was also successful. Of the participating children only 2 of the 40 campers preferred playing inside to outdoors at the end of camp compared to 12 of 40 stating they preferred to play indoors at the beginning of camp. Parents completing the parent survey indicated they were satisfied with camp price, hours, time of year and all would send their children back to camp again the next summer.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Like most states we are preparing by conducting trainings for the implementation of the Food Safety Modernization Act (FSMA). This rule could impact on the types and quantities of produce available to consumers especially in the rural areas. Extension staff have participated in the trainings in order to disseminate information to citizens and assist farmers/producers in their ability to properly carry out produce safety practices. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The farm to school conference made a significant impact to participants networking opportunities. Seventy-one (71) of those attending participated in a survey. 90% of the survey participants interacted with the many booths and found the networking sessions valuable. The majority of attendees made between 3-4 new school garden connections with people they did not originally know. Forty-three percent of survey participants gained information at the conference on finding new funding for school garden activities. Sixty-five percent of the attendees were activity participating in some farm to school activity and of the remaining who were not, 96% were going to start participating in farm to school activities.

Key Items of Evaluation

Youth in urban areas seems to be eager and excited about farm activities and experiences. This may be due lack of continuing exposure to agricultural activities however, it provides opportunity to provide educational information and change lives and attitude towards farm work.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Resilient Communities and Economies

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
402	Engineering Systems and Equipment	0%	0%	12%	0%
601	Economics of Agricultural Production and Farm Management	0%	3%	12%	3%
602	Business Management, Finance, and Taxation	0%	40%	14%	40%
607	Consumer Economics	0%	10%	0%	10%
608	Community Resource Planning and Development	20%	15%	0%	15%
610	Domestic Policy Analysis	0%	5%	0%	5%
721	Insects and Other Pests Affecting Humans	10%	0%	10%	0%
722	Zoonotic Diseases and Parasites Affecting Humans	0%	2%	10%	2%
723	Hazards to Human Health and Safety	10%	0%	8%	0%
801	Individual and Family Resource Management	0%	0%	5%	0%
802	Human Development and Family Well-Being	0%	5%	5%	5%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	50%	15%	8%	15%
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	10%	0%	3%	0%
805	Community Institutions and Social Services	0%	0%	13%	0%
903	Communication, Education, and Information Delivery	0%	5%	0%	5%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	8.0	2.0	2.0
Actual Paid	3.7	6.5	2.5	2.6
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
167957	218542	87854	135536
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
167957	211392	87854	132601
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
409407	0	711315	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Resilient Communities and Economies initiative includes activities in the following areas:

Economic & Community Development

- Planning, market assessment, management, and marketing strategies for established businesses.
- Strategic planning for community leaders and residents in the targeted areas
- Provide assistance to existing organizations to strengthen links between businesses, community based organizations and outreach education.
- Assist local farmers and other producers to develop alternative enterprise initiatives for rural businesses. Encourage the development of agribusinesses to include utilization of niche markets (vegetables, organic products pasture-raised poultry and beef, ag tourism and eco-tourism, etc.) for agricultural producers.
- Grant writing workshops to empower individuals, businesses and communities to enhance their skills on how to write for and obtain successful grants.
- Procurement conference for business owners and potential business owners in collaboration with local, state and federal agencies.
- Building/enhancing coalitions for business development and expansion.
- Provide education and training for low skilled individuals to prepare them for the job market.
- Develop community leaders through the Building Opportunities through Leaders Development (BOLD) program. BOLD is a program designed to develop teams of emerging leaders in rural and underserved communities throughout Louisiana. The program will continue to focus on providing community leaders with the tools to enhance their personal decision making, strategic planning and the use of modern and emerging technology.
- Stronger Economies Together (SET) enables communities and parishes (counties) in rural America to work together in developing and implementing an economic development blueprint for their multi-county region to address critical contemporary rural development issues impacting the well-being of people and

communities in the rural South

Disaster Resilience and Sustainability - People-based

- Sustainable Housing / LaHouse, a program that educates homeowners and building industry professionals about building hazard-resistant, resource-efficient, healthy homes.
- Disaster Recovery and Mitigation reaches across the many disciplines of Cooperative Extension to put relevant information in the hands of citizens for disaster recovery and to reduce vulnerability to the hazards including building code education.

Risk Appreciation (Awareness, Avoidance and Data Enhancement)

- Interactive, online hazard maps, a program that builds hazard awareness by making information easily accessible while also providing same-page building-site information to the property owner, builder, and regulatory agencies
- Sea Level Rise, Subsidence and Storm Surge, programs include storm surge and flood modeling that reflect projected conditions (sea level rise and subsidence) and the uncertainties of levee protection. The program also detects inaccuracies in the modeling data for hazard forecasting and obtains better data to fill the gaps.

Disaster Resilience - Place-based

- Financial Disaster Resilience for Local Governments, a program involving studies of financial capacity of local governments to meet disaster recovery obligations and educational programs to improve capacity
- Agrosecurity Planning and hurricane and nuclear exercises are separate initiatives to protect Louisiana's agriculture from natural and technological hazards, including hurricanes, terrorism and accidental releases from nuclear power plants

2. Brief description of the target audience

Target audiences for this initiative include: general public, elected officials, youth, emergency and floodplain managers, underserved populations, farmers, small business owners & governmental and non-governmental organizations.

- Hurricane, storm surge, sea level rise and financial disaster resilience focus on the southern third of the state (hurricane prone region).
- Sustainable housing, flood mitigation, hazard mapping, community resilience and agrosecurity are statewide.
- Housing and risk awareness programs target building and hazard management industry professionals (and their associations); their clientele and youth.
- Agrosecurity engages producers of food commodities and agribusiness.
- The flood risk awareness and mitigation programs also have a national audience through service in the Association of State Floodplain Managers and Natural Hazard Mitigation Association.
- BOLD program targets rural leaders especially the underserved.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	41793	553894	11727	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2018

Actual: 1

Patents listed

AG-2015-11-03 Thermoplastic Cellulosic Fiber Granules Useful as Infill Materials for Artificial Turf

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	4	4

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Web page views

Year	Actual
2018	1130106

Output #2

Output Measure

- Number of LaHouse Resource Center visitors

Year	Actual
2018	1791

Output #3

Output Measure

- Number of building professionals who participated in sustainable housing educational activities (seminars, tours, technical assistance)

Year	Actual
2018	1943

Output #4

Output Measure

- Number of consumer contacts in LaHouse sustainable housing and landscaping educational activities

Year	Actual
2018	825

Output #5

Output Measure

- Number of LaHouse Facebook followers (Likes)

Year	Actual
2018	701

Output #6

Output Measure

- Number of research and extension outreach publications developed (in-house)

Year	Actual
2018	6

Output #7

Output Measure

- Number of site-specific flood and wind risk determinations provided using the online "FloodMaps" portal

Year	Actual
2018	1377713

Output #8

Output Measure

- Number of educational program activities

Year	Actual
2018	719

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Individuals, entrepreneurs and community leaders gain knowledge of sustainable strategies for economic and/or community growth.
2	Individuals, families, businesses, agricultural producers and community leaders gain knowledge of the threat of disasters, how to prepare themselves and their property to minimize damage, recover from disaster impacts, and rebuild hazard-resistant homes.
3	Adoption of high performance building and retrofitting practices by consumers
4	Increase in specification or recommendation of high performance building and retrofitting practices by professionals.

Outcome #1

1. Outcome Measures

Individuals, entrepreneurs and community leaders gain knowledge of sustainable strategies for economic and/or community growth.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
At least 20 percent of residents are poor based on results from the last three U.S. Censuses (1980, 1990, and 2010) as well as the interim census of 5-year estimate known as the American Community Survey. Rural poverty is a longstanding issue in America both in terms of its spread and persistence raise. The USDA/NIFA, local communities and the SU economic development research team care about prosperity of rural America. Evidence suggests that 90 percent of rural parishes in Louisiana experience persistence poverty (US Census Bureau), only 35 percent own computer and 43 percent are connected to the internet [National Center for Education Success (NCES) 2015] . In addition, Louisiana suffered economically and socially as a result of several previous natural disasters (hurricanes and floods), oil spill, etc. These factors had devastating impact on business expansion growth and investment. The state was ranked among the top five states for persistent poverty, unemployment and for the opportunities of mainstream America. Louisiana's poverty rate (17 percent) was higher than the national average (12 percent). Poverty rate in some rural Louisiana parishes (counties) was as high as 27 percent. Rural areas in Louisiana suffer greatly from a lack of access to education, access to broadband internet connectivity, adequate healthcare, and persistent poverty.

What has been done
We organized focus group interviews and discussions to learn from communities? experience, identify major issues that needed immediate attention, and brainstormed potential solutions within a participatory approaches. Participants included elected officials (Mayor President, State Senator, School Board Members, and Chief Police), business leaders, teachers, health care professionals, community leaders, youth, senior citizens, and private citizens. To mitigate some of

the issues, in FY 2018, we collaborated with the Louisiana Small Business Development Center and the Louisiana Economic Development to receive sponsorships from the following entities, Capital One Bank, Entergy, Demco, Audi of Baton Rouge, Louisiana Procurement Technical Assistance Center (LA PTAC), etc. to conduct a procurement conference. The conference was attended by over 231 small business owners and potential owners. Also in attendance to assist the attendees were 38 entities including private companies (profit and non-profit), federal and state departments, contractors and the army corps of engineers/military units. Attendees received assistance such as, how to strengthen links between businesses and community-based organizations; small businesses planning, management and market strategies; developing farming business; developing alternative enterprise, etc. Additionally, we utilized our new education mobile unit to visit local communities and to educate and assist citizens who could not attend the conference. About 3,490 individuals were reached and the topics of interest were: Major Steps in Starting a Business; Understanding the Starting of a Cooperative Organization; Non-profit Organization Start-up; Creating a Business Plan for a Farm & Business; Business tax and individual tax returns preparation; Using Quick Books and Access.

Results

The 2018 Procurement Conferences attracted over 231 business owners and potential business owners who also responded to surveys as follows:

* 52 percent were first time attendees while 48 percent had attended before;
* 93 percent indicated that they gained new knowledge and skills;
* 96 percent said they will definitely apply knowledge/skills gained;
* 92 percent said they were able to establish new contacts and network for collaboration and that they were motivated to try new ideas "think out of the box";
* 97 percent said they would recommend the conference to others.

About 30 percent of the individuals reached with the education mobile unit do not have access to computer, and 41 percent still lacked access to fixed broadband service; they were able to utilize computers in the unit to apply for business registration and benefits such as social security, FAFSA, nutrition assistance, etc. Without our services, they would not be able to apply for such benefits which required online application.

Participants in the Microsoft Office Excel workshops, Quick Books, Access, Publisher and E-Business seminars are utilizing knowledge and skills gained to enhance their businesses, family and personal well-being.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
608	Community Resource Planning and Development
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Individuals, families, businesses, agricultural producers and community leaders gain knowledge of the threat of disasters, how to prepare themselves and their property to minimize damage, recover from disaster impacts, and rebuild hazard-resistant homes.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Adoption of high performance building and retrofitting practices by consumers

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
607	Consumer Economics
723	Hazards to Human Health and Safety
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

Increase in specification or recommendation of high performance building and retrofitting practices by professionals.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
607	Consumer Economics
723	Hazards to Human Health and Safety
801	Individual and Family Resource Management
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events. Several laws were passed during the FY 2018 Louisiana Legislative Session, but most were not effective until January 2019, we cannot ascertain their impacts yet.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Rural poverty is a longstanding issue in America both in terms of its spread and persistence raise. The USDA/NIFA, local communities and the SU economic development research team care about prosperity of rural America. Evidence suggests that 90 percent of rural parishes in Louisiana experience persistence poverty (US Census Bureau), only 35 percent own computer and 43 percent are connected to the internet [National Center for Education Success (NCES) 2015]. Louisiana's poverty rate (17 percent) was higher than the national average (12 percent). Poverty rate in some rural Louisiana parishes (counties) was as high as 27 percent. Rural areas in Louisiana suffer greatly from a lack of access to education, access to broadband internet connectivity, adequate healthcare, and persistent poverty.

SU Ag Center organized focus group interviews and discussions to learn from communities' experience, identify major issues that needed immediate attention, and brainstormed potential solutions within a participatory approaches. Participants included elected officials (Mayor President, State Senator, School Board Members, and Chief Police), business leaders, teachers, health care professionals, community leaders, youth, senior citizens, and private citizens. To mitigate some of the issues, in FY 2018, we collaborated with the Louisiana Small Business Development Center and the Louisiana Economic Development to conduct a procurement conference with over 231 persons in attendance. In addition, we utilized the new education mobile unit to visit local communities and to educate and assist citizens who could not attend the conference.

Fifty-two (52) percent of the participants were first time attendees at a procurement conference. Most of them have never had face-to-face contacts with federal government entities or major corporation dealing with contracts and procurement opportunities. 92 percent said they were able to establish new contacts and network for collaboration and 93 percent indicated that they gained new knowledge and skills.

Throughout the United States, farmers are recognizing that agritourism has the potential to sustain the farming industry and grow rural economies through tourism. Statistics provided by the Louisiana Travel Promotion Association in 2007 suggest that Louisiana has potential to grow an agritourism industry. This report cited that one in four travelers to Louisiana came to enjoy the great outdoors.

Those numbers are not surprising to owners of bed and break-fasts located on working farms and ranches who have hosted guests for years. To foster the statewide growth of this industry known as agritourism, the 2008 Louisiana Legislature passed a bill limiting liability for agritourism professionals known as La R.S. 9:2795.5.

Agritourism programing efforts have been broken into two distinct efforts: making potential Agritourism operators aware of the Louisiana's Agritourism legislation and its benefits, assisting operators in the certification process. Two workshop in the past two years, promoting agritourism and assisting potential operators in the planning for certification, have been held. 77 potential operators attended the two workshop. An informational booth was set up at the Louisiana Farm to School conference to provide educational materials to small farmers on the benefits of becoming a certified agritourism operator. The LSU AgCenter works with Louisiana Department of AG and Forestry Certified Louisiana program to include Certified Agritourism operation in their marketing information and to include the agritourism certification process in the Certified Louisiana certification process.

In the past two years, 11 operators have achieved certification, qualifying them to limit liability under Louisiana law when hosting agritourism activities on their farms.

Key Items of Evaluation

Increasing number of our citizens are using technology in their daily personal and business activities. However, some rural areas are still lacking the connectivity to the internet and some do not have regular access to utilize computers.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Sustainable Energy

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	0%	10%	0%	10%
131	Alternative Uses of Land	25%	20%	12%	20%
402	Engineering Systems and Equipment	0%	0%	41%	0%
403	Waste Disposal, Recycling, and Reuse	50%	60%	5%	60%
404	Instrumentation and Control Systems	0%	0%	7%	0%
511	New and Improved Non-Food Products and Processes	0%	10%	35%	10%
512	Quality Maintenance in Storing and Marketing Non-Food Products	25%	0%	0%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	1.0	5.0	6.0
Actual Paid	0.0	1.5	4.1	4.1
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	78419	144081	255954
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	93154	144081	227308
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	1166556	1032

V(D). Planned Program (Activity)

1. Brief description of the Activity

1. Research and extension efforts including workshops, demonstrations, field days, conferences, classes and individual interventions regarding biofuel development focused on using Louisiana-produced crops and/or crop residues to produce and utilize fuels such as ethanol, biodiesel, and other next generation alternative fuels.
2. Work with existing organizations to strengthen links between businesses, community based organizations and outreach education.
3. Assist local farmers and land owners/users to develop alternative enterprise initiatives for rural businesses.
4. Empower community leaders and residents in the targeted areas to develop strategic plans for optimum utilization of natural resources.
5. Communicate and disseminate research findings about sustainable energy to consumers through extension personnel in the form of publications, conferences, workshops, field days, home/office visits, demonstrations and other educational resources.
6. Organize grant writing workshops to empower individuals, businesses and communities enhance their skills on how to write for successful grants.
7. Collaborate, cooperate and partner with local, state and federal agencies, institutions, groups, private organizations/associations in seeking and delivering services to citizens.
8. Encourage community organizations and resident involvement in developing plans for sustainable energy. Provide community leaders with advice and recommendations regarding best practices in community economic development programs for their communities.

2. Brief description of the target audience

The target audience for this program includes agricultural producers in Louisiana and southeast United States; consumers; renewable and natural resource energy production industries; and LSU AgCenter faculty. The SU AgCenter component of this program targeted rural and urban dwellers, under-represented, underserved, socially and economically disadvantaged groups in traditionally agricultural and urban communities in the State for the purpose of encouraging and educating them on the need for, and the benefits of sustainable energy.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	433	2051	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2018

Actual: 2

Patents listed

AG-2013-09-06 Production of Oil by Pyrolysis of Coal

AG-2018-004-01 Nano Bentonite Water-based Drilling Fluids Containing Surface Chemistry Manipulated Cellulose Nanocrystals

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	9	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Web page views

Year	Actual
2018	151828

Output #2

Output Measure

- Number of research & extension outreach publications developed (in-house)

Year	Actual
2018	4

Output #3

Output Measure

- Number of agricultural producers providing biomass as feedstock for fuels

Year	Actual
2018	0

Output #4

Output Measure

- Number of educational program activities

Year	Actual
2018	9

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Extension faculty and research scientists increase knowledge regarding feedstock generation, biofuel production and the overall biofuel chain
2	Implementation of sustainable biofuels systems
3	Farmers, processors and potential feedstock producers increase their knowledge regarding the use of agricultural feedstocks to generate biofuels.

Outcome #1

1. Outcome Measures

Extension faculty and research scientists increase knowledge regarding feedstock generation, biofuel production and the overall biofuel chain

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
511	New and Improved Non-Food Products and Processes
512	Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #2

1. Outcome Measures

Implementation of sustainable biofuels systems

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
511	New and Improved Non-Food Products and Processes
512	Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #3

1. Outcome Measures

Farmers, processors and potential feedstock producers increase their knowledge regarding the use of agricultural feedstocks to generate biofuels.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There are multiple renewable energy resources (wind, solar, hydro, etc.) but, the only viable renewable source of transportation fuels that will not affect food, feed, and fiber production, supported by the government is plant biomass. Development of methodologies and technologies for the utilization of such natural resources for the purpose of energy is an important priority for our country's energy-based economy. Also, there is need to develop screening strategies to understand trees tolerance to changing environmental conditions and the development of new technologies to improve forest health and resistance to pest. Louisiana is rich in natural resources such as forestry and other sources suitable for consideration as bioenergy feedstocks. The climate is also highly adaptable to growth of highly productive to non-food feedstocks which could serve as energy sources such as urban wood wastes and cane biomass. Long-term rising costs production costs, transportation fuels, dependence on foreign resources and concern that fossil fuels adversely affect climate have stimulated interest in renewable fuels. Instability and price unpredictability of oil have caused volatility in the US and World economic climate.

What has been done
SU and LSU Ag Centers continued to collaborate to develop biofuels from sustainable alternative non-food feedstocks by quantifying urban forest wood waste biomass potential availability for biofuel production in Louisiana. We also expanded the characterization study of dielectric properties of biomass important in microwave heating, processed energy cane and various types of urban forest waste biomass with solvents and catalysts into high-quality bio-oil via exposure to electromagnetic fields, and quantified the performance of the microwave-assisted liquefaction of urban forestry biomass on the bio-oil, char, gas, and water yields and quality. SU and LSU

graduate and undergraduate students were involved in the study and some of the graduate students developed their master's thesis and doctoral dissertation and journal publications from this study. Three workshop and a research seminar were organized with a total of 340 people in attendance to provide research-based information to interested residents of Louisiana about biofuel production and use.

Results

* Five more farmers in St. Landry Parish (County), Louisiana are continuing to produce and use biofuel as a source of energy.
* 10 Graduate and 33 undergraduate students gained knowledge and skill through their involvement in biofuel research and scientific publications.
* 12 Extension personnel and 23 research faculty/staff increased knowledge regarding feedstock generation, biofuel production and the overall biofuel concept.
* The study strengthened collaboration between SU Ag Center scientists USDA/Forestry Service, ISA, SAF, Louisiana Department of Environmental Quality (LA DEQ), the Louisiana Department of Agriculture & Forestry (LA DA&F), the Gulf Coast Cooperative Ecosystem Studies Unit (GC-CESU), E-Fuel Corporation and the City of Baton Rouge, LA.
* A research symposium and two workshop were conducted on bioenergy and biofuel production in collaboration with the LSU Ag Center and E-Fuel Corporation.
* One workshop was conducted for youth participants at our satellite campus, Sustainable Agriculture and Rural Development Institute (SARDI) during our summer program and 95% of the participants leaned about biofuel for the first time while 98% said they gained new knowledge of biofuel production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
402	Engineering Systems and Equipment
511	New and Improved Non-Food Products and Processes

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of

citizens. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events. Several laws were passed during the FY 2018 Louisiana Legislative Session, but most were not effective until January 2019, we cannot ascertain their impacts yet.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

None

Key Items of Evaluation

None

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Youth Development

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
724	Healthy Lifestyle	23%	20%	0%	20%
806	Youth Development	77%	80%	0%	80%
	Total	100%	100%	0%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	48.0	8.0	0.0	0.5
Actual Paid	50.3	9.1	0.0	1.4
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
2315705	390959	0	27600
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
2315705	402929	0	317
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
5644700	0	0	500

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Louisiana 4-H Youth Development Program targets Louisiana youth using age appropriate, research-based, educational experiences in three mission mandate areas: Citizenship, Healthy Living and

Science and Technology and entrepreneurship (SU AgCenter). Programs focus on the development of four essential elements in youth--belonging, independence, mastery and generosity. In this state, 4-H continues to offer a broad range of learning opportunities for youth, including but not limited to, traditional school club programs, school enrichment activities and community service learning. Delivery of educational programs other than in-school clubs will be emphasized. Youth were guided in developing skills that resulted in effective decision-making, planning, and interacting with others.

Examples of specific educational activities include:

- 4-H club meetings, livestock shows, camps, fairs & festivals, field trips, workshops & clinics, school enrichment, after school programs, parish achievement days, mentoring programs, peer counseling, and family events.
- YES--SU AgCenter's Youth Educational Support and After School Program
- Recruitment, training and retention of both adult and youth volunteers to assist with program delivery.
- Innovative programs that enhanced social status for rural and urban youth and introduce them to new scientific and technological discoveries.
- Learning experiences targeting at-risk children, youth, and families in community settings to increase self-reliance, self-esteem, and confidence and encourage healthy lifestyle choices.
- Teach business techniques, ethics and etiquette to aspiring entrepreneurs.
- Empower youth to develop and make positive choices as good citizens.

2. Brief description of the target audience

This program targets Louisiana youth ages 9-19 in 64 parishes as well as youth and volunteers. A large number of these children under 18 years of age are placed at risk because their families survive on low income and limited resources. They lack knowledge, information, and/or skills to utilize existing resources to improve their quality of life. Eighteen percent of Louisiana families with children and 23% of adults without children live in poverty. Poverty rates are higher among African-Americans (44%) and children 18 and under (31%). Louisiana ranks 13th in the US for Food Stamp Program participation, 74% of those eligible. Parents and/or guardians of these children are also targeted. Additionally, children and adolescents who are placed at risk, those who are potentially at risk and children who need various forms of mentoring also benefited. Program staff and volunteers were trained to ensure effective and efficient delivery of information.

3. How was eXtension used?

The eXtension site was used for training youth volunteers and extension agents.

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	174928	1470762	584392	1300659

2. Number of Patent Applications Submitted (Standard Research Output)
Patent Applications Submitted

Year:	2018
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	3	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Web page views

Year	Actual
2018	623017

Output #2

Output Measure

- Number of research & extension outreach publications developed (in-house)

Year	Actual
2018	1

Output #3

Output Measure

- Number of youth engaged in service projects

Year	Actual
2018	46926

Output #4

Output Measure

- Number of hours of service performed by youth

Year	Actual
2018	26360

Output #5

Output Measure

- Number of educational program activities

Year	Actual
2018	12062

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Youth gain knowledge, improve skills or change attitudes about healthy living, science, citizenship and/or science & technology.
2	Youth are engaged as contributing citizens within their community.
3	Youth and adult volunteers serve as competent leaders in Louisiana 4-H and other youth development programs.

Outcome #1

1. Outcome Measures

Youth gain knowledge, improve skills or change attitudes about healthy living, science, citizenship and/or science & technology.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

About twice as many Asian as white, black, or Hispanic students enter STEM fields. Completion rates are lowest for black and Hispanic students, with only 16% of those in each of these groups who enter STEM fields earning bachelor?s degrees in these fields, compared to about 30% of the Asian and white students who enter these fields. https://trends.collegeboard.org/education-pays/figures-tables/students-stem-fields-gender-and-race-ethnicity. The number of workers in science and engineering occupations grew from about 1.1 million in 1960 to about 5.8 million in 2011. This represents an average annual rate of 3.3%, greater than the 1.5% growth rate for the total workforce. https://nsf.gov/nsb/sei/edTool/data/workforce-01.html In May 2016, there were 8.8 million science, technology, engineering, and mathematics (STEM) jobs, representing 6.3 percent of U.S. employment (Bureau of Labor Statistics)

Of the 1.8 million bachelor?s degrees awarded in 2015?16, about 331,000 (18 percent) were in STEM fields. The percentage of bachelor?s degrees awarded that were in STEM fields varied by race/ethnicity. For example, the percentage of bachelor?s degrees awarded to Asian students that were STEM degrees (33 percent) was almost double the overall percentage of bachelor?s degrees awarded in STEM fields. In contrast, the percentages of bachelor?s degrees awarded to Hispanic (15 percent), Pacific Islander (15 percent), American Indian/Alaska Native (14 percent), and Black students (12 percent) that were STEM degrees were lower than the overall percentage of bachelor?s degrees awarded in STEM fields. The percentage of bachelor?s degrees awarded to White students that were STEM degrees (18 percent) was about the same as the overall percentage of bachelor?s degrees awarded in STEM fields.
https://nces.ed.gov/programs/raceindicators/indicator_reg.asp

In Louisiana, report showed that 51% of Louisiana students indicated having an interest in STEM majors and/or careers, but only 10% met the STEM benchmark demonstrating their readiness for math and science coursework in college. (Louisiana STEM Initiative; https://www.louisianabelieves.com/courses/louisiana-stem-initiative)

What has been done

We designed activities that brought together the extension agents, teachers, students, parents and community supporters. These activities provided opportunity for the youth of Louisiana to participate in STEM-related activities to increase knowledge and develop skills. Parish (County) science fairs and activities culminated in the state annual science fair along with the national science day where youth competed in talent and creative events which exposed them to scientific and technological inventions. The aim was to stimulate lively involvement of students and teachers in science related activities, learn about the latest developments in the fields of science and technology and promote interaction between scientists and students. Activities to promote how agriculture uses sciences were also conducted and the 230 participants were also strongly encouraged to explore the fields of agriculture. There were displays and activities for the parents to get involved in also. Faculty and staff of the SU Ag Center were on hand to explain the STEAM (Science, Technology, Engineering, Agriculture and Mathematics) concept to all participants.

Results

* Ninety-seven (97) percent of youth who participated indicated that they gained remarkable knowledge and understanding of the STEAM discipline.
* 100 percent of youth who participated indicated that they learned for the first time about the strong relationship between agricultural sciences and the STEM fields.
* 100 percent of the participants said the exposure was a lifetime experience and that they will share their knowledge with their peers.
* 90 percent of youth participants said that the experiences gained will definitely motivate them to improve their academic performance especially in the STEM related subjects.
* 100 percent of youth who participated indicated that they were encouraged to develop positive attitude towards agricultural sciences.
* The SU Ag Center expanded collaboration with entities such as the 4-H Council, Louisiana Children's Trust Fund, USDA/NIFA and in FY 2018 received additional grants in the amount of $437,215 to assist in youth development activities.
* Faculty and staff expanded outreach via social media to reach youth using, Twitter, Facebook, Instagram and other electronic messaging techniques.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
806	Youth Development

Outcome #2

1. Outcome Measures

Youth are engaged as contributing citizens within their community.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to the Character Education Partnership (2019), character education is defined as "the intentional effort of living out one's core values and working on continuous growth through ethical and compassionate decision-making". Research suggests that comprehensive, high quality character education, effectively promotes the advance of good character, and is an encouraging approach to the prevention of a wide range of contemporary problems and negative behaviors (Berkowitz, Johnston, & Pelster, 2012). Youth are exposed to an endless amount of negative influences daily. Between the media and their peers, it is hard to escape encountering these negative behaviors in some way. Character education provides the tools needed to cope and handle some of these added pressures and influences. Louisiana 4-H Youth Development strives to foster learning environments to promote positive character development and essentially ground the development of programs and activities in character education principles.

What has been done
The mission of Louisiana Character Development it to utilize the principles or positive youth development to foster the growth of core values which nurture ethical behavior, socio-emotional skills, like skills, and academic development in youth and communities. The effort to fulfill this mission can be seen demonstrated throughout the state in a variety of delivery modes.

Our statewide 4-H camp has incorporated signage that includes character quotes and affirmations. The signs can be seen all over the campgrounds (cabins, cafeteria, outside, bathhouse, etc). During summer camp every day was started with words of inspiration, along with a word of the day, and a gesture to go along with it. Three words of character were selected to focus on during summer camp: kindness, fairness and respect.

A six lesson series for three levels was developed with a focus on character education and social and emotional learning for youth. Youth across the state have been involved and engaged with these lessons through 4-H club meetings, workshops, trips and other 4-H events.

Results

Survey respondents ranged in age from eight to 19 years old with a mean age of 11.78. Grade level ranged from 2nd to 12th grade with a mean grade level of 6.03. There were more female than male survey participants. Five hundred seventy-eight (60.1%) reported they were female, while 384 (39.9%) indicated they were male. Seven hundred seventeen youth (74.5%) reported their race as white, 153 (15.9%) indicated their race as black or African American, and 92 (9.6%) reported a different race. The Character Development mean score was 3.2 (SD = 0.55). The statement, "The Louisiana 4-H program has taught me to be more kind to other people," had the greatest amount of youth agreeing or strongly agreeing (n = 879, 91.4%). Eight hundred seventy-four (90.3%) agreed or strongly agreed that the Louisiana 4-H program taught them how important it is to volunteer their time to help others, and 864 (89.3%) agreed or strongly agreed with the statement, "The Louisiana 4-H program has taught me to be more helpful when someone else is hurt."

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

Youth and adult volunteers serve as competent leaders in Louisiana 4-H and other youth development programs.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

4-H Citizenship is the knowledge, skills, attitudes and motivation that give youth the capacity to move beyond one's individual self-interest and to be committed to the well-being of some larger group (Schillings & Fox, 2011). Youth make a positive difference when engaged in learning opportunities that encourage a heightened sense of responsibility to connect as active members of their communities. Within Louisiana 4-H, Citizenship encompasses civic engagement, civic education, service and personal development.

What has been done

4-H members across Louisiana are actively challenged to become contributing citizens to our communities. Through Louisiana 4-H programs, 4-H members have been engaged in a variety of ways to realize the importance of becoming an upstanding member of society. Every year, over 1200 4-H members converge on the State Capitol in Baton Rouge to celebrate 4-H. The goal of the day is to interpret the impact 4-H has on the state, and to learn about the legislative process.

Louisiana 4-H members actively participate in multiple community service projects. As indicated in the 4-H pledge, service has always been significant to the essence of 4-H. It is ingrained throughout every aspect of the purpose. Youth are being taught about the importance of giving back, improving our communities and developing innovative solutions to solve problems, large or small. 4-Her?s across the nation can be seen sponsoring canned food drives, visiting nursing homes, cleaning roadways, and the list goes on and on. Every service that 4-H conducts provides a positive impact on our communities. Over the past four years, through community service projects, Louisiana 4-H has had over 88,500 youth deliver, 13,000 adults deliver, and approximately 386,700 total individuals served.

Service-learning approaches teaching and learning by using academic knowledge and skills to address genuine community needs. An example of service-learning would be the focus of Foster Care during the 2015-2017 year. During these two years, over 22, 600 youth delivered, 2,680 adults delivered and approximately 74, 937 total foster care youth were served across the state. Through service-learning 4-H members learn skills such as teamwork, critical thinking, community engagement and how to build a sense of compassion, confidence and pride.

Results

As a result of 258 participants attending the event, participants indicated the following results. Results from the 79 youth surveyed indicated that 96% enjoyed the Kicking Cancer is Our Goal experience; 91% feel more knowledgeable about the effects of cancer; 86% have an increased desire to help others; 81% learned something about cancer that they did not know before; 91% feel more knowledgeable about their role in fighting cancer. Some additional comments shared were: It was really helpful because now I know how to help people fighting cancer- It let me know what happened to cancer patients-I will keep fighting for a cancer cure- It made me think about what they have to go through- I learned a lot about the different kinds of cancer and what I can do to help, big or small- I really feel like I can make a difference. 4-H members from across the state have made an amazing impact by encouraging others to keep fighting and to be sure they know that they are never fighting alone.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The state budget improved slightly (no budget reductions for the first time since 2008) however, no additional funds were appropriated to carry out research and extension programs. There were no serious negative impact on our ability to implement planned activities during the period. The state continued to grapple with the aftermath of the four major flood events of 2016 which caused very significant negative impacts in the life of citizens. Hispanics population is the fastest growing in the nation, in Louisiana Hispanics make up about 5 percent of the population. Provisions are in place to provide needed services through translation of flyers, program documents, etc. to enhance effective participation in research and extension events. Several laws were passed during the FY 2018 Louisiana Legislative Session, but most were not effective until January 2019, we cannot ascertain their impacts yet.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

About twice as many Asian as white, black, or Hispanic students enter STEM fields. Completion rates are lowest for black and Hispanic students, with only 16% of those in each of these groups who enter STEM fields earning bachelor's degrees in these fields, compared to about 30% of the Asian and white students who enter these fields. In Louisiana, report showed that 51% of Louisiana students indicated having an interest in STEM majors and/or careers, but only 10% met the STEM benchmark demonstrating their readiness for math and science coursework in college.
Activities were conducted to provide opportunity for youth to participate in STEM-related activities to increase knowledge and develop skills. Parish (County) science fairs and activities culminated in the state annual science fair along with the national science day where youth competed in talent and creative events which exposed them to scientific and technological inventions.
A survey was conducted and 90 - 100 percent of youth who participated indicated that they gained remarkable knowledge and understanding of the STEAM discipline; learned for the first time about the strong relationship between agricultural sciences and the STEM fields; and that the experiences gained will definitely motivate them to improve their academic performance especially in the STEM related subjects.
We will add more survey questions to compare participants with non-participants and also institute a focus group for follow up evaluation.

Key Items of Evaluation

Greater number youth (than adults) are utilizing technology in their daily personal and business activities. However, some rural areas are still lacking the connectivity to the internet and some do not have regular access to utilize computers.

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
685	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
0	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
2815	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
0	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
0	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
5	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
0	Tons of feedstocks delivered.