

Ginger M. Cunningham

Title Promotion Package: Assistant Agent Seeking Associate Agent

Introduction

My name is Ginger Cunningham, and I serve as the 4-H Agent in Chatham County. I am a native Chatham County resident, and I currently live on a 4th-generation family farm in the Hickory Mountain Township. After completing my undergraduate work in 2005, my husband and I moved onto my great-grandparents' farm and began our own cow-calf operation. In the coming years, we also worked meat goats into the operation and maintained four Spanish-Kiko herds. Today, while the meat goat herds are still established, a large portion of the farm has been transitioned into timber and hay operations.

To provide some framework for me as an Extension professional and the programming efforts that I strive to bring to Chatham County citizens, I feel it is pertinent to share some context concerning me as an individual; below is an overview of my employment and educational history:

Professional Experience

- NC Cooperative Extension – Chatham, *Interim County Extension Director*; 2017-Present
- NC Cooperative Extension – Chatham, *Assistant Extension Agent – 4-H*; 2015-Present
- Carolina Acres, LLC, *Manager/Owner*; 2005-Present
- NC Cooperative Extension – Chatham County Center, *Program Assistant*; 2012-2015
- Advanced Animal Diagnostics – RTP, *Research Assistant*; 2011-2012
- Allen Tate Company, *Broker/MHB Partner*; 2008-2010
- Blake & Associates, Inc., *Vice President of Property Development*; 2005-2007

Education

- *Doctor of Education – Ag & Extension Education*; NC State University (anticipated 2018)
- *Graduate Certificate – Youth Development & Leadership*; NC State University (2017)
- *Master of Animal Science*; NC State University (2014)
- *Bachelor of Arts – Exercise & Sports Science, Chemistry*; UNC-Chapel Hill (2005)

Seeking employment while working on my Master's at NC State University, I first came to Extension in October 2012 when I was hired as the 4-H Program Assistant in Chatham County. At that time, the Chatham County Center also employed a 4-H Agent, but that staff member left in August 2013. The 4-H Agent position remained vacated until that particular position was advertised in December 2014; I applied, was offered the position, and formally started in that role in April 2015. In addition to my 4-H programmatic duties, I have also served as the interim County Extension Director for the Chatham County Center since September 2017.

I inherited a small, county-based 4-H program with three community clubs, an enthusiastic advisory council, and a unique camping program. Today, our county 4-H program has more than tripled the number of existing community clubs, developed integral school enrichment programs within our public school system, built in-demand day and residential summer camping

opportunities, and developed a vibrant volunteer base that has increased our outreach potential in the local community in ways that I have never envisioned.

Even with three current staff vacancies within the Chatham County Center, the office has a strong core of Extension professionals with which I program regularly. Currently, there is a support specialist, 4-H Program Assistant, Family and Consumer Sciences Agent, Sustainable/Organic Production Ag Agent, and two Area Specialized Agents (Poultry and Dairy) housed in Chatham County. It is anticipated that the office should reach full capacity by May-June 2018 when an administrative assistant, livestock agent, and horticulture agent are hired.

Located in the North Central District and situated in the geographic center of the state, Chatham County has a population of 72,243 individuals (Census Projections, 2016). The county is largely rural in nature, with less than 20% of residents living in the incorporated towns of Siler City, Pittsboro, and Goldston. In the northeastern portion of the county, the town of Cary has recently annexed into Chatham County and now has over 1,400 residents. The racial and ethnic composition of the county currently stands at 72% Caucasian, 13% African American, 12% Hispanic, 2% Asian, and 2% Other. One of the most substantial changes in recent history with regards to county demographics was the influx in the Hispanic population since 1990. Within the timespan from 1990 to 2008, Hispanic residents within the county increased from 564 to 7,876 individuals; most of those individuals claimed residence in the western portion of the county, in and around Siler City.

The 2014 estimated median age of Chatham County residents was 45, well above the state average of 38.7 years of age; the percentage of residents who are 60 years of age and older neared 29%. The U.S. Census reports that the estimated median household income for county residents in 2010-2014 was \$58,555, considerably higher than the state average of \$46,693. Likewise, the Census Bureau notes that there is an average per capita income of \$35,109 during that same time span, which is higher than the statewide average of \$25,608. Even though Chatham County ranks consistently in the top five counties in the state in terms of income levels, there are significant pockets of poverty within the county. Overall, most recent reports project that 11.7% of residents live in poverty. This proves to be a complicated challenge for the county in terms of dealing with citizens situated at extreme ends of the income spectrum.

Agriculture and agribusiness (food, fiber, and forestry) remain significant in the local economy. Total cash receipts in the county for 2015 in areas of livestock, dairy, and poultry totaled \$125,914,196, which ranked 19th in the state. Most farms range in size from 10 to 49 acres. The county ranks second in the state in beef cattle (fourth in overall cattle production), eleventh in dairy cows, sixteenth in broiler chicken production, and fifth in hay production. The county is also gaining a reputation as an area of innovative and sustainable agriculture practices. Due to the county's proximity to the Research Triangle Park and Piedmont Triad metropolitan regions, there is a tremendous demand from consumers for local agricultural products.

The following title promotion package outlines my programming efforts over the past five years of employment with the Chatham County Center, with emphasis on the county 4-H program's outcomes and impacts. I will also discuss my marketing efforts over the course of the same time period in addition to explaining professional development and leadership opportunities that have been invaluable to my career.

I. Cooperative Extension Programs

Program Area 1: SCHOOL TO CAREER (YOUTH AND ADULTS)

In comparison to traditional lecture and textbook methodology, allowing students to participate in hands-on interactive projects engages them and fosters an interest in science at an early age (Purdue University, 2009). For those youth participating in Science, Technology, Engineering, and Mathematics (STEM) programs, over 66% of youth note that their favorite components of the program are the hands-on projects and activities (4-H Science Youth Engagement, Attitudes & Knowledge Survey, 2013). To meet needs voiced by educators, input provided by a specialized advisory committee, and results gathered from formal community focus groups, it was evident that youth in Chatham County needed the ability to participate in varied experiential learning opportunities both in and outside of the classroom setting. Below is an explanation of my programming efforts to address school to career needs for Chatham County youth in accordance with the [4-H Science Logic Model](#).

A. Planning

In order to promote experiential learning opportunities for students across Chatham County, it was pertinent to first develop a sound basis from which my programmatic efforts would stem. A number of **compelling needs** for school to career pathways were made evident:

- The society in which we live depends on an economy “powered by technology, fueled by information, and driven by knowledge” (NCSU, 2017).
- In order to be competitive in the workforce and global society at large, youth need Extension programming that enhance their skillsets and levels of education.
- Despite constituting over a quarter of the U.S. population aged 21 and over, under-represented minorities hold just 10% of science and engineering jobs (National Science Foundation, 2013).

Many of these same issues can be found within Chatham County. In addition, the following compelling needs pertinent to school to career youth programming were identified in a recent **environmental scan** and prioritized by a specialized advisory committee:

- Students are placed in various achievement levels to portray their mastery of required knowledge/skills objectives (NC Essential Standards and Common Core) taught within the classroom. Based on achievement level number, those students who score at Levels 1 and 2 will likely require additional help in subsequent school years in order to succeed in that particular subject area.
 - Here in Chatham County, based on the performance of students on the NC End-of-Grade Tests, the percentage of students within the district at Level 1 standing (with *limited command* of knowledge and skills) in math (25.4%) and science (19.5%) were greater than the averages found across the state. Likewise, the percentage of students at Level 2 standing (*partial command* of knowledge and skills) in math was determined to be on par with the state average (approximately 21%). However, the percentage of students (17.3%) underachieving in science standards was much higher than the state average of 13.3% and warrants attention ([NC School Report Card District Snapshot](#), Chatham County Schools, 2016).

B. Design

In planning my school to career youth program to address the above identified needs and issues, I relied on the guidance of my 4-H school to career **specialized committee**, as well as **stakeholder feedback** gathered through online surveys, written evaluations, and two organized focus groups. These methods consistently prioritized the following **goals**:

1. **Increase hands-on experiential learning opportunities for students to enhance classroom instruction** – Educators do not always have the resources, means, or technical expertise to integrate supplemental hands-on activities to their classroom learning environments, but oftentimes, it is the non-formal educators in the local community who can come into the classroom to fill those educational gaps. I come with technical expertise and access to resources that will be valuable to local educators.
2. **Provide programming that is easily accessible by all youth in county** – While access to transportation proves to be a tremendous barrier for participation by youth in various Extension programs, it will be necessary to take Extension programming to the youth. The most effective manner to enact this is to reach youth at school within the classroom setting.
3. **Address summer learning loss** – During out-of-classroom time during summer vacation, many students experience “summer learning loss” which can equate to as much as two months of classroom instruction. As a result, summer learning loss serves as a significant contributor to the achievement gap which widens quickly during the summer break. To help combat this loss, I was tasked with creating various summer enrichment activities for local youth.

With input from my 4-H youth development advisory committee, I developed the following **objectives** to achieve these goals:

- Offer in-classroom projects so transportation did not prevent students from participating
- Offer multiple school enrichment options to teachers based on their technical fluency to make learning enjoyable and successful
- Provide STEM-based programming during summer, similar to classroom school enrichment instruction, but with a camp delivery format

Measures of progress used to guide program development and monitor program effectiveness included the number of school enrichment sessions offered and number of classrooms participating, number of school enrichment participants, number of camp participants, and number of teachers receiving training credits.

The following **targeted outcomes and impacts** were used to evaluate my school to career youth program and are in alignment with those reported in ERS for the School to Career objective:

- Number of teachers trained in 4-H STEM curriculum
- Number of youth (students) increasing knowledge in STEM
- Total number of female participants in STEM program
- Number of high school age youth (students) participating as members of 4-H clubs
- Number of youth (students) increasing knowledge of career/employability skills
- Number of youth (students) increasing knowledge of entrepreneurship
- Number of teachers using 4-H STEM curriculum in their classrooms

- Number of youth (students) gaining knowledge in STEM
- Number of youth (students) gaining career/employability skills
- Number of youth (students) gaining entrepreneurship skills

My **strategy** to formally capture **evaluation data** from youth and adult clientele consisted of pre- and post-tests administered in classroom settings and surveys at all workshops, trainings, and camps to measure changes in knowledge, skills, attitudes, and aspirations resulting from participation.

The ability to **integrate programming** efforts across program disciplines is what helps to make our school to career program so successful within Chatham County. Our ability to bring juried 4-H curricula into classrooms to align with NC Essential Standards and Common Core, along with the ability to bring specialists with technical expertise who can assist our classroom teachers, is unparalleled. For example, our horticulture agent and Extension Master Gardener Volunteers (EMGVs) assisted me in piloting a new 4-H curricula and gave unique perspective and expertise to the formalized piece, giving feedback on both activities, implementation, and evaluation methods. Additionally, the Area Specialized Agent with Poultry programmatic duties assisted with technical expertise for 4-H Embryology school programs and discussed career possibilities with youth. Likewise, our county Family & Consumer Sciences (FCS) Agent assisted me with integral food chemistry lessons for summer camps and workshops. *Outputs/activities related to this programming will be described in detail below.*

C. Outputs/Activities

The comprehensive school to career program I was able to implement to address identified needs within the county was primarily driven by the following programming efforts: 4-H Embryology in the Classroom Program, 4-H Butterfly Project, and Science Discovery 4-H Camps.

(1). 4-H Embryology in the Classroom Program

The 4-H Embryology in the Classroom Program was implemented to second grade students in Chatham County to supplement required classroom instruction specifically related to *Science Essential Standard 2.L.1: Structures and Functions of Living Organisms – Understanding Animal Life Cycles*. In order to bring a hands-on component to this classroom instruction, the embryology program allowed students to observe the embryonic development of a chick, duckling, and/or turkey poult by hatching fertilized eggs in a still-air incubator for 21 (chickens) or 28 (ducks and turkeys) days. Overall, each program session lasted approximately 26 days for classrooms with chicken eggs and 32 days for classrooms supplied with duck and/or turkey eggs.

A total of \$3,000 was secured in a grant request to fund this school enrichment program. Through the generous financial support of the local United Way of Chatham County, this program was made available to all local classrooms within the Chatham County Schools System free of charge. This financial backing helped me to ensure that all populations across the county had equitable access to this school enrichment program.

When I first began my tenure with Extension as the 4-H Program Assistant in Chatham County, I assisted the county 4-H Agent with implementing a similar program in local schools. At that time,

the program utilized commercial broilers from a local hatchery. When the 4-H Agent left the county office five months later, I was tasked with creating a program that would better suit the needs of our local students and educators. I partnered with the local Livestock Conservancy in Pittsboro to bring a unique rare breed poultry component to our existing program. While students were able to gain better conceptualization of life cycles, they were also engaging in conversations with their teachers, peers, and family about the need to conserve rare breeds (laying the basis for conservation work) and the importance of producing healthy, viable stock (laying groundwork for future discussions on the importance of genetic diversity). In addition, this proved to be advantageous to local breeders were able to utilize incubators to hatch large numbers of eggs and return those rare-breed chicks/ducklings/poults back to their farms and flocks. This has been a wonderful addition to the embryology program in Chatham County, and we have helped to establish a rare-breed embryology program that is being implemented in six other counties across North Carolina. I was able to speak at the National Livestock Conservancy Annual Conference in Massachusetts in Nov. 2016, and due to the publicity gained at that event, our program has been mimicked in three additional states: Texas, Tennessee, and New York.

Due to the intensive nature of this program, it was necessary to create an adequate training program for educators to successfully implement this into their own classrooms. I created and delivered a two-hour training session to educator teachers on the overall program, available curriculum, appropriate student learning activities, the proper incubation method, and necessary chick/duckling/poult care. Participants were provided with a still-air incubator, brooder box, candler, and curriculum at the training. The training was intended to (1) adequately explain the curriculum for successful implementation with their students, (2) address biosecurity hazards, and (3) create confidence in the teachers with utilizing live specimens in their classrooms. In addition to the in-person mandatory training, I also created a supplemental online training that teachers could utilize as a refresher during the program and to access pertinent documents; that training contained how-to videos, documents outlining best practices, and opportunities for them to pose questions for assistance. That password-protected training page can be found here: <http://go.ncsu.edu/chatham4hembryology>. That wall is live and can be accessed with the following password: **2017embry4h**. Educator evaluations have shown that the trainings are very beneficial and have resulted in increased hatch rates.

As mentioned previously, each trained teacher is provided an **embryology classroom kit**. Those kits include the following:

- One 24" x 36" plastic brooder box
- 1588 Genesis Hova-Bator incubator
- *Embryology in the Classroom* curriculum and notebook (supplements the online and in-person training with student activities, record keeping documents, journal templates, and student/teacher evaluations)
- Heat lamp and bulb (used to safely warm chicks/duckings/poults in brooder box)
- Thermometer (supplements the calibrated unit to ensure accuracy in readings)
- Candler (teacher and students candle eggs throughout incubation process)
- Plastic feed dish and waterer
- Medicated starter feed
- Spray bottle (duck eggs require greater humidity at hatch time; egg misting is suggested)

- Glo-Germ handwashing demo kit and black light (used to demonstrate proper handwashing protocol before students handle eggs or incubator equipment)

The teachers took the kits back to their classrooms, and fertilized eggs were delivered on Monday of each beginning session. Eggs sat in the classrooms overnight to acclimate to temperature and humidity conditions, and then the students set the eggs within the incubators the next morning. Throughout the three- and four-week programs, I would make initial classroom visits on Day 1 to explain the program to students and conduct required handwashing demonstrations, which were vital to ensuring the health safety of students and developing embryos alike. I would return to the classrooms on three separate occasions to assist the students and educators with candling eggs so that students could track progress and maintain their records. Classrooms were able to keep the chicks/ducklings/poults for two to three days after hatching to provide time for student observation and instruction on animal care as well. Post-tests were administered at the end of the program, and evaluations were provided to the educators.

Embryology in the Classroom Participation						
	2013	2014	2015	2016	2017	TOTAL
Number of Students	400	508	620	712	830	3,070
Number of Schools	2	3	4	4	7	N/A

(2). 4-H Butterfly Program

The 4-H Butterfly Program was implemented to address a lack of hands-on opportunities for educators looking to supplement classroom instruction with an experiential learning experience. Designed for elementary-aged students and delivered to second grade students specifically, this program supplemented required Science Essential Standards being taught in the classroom. This project complemented the existing 4-H Embryology in the Classroom Program due to its outlined goals and objectives, however, this project meet a need specifically requested by our local educators, school system administrators, and advocated by our 4-H advisory committee. Those voiced needs centered around the following:

1. While the Embryology in the Classroom Program has been immensely successful, many teachers were not comfortable with incubating/handling eggs or the possibility that some specimens may not be viable embryos; this prevented them from participating.
2. Even though our 4-H program has received approval from our local Health Department to proceed with this program in the schools, some principals are uneasy about allowing poultry within their classrooms. Even with proper biosecurity training for teachers and handwashing demonstrations for the youth, some administrators will not opt into this program for their classrooms.
3. Even though this program requires hands-on assistance, the level of intense, daily participation is not as great as that required for the Embryology Program. As such, educators are more readily persuaded to try this (at least initially) in their own classrooms.

With these concerns in mind, the most appropriate and beneficial way for me to act on these requests was to implement a companion program to our Embryology Program which

implemented butterflies. Core instruction for this program was centered on the following NC Science Essential Standard Objectives (NC Department of Public Instruction, 2017):

- **2.L.1 – Structures and Functions of Living Organisms: Understanding animal life cycles**
 - **Clarifying Objective 2.L.1.1:** Summarize the life cycle of animals during birth, developing into an adult, reproducing, and aging/death.
 - **Clarifying Objective 2.L.1.2:** Compare life cycles of different animals such as, but not limited to, mealworms, ladybugs, crickets, guppies, or frogs.
- **2.L.2 – Genetics: Remembering that organisms differ from or are similar to their parents based on the characteristics of the organism**
 - **Clarifying Objective 2.L.2.1:** Identify ways in which many plants and animals closely resemble their parents in observed appearance and ways they are different.
 - **Clarifying Objective 2.L.2.2:** Recognize that there is variation among individuals that are related.

The greatest area of concern with implementing this school enrichment offering was the lack of juried, vetted curriculum to guide the program. To address this need, I partnered with other Extension professionals (county- and campus-based staff and specialists) to begin writing a curriculum piece that would be suitable for piloting. That curricula has been successfully utilized the past few years on a county level and was formally piloted across the state (including Chatham County) in 2017.

Participating educators were provided classroom kits that contained all necessary materials, including curriculum and painted lady larvae, to successfully complete the program. These kits were provided to educators free of charge due to resources I secured with a \$3,150 grant from the Walmart Community Foundation.

For proper program delivery, a series of lessons and learner outcomes were determined. During the course of a month, each of the following six classroom lessons were addressed:

- **Lesson 1: Big Buggy World** (administer pre-test)
 - Learner Outcomes: Youth will be able to describe many different types of animals with which we share the environment and the many different types of animals that share the environment with butterflies.
- **Lesson 2: What is a Bug?**
 - Learner Outcomes: Youth will be able to explain the basic physical characteristics that define insects.
- **Lesson 3: Change is Happening!**
 - Learner Outcomes: Youth will be able to explain the life cycle of butterflies and other garden organisms.
- **Lesson 4: This End Up**
 - Learner Outcomes: Youth will understand the role of natural instincts in caterpillars.
- **Lesson 5: Pupation and Transformation**

- Learner Outcomes: Youth will understand the pupal stage of the butterfly life cycle. The learner will be able to identify the parts of a chrysalis.
- **Lesson 6: Flitter, Flutter: Moth or Butter?** (administer post-test and evaluations)
 - Learner Outcomes: Youth will be able to explain the differences between moths and butterflies and the adaptive significance of butterfly coloration.

4-H Butterfly Project Participation						
	2013	2014	2015	2016	2017	TOTAL
Number of Students	442	615	800	870	960	3,687
Number of Schools	6	7	8	9	11	N/A

(3). Science Discovery 4-H Camps

Unfortunately, it has been documented that many children experience summer learning loss during their time away from the classroom, which means they forget the equivalent of up to two months of academic instruction as measured by grade level equivalents on standardized tests. Research shows that students typically score lower on standardized tests at the end of summer vacation than they do on the same tests at the beginning of the summer (Entwisle & Alexander 1992; Cooper, 1996; Downey et al, 2004). Likewise, most students lose about two months of grade-level equivalency in mathematical computation skills and over the summer months (Cooper, 1996). As a result, summer learning loss serves as a significant contributor to the achievement gap, a gap which remains present during the course of the school year, but widens during the summer break. Sadly, more than half of the achievement gap between lower higher-income youth can be explained by unequal access to summer learning opportunities. For example, research has noted that every summer, low-income youth lose two to three months in reading achievement while their higher-income peers actually make slight gains. Year after year, these losses and widening gaps accumulate. As a result of accumulating gaps, low-income youth are less likely to graduate from high school or enter college (Alexander et al, 2007).

Based on the input of my specialized advisory committee and a prioritized need resulting from a focus group conducted in 2012, I implemented a series of travelling 4-H science camps to (1) address documented learning loss for Chatham County students, (2) offer additional STEM activities to diverse groups of youth, and (3) provide youth with access to STEM career exploration that they would otherwise not be made privy to due to transportation or financial barriers experienced by their families.

These week-long camps were targeted towards middle school and early high school students within the county, and a strong focus was put on recruiting youth from underrepresented populations. To assist with recruiting youth, particular focus was made in marketing this camping programming through our collaborative work with Chatham County DSS and Communities in Schools – Chatham County. Partnering with various agencies, departments, and campuses across the county and state (UNC-Chapel Hill, NC State Parks, NC Museum of Natural Sciences, etc.) allowed me to bring varied and enriching programming to participating youth. Below in *Figure 1* is an example of a week-long science camp that has been offered to our local youth.

2015 Science Discovery Day Camp Activity Schedule	
July 6 th – July 9 th , 2015	
Monday (7/7): Food Chemistry, Local Ecosystems, GPS Technology	Tuesday (7/8): Marvels of Flight
8:30 – Arrive at Extension Office	8:30 – Arrive at Extension Office
9:40 – Depart for Celebrity Dairy	8:45 – Kite building and flight demo
10:00-12:00 – Goat dairy and <u>cheesemaking</u> demo	11:10 – Astronaut show at UNC-CH Morehead Planetarium
12:30 – Lunch at Jordan Lake	12:30 – Lunch on-campus
1:30 – Ecosystem tour with park ranger and 4-H geocaching adventure	1:30 – Depart for Anderson Community Park for kite test flights
4:30 – Parent pick-up at Extension Office	4:30 – Parent pick-up at Extension Office
Wednesday (7/9): Science on the Coast!	Thursday (7/10): Science on the Coast!
8:30 – Arrive at Extension Office	7:30 – Breakfast at NC Aquarium
8:40 – Depart for Manteo	8:30 – Begin tour of Jockey's Ridge and <u>Bodie Island Lighthouse</u> ; shoreline visit
12:00 – Lunch near Manteo; begin tours of Elizabethan Gardens, Fort Raleigh, lighthouse	12:00 – Depart coast
5:00 – Dinner near Roanoke Island	12:30 – Lunch on-route back home
6:30 – Arrive at NC Aquarium for check-in	4:30 – Parent pick-up at Extension Office

Figure 1. Science Camp Agenda Example

This agenda included specific educational activities that aligned with selected objectives that had been prioritized by a specialized advisory committee.

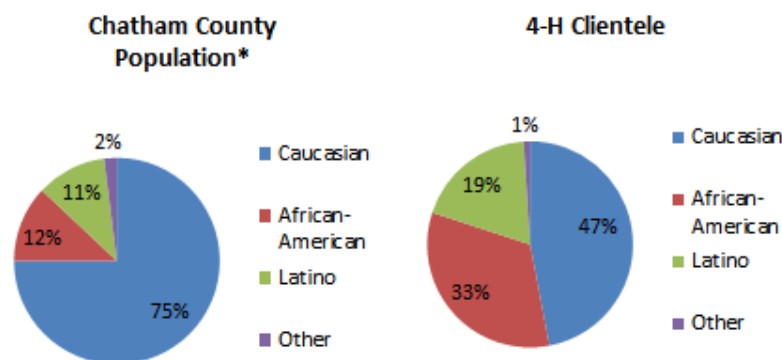
All of the training sessions which comprised the camp program were age appropriate and guided by juried 4-H curriculum.

To successfully deliver these training sessions, it was imperative to have the assistance of experienced volunteers. For these particular camps, I recruited and trained six volunteers to help implement each week's programs.

In order to make this program as accessible as possible to all youth within the county (regardless of the ability/inability of their families to pay registration costs), I applied for and secured a number of grants to assist with need-based scholarships:

- United Way of Chatham County Grant: **\$550**
- Siler City Rotary Grant: **\$700**
- Central Electric Round-Up Grant: **\$3,000**

To better explain the diversity of our audiences and our concerted efforts to reach youth from underrepresented populations within the county, see Figure 2 below:



*Data provided by census.gov/quickfacts, 2015

Figure 2. Demographics of Youth Participating in School to Career Programming

D. Outcomes and Impacts

Outcomes and Impacts for individual programming efforts (Embryology in the Classroom Program, 4-H Butterfly Project, Science Discovery 4-H Camp, etc.) are explained below:

(1). 4-H Embryology in the Classroom Program

- During the past five years, a total of 3,070 students and 104 classrooms across Chatham County have participated in STEM programming offered through the Embryology in the Classroom Program. Cumulative evaluations showed that **90% of the participating students reported interest in pursuing science-related clubs/careers**, and according to educator evaluations, over **80% of students' science grades and/or skills improved upon completion of the program.**
 - With a reported increase in interest in science comes the likely possibility of that youth pursuing a STEM-based academic program and/or career. Research has shown that STEM employees earn 21% more in wages than individuals in non-STEM fields (Brookings Institution, 2014).
- This program was offered to the school system free of charge due to the charitable support of the local United Way of Chatham County. This equitable access to programming materials not only allowed for a greater diversification in the schools and students participating, but it also saved the public school systems **funds equating to over \$26,000** were saved by the local public school system as a result for the five year period.
- Collaboration with the nationally-acclaimed Livestock Conservancy allowed the 4-H Embryology Program to develop an additional conservation focus and enriched the classroom experience for students. Youth were exposed to the rare-breed program, the need to maintain genetic diversity, and the need to conserve heritage breeds; this assisted students and their families in learning about conservation efforts in their own communities. Based on educator feedback, evaluations noted that **“students now understand the importance of conserving rare breeds of poultry and livestock in our agricultural community”** and many **“show new attitudes toward the importance of conservation work.”**

To add richness to outcome data, I have taken the following **testimonials** from client emails and educator evaluations to better represent this program's impacts:

*“Thank you so much for allowing us to participate in this program this year! I had heard great things about the classroom project, and I can tell you first-hand now that this was a **WONDERFUL** addition to our instruction. My students were so **ENGAGED** and **EXCITED!!**”*

- Participating 2nd Grade Teacher (via evaluation)

“I was so nervous to take this on this year because I know (correction: knew!) nothing about ducks, but I am so thankful I took the plunge! Both my students and I got so much out of this

program. I had students who for the first time this year seemed genuinely excited and interested in our science lessons. Thank you for that!!!”

- Participating 2nd Grade Teacher (via evaluation)

“You know that I’ve been doing this for years now, but I have to tell you that I LOVE this program more and more each year! I’m grateful to have the opportunity to use rare breed birds now, and the kids and parents have great discussions about conserving heritage breeds. I love how it supplements our lessons so well, and I’m ecstatic that our curriculum coach was able to be involved this year. Our whole grade level showed off our ‘accomplishments’ during the school assembly last week, and our students are very proud and all the better for it. Thank you Ginger!”

- Participating 2nd Grade Teacher (via evaluation)

“My daughter goes to Pittsboro Elementary and they have been working on the 4-H embryology program as part of their sciences studies. I just wanted to say how great this has been for her. She loves the program! We usually can’t get her to talk about what’s going on at school, but let me tell you, this has got her talking!! She comes home excited to give me updates on the eggs each day. This is really our dinner conversation each night now, LOL. Thanks for doing this with them!”

- Parent of Participating 2nd Grade Student (via email)

“I wanted to let you know how much my boys have loved the last couple of weeks of school since 4-H has been coming to visit to candle eggs! According to them, this is the most fun they have had in school. The twins compare their ‘egg stories’ every day, and they are very serious about keeping good records for the incubator temps – I love it!”

- Parent of Participating 2nd Grade Students (via email)

(2). 4-H Butterfly Project

- During the past five years, a total of 3,687 students across Chatham County have participated in STEM programming offered through the 4-H Butterfly Project. Cumulative evaluations showed that **94% of the participating students reported interest in pursuing science-related clubs/careers**, and over **83% of students’ science grades and/or skills improved upon completion of the program.**
 - With a reported increase in interest in science comes the likely possibility of that youth pursuing a STEM-based academic program and/or career. Research has shown that STEM employees earn 21% more in wages than individuals in non-STEM fields (Brookings Institution, 2014).
- This program was offered to the school system free of charge due to grant funding received from the United Way of Chatham County and the Walmart Community Grant. This equitable access to programming materials not only allowed for a greater diversification in the schools and students participating, but it also saved the public

school systems **funds equating to over \$34,000** were saved by the local public school system as a result for the five year period.

To add richness to outcome data, I have taken the following **testimonials** from client emails and educator evaluations to better represent this program's impacts:

"Thank you!! We had such a great time and you ladies were amazing! The kids (and me) learned so much and I am hopeful we have the same opportunity next year!! This program enhanced our science time by leaps and bounds – so thankful!!"

- Participating 2nd Grade Teacher (via evaluation)

"Thank you so much for the opportunity this year to share the butterfly experience with my students!!! I was a little unsure as to my ability to successfully hatch the eggs for the Embryology Program, but this was right up my alley. I am very grateful!!"

- Participating 2nd Grade Teacher (via evaluation)

"Thank you! Love, love, love the kit! Thanks so much for everything...you are awesome!!! I like to think that I made the lessons great, but honestly, the students loved this because it was hands on. The students learned so much and will always remember the butterflies!!"

- Participating 2nd Grade Teacher (via evaluation)

"Just writing a note of thanks to you today because of the wonderful butterfly program 4-H is hosting here in our school. As the school librarian, I hear a lot of stories from kids during the day, and the whole school is excited to see the butterflies emerge in the next few days. It's hard to get them excited about some subjects, but they are definitely into their butterfly lessons – it's great. My own daughter is doing the butterflies right now in 2nd grade and she loves it!"

- Parent of Participating 2nd Grade Student and School Staff Member (via email)

(3). Science Discovery 4-H Camps

- Participation in the Science Discovery 4-H Camps has provided youth with experiences, knowledge, and skillsets that will enable them to be successful both in and outside the classroom. Average pre- and post-test results for participants included the following: **93% of participating youth increased their knowledge in agriculture and science, 98% would consider working in a science-related field, and 98% of participants would commit to improving science grades in the upcoming school year.** Providing youth with opportunities to engage in hands-on demonstrations and experiential learning methods in locations across the state proved to be invaluable teaching events with regards to STEM education.
 - Research has noted that 27% of the high-skills jobs related to agriculture within the next five years will require a STEM education (Purdue University, 2015). Forty percent of U.S. companies have reported difficulty in filling positions due to a lack of STEM skills (Brookings Institution, 2014). On an international basis,

the U.S. would gain approximately \$2.5 trillion more in Gross Domestic Product between now and 2050 if U.S. students were to score at international averages for science and math tests (Washington Center for Equitable Growth, 2015). Helping students to acquire needed knowledge/skills to aspire to such careers, enables our 4-H program to contribute to the economic base of Chatham County and on a larger global scale as well.

- Despite making up over a quarter of the U.S. population aged 21 and over, under-represented minorities hold just 10% of science and engineering jobs (National Science Foundation, 2013). As shown in Figure 2 and the table below, this particular problem was addressed by our ability to recruit and include minority populations (African Americans, Hispanics, females, etc.) with this program.

To add richness to outcome data, I have taken the following **testimonials** from client emails and educator evaluations to better represent this program’s impacts:

“Mikayla had the best time this week! She has been telling everyone about science camp and how she plans to be a marine biologist and take care of the sea turtle nursery one day!! This was wonderful for her and we were so glad to find this camp. I wish you could do this camp every week!”

- Parent of Participating Camper (via email)

“I didn’t know there were so many things I could do when I got older with a science degree. I’m not sure yet which job I would like to study for yet, but I’m thinking about becoming a veterinarian. Now I know what subjects I need to study and preparing to do better in school starts now. I hope I can participate in camp again next year and bring my friends!”

- Participating Camper, Age 12 (via evaluation)

Comprehensive School to Career Outcome/Impact Metrics

The following table contains selected metrics from ERS and ES-237 reports from 2013-2017 and shows collective data as it relates to my school to career programming efforts:

OUTCOME/IMPACT	2013	2014	2015	2016	2017
Number of teachers trained in 4-H STEM curriculum	35	41	73	72	75
Number of youth (students) increasing knowledge in STEM	810	1035	1194	3056	2950
Total number of female participants in STEM program	260	680	609	1722	1987
Number of high school age youth (students) participating as members of 4-H clubs	24	24	24	24	25

Number of youth (students) increasing knowledge of career/employability skills	345	1080	1194	3056	2950
Number of youth (students) increasing knowledge of entrepreneurship	250	943	1194	3056	2950
Number of teachers using 4-H STEM curriculum in their classrooms	35	41	73	72	75
Number of youth (students) gaining knowledge in STEM	995	1080	1194	3056	2950
Number of youth (students) gaining career/employability skills	995	1080	1194	3056	2950
Number of youth (students) gaining entrepreneurship skills	995	1080	1194	3056	2950

E. Success Stories - Following is a selection of success stories recorded in ERS related to my school to career youth programming from the past five years. The success stories noted below serve to represent a portion of my programming during this time and for the sake of brevity, not all success stories are included.

2013 Documented Need to Implement 4-H STEM into Local Classrooms

Objective: School to Career (Youth and Adults)

National media reports continue to show that students here in the United States perform well below their counterparts in several European and East Asian countries in regards to mastering basic math- and science-related concepts. Across the country, emphasis has been placed on the expansion of Science, Technology, Engineering, and Mathematics (S.T.E.M.) curriculum in order to improve student achievement in the fields of math and science. One way this issue was addressed here in Chatham was the implementation of a 4-H-sponsored embryology program in 17 classrooms across the county. Educators utilized research-based, hands-on curriculum to deliver valuable experiential learning opportunities to over 400 eager students. **Final evaluations showed that 100% of the participating students reported interest in pursuing science-related clubs and careers and over 80% of students' science grades/skills improved at least one letter grade (or its equivalency) upon completion of the program.** This program was made possible through the charitable support of the local United Way of Chatham County; funds equating to over \$2700 were saved by the local public school system as a result. In addition, this year Chatham County 4-H was generously assisted by the Livestock Conservancy, whose efforts to help preserve and reinstate many historic and rare breeds of livestock and poultry in the United States have increased heritage breed numbers world-wide. **The chicken and duck eggs donated by the Conservancy not only enabled students to learn concepts related to life cycles and S.T.E.M., but also allowed students to help preserve valuable rare breeds in our local community.**

2013 Engaging New Scientists During the Summer Months

Objective: School to Career (Youth and Adults)

For 2013, 4-H held a goal of engaging one million new youth in science programs across the nation; at year's end, that national goal has been successfully met. The initiative to reach out and engage youth stems from the fact that in the very near future, America will be faced with an intense shortage of scientists. According to recent reports, a mere 5% of current U.S. college graduates will earn science, engineering, or technology degrees compared to 59% of graduates in China and 66% in Japan (NAEP 2005). To help address the need of reaching out to youth in the community to garner interest in science-related fields, Chatham County 4-H partnered with Moore, Hoke, Richmond, and Scotland County 4-H programs to deliver a week-long science discovery day camp. Over 50 campers were able to take part in experiences which included agricultural experiments on the campus of NC A&T State University, marine life education aboard a boat cruise near Morehead City, life science explorations at the Dairy Education Unit at NC State University, and aquarium demonstrations at Pine Knoll Shores. **Based on pre- and post-test responses, over 96% of participating youth increased their knowledge in agriculture and science, 99% would consider working in a science-related field, and 100% of participants would commit to improving science grades in school.**

2017 4-H Butterfly Program Enhances STEM Education

Objective: School to Career (Youth and Adults)

Situation: This particular project sought to address the pressing need to enhance STEM education within the local public school system and assist educators with bringing hands-on learning opportunities into classrooms where such opportunities were currently lacking. National reports continue to show that the United States lags woefully behind other nations in STEM (science, technology, engineering, and mathematics) education both at the elementary and secondary levels. Students here in the US perform well below their counterparts in other nations in regards to mastering the most basic math and science-related concepts (Gonzales P, et al. (2009). Highlights from TIMSS 2007: Mathematics and Science Achievement of U.S. Fourth- and Eighth-Graders in an International Context. Washington, DC: U.S. Dept. of Education).

Response: 4-H collaborated with Chatham County Schools and Chatham County EMG volunteers to implement a unique butterfly program into 35 classrooms county-wide. This enabled educators to utilize research-based curriculum to deliver valuable STEM experiential learning opportunities to over 950 students in total.

Evaluation Methods: Evaluations were provided to all participating educators to assess their students success related to corresponding test scores or content assessments administered at the conclusion of the program. Twenty-seven of the 35 participating classrooms completed the evaluation.

Results: Educator evaluations from the butterfly program showed that **85% of students improved their science grades by at least one letter grade or content assessment ranking upon completion** of the program. Furthermore, educators reported that **92% of participating students showed/expressed greater interest in science-related curriculum.**

2016 4-H Science Camp Connects Youth to STEM Careers

Objective: School to Career (Youth and Adults)

Situation: Publications indicate that, in comparison to other nations, there are far less college graduates from the U.S. pursuing STEM-related degrees. The initiative to reach out and engage youth in science and technology fields stems from the fact that in the very near future, America will be faced with an intense shortage of scientists and depleted workforce.

Response: To help address the need of reaching out to youth in the community to garner interest in science-related fields, Chatham County 4-H delivered a week-long science discovery day camp for 13 local youth. Campers were able to take part in experiences which included rock formation lessons at a panning site, exotic animal demonstrations at the NC Zoo, and a unique aviation demo at RDU airport. With the generous support of the United Way of Chatham County, the cost of this camp was almost entirely funded by local donors.

Evaluation Methods: Post-only assessments were administered to each of the participating youth. All participating youth completed the requested assessment.

Results: Based on acquired responses, over **91% of participating youth increased their knowledge in agriculture and science, 100% would consider working in a science-related field, and 100% of participants would commit to improving science grades in the upcoming school year.** Providing youth with opportunities to engage in hands-on demonstrations and experiential learning methods in apiaries, state forests, and demonstration gardens proved to be invaluable teaching events with regards to STEM education.

Program Area 2: Healthy Eating, Physical Activity, and Chronic Disease Risk Reduction

In order to properly address the needs of youth from a holistic perspective, while it is extremely important to address educational needs and gaps, it is equally important to address their physical health as well. The ERS objective overviews this need: “Youth and adult program participants will make healthy food choices, achieve the recommended amount of physical activity, and reduce risk factors for chronic diseases.” Here in Chatham County, 20.6% of youth face the life threatening and debilitating problem of obesity. In addition to creating a higher risk of obesity into adulthood, it is also one of the leading causes of pediatric hypertension. Obesity can also increase the risk of heart disease, lower self-esteem in young people, increase stress on the body’s organs and joints, increase chances of developing Type II diabetes, and negatively affect a child’s relationship with his/her peers.

A. Planning

Programming efforts and outcomes/impacts are reported under Extension's **Healthy Eating, Physical Activity, and Chronic Disease Risk Reduction** objective, which describes the **compelling need** for these programs:

“Many North Carolinians are affected by chronic disease and conditions that compromise their quality of life and well-being. Heart disease, stroke, and cancer continue to be leading causes of death in our state. In addition, obesity and obesity-related chronic diseases such as diabetes continue to rise at alarming rates. Healthy eating and physical activity are critical to achieve optimal health. Many North Carolinians have diets that are too high in calories and too low in fruits, vegetables, and whole grains. Portion sizes, foods eaten away-from-home and consumption of sugar-sweetened beverages continue to rise. In addition, most North Carolinians do not engage in regular physical activity. The prevalence of overweight and obesity has nearly doubled in the past 10 years. If the trend of overweight is not slowed, it will eliminate the progress we have made in reducing the burden of weight-related chronic disease. One in every three U.S. children born after 2000 will become diabetic unless many more people start eating less and exercising more. [...] Those who make healthy food choices and are physically active are more likely to achieve and maintain a healthy weight as well reduce chronic diseases. Ultimately, this will lead to reduction in health care costs, increased longevity, greater productivity, and improved quality of life.”

Seeing the dire need for such programming, in coordination with the county FCS Agent, we began to offer SNAP-Ed programming to underserved populations of 2nd and 3rd grade students in the western side of the county where many impoverished individuals live. Based on input from a formal **focus group** and reiterated by my **specialized advisory committee** for the program, planning efforts were made to address this objective through (1) camp delivery modes, (2) school enrichment delivery modes, and (3) special interest workshops throughout the course of the programming year. Discussion within this document will focus primarily on camps and school enrichment activities.

B. Design

In 2014, my healthy living specialized advisory committee and I met to discuss the direction of the healthy living program and identify goals for future programming. This session resulted in goal setting and visioning for the overall program; the following **goals** were identified during the workshop:

1. To provide interactive, hands-on programming for underserved youth in order to increase awareness of healthy food options and physical activity (ensuring we are reaching underserved populations).
2. To provide in-school and out-of-the-classroom healthy living programming for youth in order to provide programs to as many young people as possible (ensuring accessibility).

Based on these goals, it was then necessary to determine **objectives** for each goal; below are some objectives which were deemed to have high prioritization:

- An increase in in-school programming at schools where the needs are most prevalent (where 99-100% of students are free or reduced-lunch recipients)
- An increase in programming offered during low-cost summer day camp, e.g. 4-H Adventures Day Camp at Northwest District Park in Silk Hope, NC, and residential camp, e.g. camping at BJP 4-H Educational Center in Reidsville, NC;
 - The ability to offer need-based camp scholarships (to assist with registration costs) during these camp sessions was a point of emphasis.
- An increase in youth gaining knowledge and skills regarding nutritional needs and the [MyPlate model](#)
- An increase in youth gaining knowledge and skills regarding basic [physical activity requirements](#) based on CDC (Centers for Disease Control & Prevention) guidelines

For any program, it is integral to have targeted outcomes, impact indicators, and various measures of progress; each can be utilized to gauge program effectiveness and assist with program development. Furthermore, such measures are critical for evaluating program outcomes. For this particular program, **measures of progress** used to monitor program effectiveness included the number of school enrichment sessions offered in conjunction with the number of classrooms participating, number of school enrichment participants, and the number of camp participants.

The following **targeted outcomes and impacts** were used to evaluate my healthy living program and are in alignment with those reported in ERS for the Healthy Eating, Physical Activity, and Chronic Disease Risk Reduction objective:

1. Number of youth increasing their fruit and vegetable consumption
2. Number of participants increasing their physical activity
3. Number of participants reducing their BMI
4. Number of participants who consume less sodium in their diet

My **strategy** to formally capture **evaluation data** from youth and adult clientele consisted of pre- and post-tests administered in classroom and camp settings and surveys at all workshops, and trainings attended by educators. Likewise, some data was also collected via participant observation and follow-up surveys administered to participants' families. This was done to accurately measure and portray changes in knowledge, skills, attitudes, and aspirations resulting from participation.

The ability to **integrate programming** efforts across program disciplines is what helps to make the healthy living program so successful here in the county. Our ability to bring juried 4-H curricula and vetted programming such as the Steps to Health nutrition education program to youth in and out of the classroom has been integral to our success; support provided by USDA funding allows me to secure needed resources without utilizing time earmarked for programming to seek additional sources of funding. Having the ability to collaborate and deliver programming with the county FCS Agent has produced a vibrant program in which local specialists from the Chatham County Health Department, Chatham County Parks & Recreation,

and CORA (Chatham Outreach Alliance) Food Pantry have gladly lent their time to assist with programming. *Outputs/activities related to this programming will be described in detail below.*

C. Outputs and Activities

Chatham County youth between the ages of 5-18 served as my target audience for this particular healthy living program. I made a vested interest in trying to recruit youth from underserved populations within the county in hopes that I may be able to reach new audiences who could benefit from such Extension programming (please see *Figure 4* for additional details). In partnership with Chatham County DSS and Communities in Schools – Chatham County, I was able to recruit a large number of youth who had not participated in any previous 4-H or Extension-related programming prior to their participation in these healthy living programs. Additionally, many of these youth who came to Extension to take part in these programs have stayed in 4-H and now participate in year-round programming with our office through 4-H club work. To better understand our targeted audience, the majority of youth which we recruited from the aforementioned agencies could be characterized by one or more of the following characteristics:

- 86% receive free or reduced lunch
- 88% youth of color (35% African American, 29% Hispanic/Latino, 24% Multi-Racial)
- 74% youth experienced some type of trauma within the last two years
- 50% youth have/had DSS involvement
- 35% live with non-parent (guardian, foster parent, adopted, etc.)
- 32% youth have an identified disability (behavioral or physical)
- 83% attend low-performing schools

The comprehensive healthy living program I was able to implement to address identified needs within the county was primarily driven by implementing programming into the following delivery modes: School Enrichment and 4-H Summer Camps. Due to space limitations, supplemental programming outside of these two main delivery modes will not be discussed.

(1). School Enrichment in Food-Insecure Areas of Chatham

Based on input provided by a specialized advisory committee and in collaboration with the county FCS Agent, I was able to implement a series of school enrichment activities in local elementary school classrooms to better educate youth regarding ways that they could (1) achieve healthier, more nutritious diets and (2) increase their own physical activity levels.

A series of 9 weekly lessons (approximately 45 minutes each) were delivered at a local elementary school that had been specifically targeted for programming due to the fact that 100% of the student population received free or reduced-cost lunches. Administrators gladly accepted us into the classrooms to deliver this programming, and due to the fact that these lessons met seven of the clarifying objectives in the NC Essential Standards for Health Education, our instruction time was easily built into the school day. Program delivery was based upon the following series of classes:

- Week #1: Introductory class and administered pre-test to students
- Week #2: Lesson centered on physical activity
- Weeks #3-8: Lessons centered on nutrition
- Week #9: Overview/wrap-up class, administered post-test, and students' graduation

At the end of each week's lesson, we provided students with food samples to taste in an effort to: (1) allow them to try new fruits/vegetables that they may have never eaten before, (2) learn simple, cost-effective, and healthy snacks they can build for themselves at home, and (3) advocate to family members the importance of adding fruits, vegetables, and healthy food options to their daily meals/snacks. Many of the students had never tasted several of the items we have shared with them as samples; peppers, squash, kiwi, and cauliflower are quite often "surprises" for the young students. While many youth are hesitant to try these new foods at first, oftentimes, youth gain confidence in trying new food items as the weeks progress; this progression/growth is critical to the success of the program we work to implement.

(2). 4-H Summer Camps Advocate Nutrition and Physical Activity

To address a separate goal identified previously, I worked to create a summer camp program that focused on various healthy living, nutrition, and physical activity objectives. What came to fruition was a week-long day camp that was offered in the northwestern portion of the county in an area that is extremely food-insecure. Utilizing resources from the Steps to Health Program, I was able to introduce other juried 4-H curricula (Keeping Fit, 4-H Cooking 201, and Outdoor Adventures) to develop lessons that would be beneficial and engaging to our local youth in a summer camp format. With grant funding from the United Way of Chatham County devoted to these camps specifically (\$7,625), many of the youth attending the camp were able to secure need-based scholarships and attend free of charge.

4-H Adventures Day Camp Daily Schedule	
8:20-8:45	Campers arrive, take roll, prep for morning (<i>dining hall</i>)
8:45-9:00	Pledges & announcements (<i>dining hall</i>)
9:00-9:05	Campers rotate to Station #1
9:05-9:35	Station #1
9:35-9:40	Campers rotate to Station #2
9:40-10:10	Station #2
10:10-10:15	Campers rotate to dining hall
10:15-10:30	Snack break (<i>dining hall</i>)
10:30-10:35	Campers rotate to Station #3
10:35-11:05	Station #3
11:05-11:35	Free play on playground/ballfield/basketball court
11:35-11:45	Campers wash hands (<i>dining hall</i>)
11:45-12:45	Lunch (<i>dining hall</i>)
12:45-1:45	Swim time (blue) / lesson / recreation
1:45-2:45	Swim time (red) / lesson / recreation
2:45-3:45	Swim time (green) / lesson / recreation
3:45-4:30	Return to dining hall; clean up group area and pack up for home
4:30	Campers are picked up

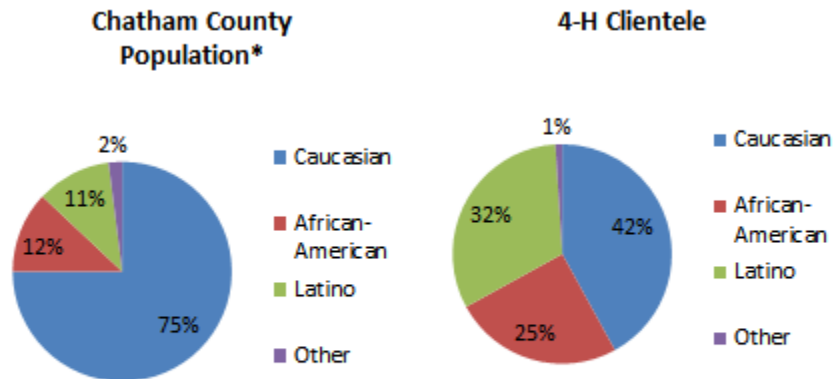
As shown in the sample camp schedule in Figure 3, campers arrive on-site each morning and rotate through a series of educational stations throughout the course of the morning. Those stations are manned by trained volunteers and specialists from the community in fields of nutrition, public health, recreation, and community medicine.

Figure 3. Sample 4-H Adventures Camp Daily Schedule

For a comprehensive healthy living-focused camp program, planned time is devoted each day to physical activity and teaching youth how to create and maintain fitness logs for recording purposes. Integrating various life skills into all aspects of our programming are essential for today’s youth here in Chatham County. At the end of each camping week, when campers have completed evaluations, youth engage in a graduation ceremony to mark their accomplishments.

Many of these same youth from underrepresented populations in our county attend residential camp with our 4-H program each summer. My specialized advisory committee had initially proposed the idea of integrating a healthy living focus into our residential camp programs due to the fact that youth would be taking all three meals of each day in a controlled environment and could be monitored regarding their food/drink choices. Likewise, with ample opportunities to participate in a variety of recreational activities, youth could build appreciation and awareness of the need for daily physical activity. I coordinated a challenge program that was first initiated back in 2015 with our campers where they could secure points throughout the week based on physical activity (types and duration), nutrition (food and vegetable intake), water consumption, etc. The premise of this program was based on our county’s Points of Success 4-H Program which I implemented back in 2013 and has been extremely successful with our county club members. This has proved to be a wonderful engagement tool and has provided pertinent outcome/impact data as well. This has worked well even with our older teens, who are often quite competitive.

The majority of youth participating in our day and residential camp programs are unable to pay their own way to such camps, so I have sought out a number of grant funding sources to pay registration costs. On average for the past three years, we have received the following grant funding to assist with camp costs: \$29,000. To better explain the diversity of our youth audiences participating in our healthy living program and our concerted efforts to reach youth from underrepresented populations within the county, please see *Figure 4* below:



*Data provided by census.gov/quickfacts, 2015

Figure 4. Demographics of 4-H Healthy Living Programs

D. Outcomes and Impacts

The healthy living program has been an invaluable component to our overall county 4-H program. Below are some of the most notable outcomes/impacts resulting from this program:

- On average, **80% of parents reported that they had observed a positive behavioral change** in their child(ren) in regards to healthy eating
- On average, **64% of students showed improvement** in their overall **nutrition knowledge**
- On average, **70% of students self-reported positive nutritional behavior changes**
 - This program makes tremendous strides in addressing the 20.6% of youth in Chatham County who currently face the life threatening and debilitating problem of obesity. Building awareness and changing the way youth perceive and comprehend nutrition and physical activity will enable us to help foster a culture of appreciation and awareness for living a healthy lifestyle.
- In addition to acquiring information regarding KASA and behavioral changes in youth at the conclusion of our camping programs, in recent years we sought out to collect qualitative data from the campers' families three months removed from the camping experience to gauge **intermediate outcomes** that may translate into **long-term outcomes**. On average, **82% of parents reported that their children were currently eating more fruits and vegetables than prior to their camping experience**. In addition, **70% of those respondents also noted that their children were now more physically active**.
 - Residential and day camp programs may be used as an effective vehicles for disseminating nutritional and physical activity knowledge to youth.
 - The Food Research and Action Center noted that childhood hunger and summer nutrition are significant issues that are exacerbated by reduced access to federally subsidized meals during out-of-school time during the summer. According to researchers, only one in seven youth eligible for free summer meals had access to those meals (Food Research and Action Center, 2016). Knowing that over 11% of our county's population lives in poverty and experiences significant barriers to proper nutrition, this program sought to (1) bring educational opportunities to one of the most food-insecure areas of our county and (2) target youth in underrepresented populations who were in the direst need of receiving such programming.

Comprehensive Healthy Living Outcome/Impact Metrics

The following table contains selected metrics from ERS and ES-237 reports from 2013-2017 and shows collective data as it relates to my healthy living programming efforts:

OUTCOME/IMPACT	2013	2014	2015	2016	2017
Number of youth increasing their fruit and vegetable consumption	141	267	290	483	580
Number of participants increasing their physical activity	141	267	290	468	352
Number of participants reducing their BMI	141	267	290	468	352
Number of participants who consume less sodium in their diet	141	225	290	468	580

To add richness to outcome data, I have taken the following **testimonials** from client responses, educator evaluations, and youth participant evaluations to better represent this program's impacts:

"I learned a lot this week! Even though I didn't win the health challenge this week I did learn so many new snack recipes that I can make at home with my sisters and cousins. I got more physical fitness points this week than I ever thought I could!! I'm going to win the challenge next year for sure!!!"

- Camp Participant, Age 13 (via evaluation)

"My son did enjoy the program. He came home and told us what he had learned, and we are making small changes at home to be healthier. Thank you."

- Parent of Participant (via evaluation)

"The information provided was excellent and helped a lot. It makes me want to add more fruits and vegetables to my own meals!"

- 2nd Grade Teacher (via evaluation)

E. Success Stories - Following is a selection of success stories recorded in ERS related to my healthy living youth programming. The success stories noted below serve to represent a portion of my programming during this time and for the sake of brevity and space limitations, not all success stories are included.

Camp Builds Strong Youth

Objective: Healthy Eating, Physical Activity and Chronic Disease Risk Reduction

Situation: There are a number of recent studies that have documented the effects of summer learning loss in youth; however, there are far fewer studies tracking the physical activity of youth during out-of-classroom time. One such study chronicled by Baranowski et al. (2014) in Childhood Obesity has reported that the highest weight gain in youth occurs during the summer months. This is due in part to poor food choices and decreased physical activity stemming from unstructured lifestyle patterns that occur during the summer season.

Response: To help address this concern, Chatham County 4-H recruited and secured 51 youth to attend a week-long 4-H Residential Camp administered at BJP 4-H Educational Center. In partnership with Communities in Schools - Chatham County, Chatham 4-H was able to sponsor and introduce under-served youth from the Siler City community to a variety of physical activities, healthy eating options, and positive life skill development opportunities during the course of the week-long camp.

Evaluation Methods: Previous surveys had been targeted to acquiring KASA and behavioral changes in youth at the conclusion of the camping program; this particular data collection was geared to acquiring qualitative data from the campers' families three months removed from the camping experience. This post-only (web-administered) survey was completed by 11 families, accounting for a 57% response rate.

Results: Eighty-two percent reported that their children were currently eating more fruits and vegetables than prior to their camping experience. In addition, 70% of those respondents also noted that their children were now more physically active. Residential camp may be used as an effective vehicle for disseminating nutritional and physical activity knowledge to youth.

Building Healthy Living Habits at a Young Age

Objective: Healthy Eating, Physical Activity and Chronic Disease Risk Reduction

Situation: For many school districts across the state, obesity and related health issues are a growing concern. Based on the 2014 Chatham County Community Health Assessment, local county government has identified this issue as its top concern with youth. Chatham County Extension collaborates frequently with the county and Chatham County Schools; as such, they frequently make use of Extension's educational resources to address various health issues.

Response: To address this problem, the Chatham County Center partnered with Virginia Cross School to provide NCSU's "Steps to Health" SNAP-Ed Program. The program reached 98 second-grade students (total of 600 contacts across nine sessions) who received free and reduced-cost lunches. Educational programs related to nutrition and physical activity were provided over a nine week period.

Evaluation Methods: Pre- and post-tests were administered to the 2nd-grade classrooms during visits on the first and ninth week of instruction. All 98 second-graders participated. In addition, parents and educators were also offered the opportunity to evaluate the program.

Results: Survey results indicated that 58% of the second-grade students improved their overall nutrition knowledge, and 49.9% reported positive nutritional behavioral changes. Evaluations noted that 85% of parents reported they have observed a positive behavior in regards to healthy eating, and teacher evaluations noted many of the same observations with their students during in-school time, namely with food choices made during lunch.

Team Member: Phyllis Smith (Chatham)

II. Marketing of Cooperative Extension and University Engagement

What have you done to favorably position the organization and the university in your county, region/district and state? How has the public's image of Extension been enhanced by your efforts?

- Overall commitment to purposeful planning and delivering quality, professional, and enriching Extension programs
- Regular guest speaker for local community groups such as the Rotary Clubs, Kiwanis, local PTA entities, Chatham County Agri-Business Council, and NAACP East/West Chapters
- Produced a monthly Chatham County 4-H **Cloverfields of Chatham Newsletter**
- Created **social media outlets** for clientele to gain information related to 4-H programming through [Chatham County 4-H Facebook page](#) and [Chatham County 4-H Twitter feed](#)
- Authored well-written **news releases** for The Chatham News (weekly circulation of 4,100), The Chatham Record (weekly circulation of 1,600), The Sanford Herald (daily circulation of 9,000), and the Chatham Chatlist (daily circulation of 2,300)
- Participated as researcher on **collaborative grant** between UNC-NCSU Joint Departments of Biomedical Engineering CML lab and the Regenerative Medicine Unit in Philadelphia regarding scaffolding matrix compilation in 2014.
- Assisted with planning and implementing Ag Awareness Days and Farm & Industry Tours within the county to increase **agricultural literacy** in our community, which has been identified as a high-priority task by local county government
- Participated in Extension/USDA grant with Dr. Maria Correa (NCSU CVM – Epidemiology) to develop **bilingual public-health curricula pieces for youth** in partnership with Consejo Nacional de Clubes 4S de Costa Rica (2015-2017)
- Post informative, timely articles on the [NC Cooperative Extension - Chatham County Center website](#)
- Presenter at the [Livestock Conservancy](#) National Conference in Amherst, Massachusetts in 2016 to speak on **collaborative work** between 4-H, Extension, and heritage breed project

- Assisted Chatham County Government by serving as Extension representative on two **Collaborative Impact Teams** which were identified by the [Chatham County Comprehensive Plan](#): Agriculture & Natural Resources and Human Services Teams
- Assisted state specialists with developing new **4-H Butterfly Curriculum** which was piloted in Chatham County and state-wide in 2017
- Initiated piloted **non-formal curricula study** with local elementary school (NCSU IRB #6713) under direction of Dr. Jackie Bruce; findings to be submitted for journal publishing in Summer 2018 in hopes of assisting Extension educators and formal educator partnerships

How did you work with agent(s) in securing resources? Tell how all players were involved. What cross-disciplinary efforts and programs were you involved in?

I worked with other Extension professionals to develop programming for day and residential camps, school enrichment programs such as the 4-H Butterfly Project, to create meaningful content for ESL community 4-H club members, and enriching special interest workshops such as Holiday Baking classes with our FCS Agent. Below are notable cross-disciplinary efforts that have continued for the past several years:

- Partnered with county **sustainable ag agent** to (1) provide enriching day camp opportunities to campers related to pollinators and (2) serve as liaison to local beekeeper association for mentorship capabilities for 4-H club members; I secured funding for camp and club activities by way of a United Way grant totaling \$21,995.
- Planned, implemented, and secured funds/sponsorships for **county livestock show** with county livestock agent, program assistant, and Farm Credit Showmanship Circuit Committee; I assisted with securing 14 volunteers and \$1,890 in funding for the event.
- Planning and delivering **Ag Awareness Day and Farm & Industry Tour programs** with Chatham County staff, Farm Bureau Board members, Soil & Water, and FSA; I coordinated all 4-H activities, assisted with tour program planning and securing tour stops, and requested/secured \$5,000 from Farm Bureau for sponsorship of events.
- Assisted Area Specialized Agent (Dairy) with planning and implementing her annual **District Jr. Dairy Show**; I assisted by securing show volunteers for the two-day event.
- Planned and delivered **SNAP-Ed programming** to 2nd and 3rd-grade students with the county FCS agent in local elementary schools; I secured \$700 in donations from Siler City Rotary to augment federal funding to develop take-home materials for ESL families.
- Developed lessons for elementary educators participating in our 4-H Butterfly Project with the **county horticulture agent** and **EMG volunteers**; I coordinated the pilot program and secured \$3,150 to sustain the program via a Walmart Community Grant.
- Participated in Extension/USDA Seed Grant Project # 261103 (totaling \$9,808) with Dr. Maria Correa (NCSU CVM – Professor of Epidemiology & Public Health) to develop **bilingual public-health curricula** pieces for youth in partnership with Consejo Nacional de Clubes 4S de Costa Rica (2015-2017); I served as an Extension collaborator to provide age appropriate curricula and trademark consultation. Funds were handled by NCSU.
- Implemented **rare breed 4-H Embryology Program** with Area Specialized Agent (Poultry) and local non-profit agency, The Livestock Conservancy, in local Chatham County classrooms; breeder resources were provided by the ASA and Livestock Conservancy

staff, and I provided curriculum training and program planning/delivery to educators and students. I secured funding for school enrichment programming with annual grant from United Way totaling \$21,995.

These efforts are outlined in detail in Section III (Leadership Career & Professional Development) under the header “evidence of team efforts and value of teamwork.”

Documentation/Evidence of marketing programs:

- Visit the [Chatham Extension webpage](#), [Chatham County 4-H Facebook page](#), [Chatham Extension Facebook](#) page, and [Chatham County 4-H Twitter feed](#) to view news releases, program registration information, and flyer/brochure links for 4-H and Extension-related programming opportunities.
- I have published news releases and registration information for Extension programs in The Chatham News (weekly circulation of 4,100), The Chatham Record (weekly circulation of 1,600), The Sanford Herald (daily circulation of 9,000), and the Chatham Chatlist (daily circulation of 2,300).
- In order to educate our stakeholders and market new programming, I have served as a regular guest speaker for local community groups such as the Kiwanis, Siler City Rotary Club, Pittsboro Rotary Club, Kiwanis, local PTA entities, Chatham County Agri-Business Council, and NAACP East/West Chapters at monthly meetings.
- Many of our clientele do not have access to the internet and are hampered in their ability to learn of past/future programming that is disseminated only via electronic format; to address this need, I produce hardcopy prints of flyers, brochures, and newsletters to distribute to local schools, grocery stores, and libraries. Such content includes:
 - Monthly Chatham County 4-H [Cloverfields of Chatham Newsletter](#)
 - Available [scholarship assistance](#) from the local Extension office
 - Available 4-H camp opportunities and [registration forms](#)

See supplemental documentation:

- [Cloverfields of Chatham 4-H Newsletter](#) example (used to disseminate information from the Extension office in electronic and hardcopy forms)
- County Educational Plan: [Latino Youth Leadership Program](#) (example of comprehensive program planning to address need identified in formal focus group session I initially conducted in 2014)
- [Mastering 4-H Presentations Guide](#) (example of training handouts to supplement in-person training with youth and adults)
- [Best Practices Guide for Chatham County 4-H](#) (example of a best practices/operational guide for the county 4-H program; I wrote this guide for two primary purposes (1) for succession planning, in hopes that additional staff coming into the county office may have a centralized reference to existing programming and (2) to clearly denote all formalized collaborations and possible partnerships for the county program)

- Agricultural Literacy and Public Health Awareness booklets for youth: [Book 1 – Why did the chicken cross the Arabian Sea?](#); click [here](#) for the Spanish version (example of age-appropriate supplemental book addressing agricultural production and public health initiatives for youth)

III. Leadership Career and Professional Development

What training and/or in-service education have you completed and how have these opportunities helped you? How have you shared opportunities and information gained?

Below are some of the key in-service education and training opportunities I have participated in that have been especially valuable to me as a professional:

- **4-H Central Region Youth & Family Institute, 2013**
 - I found topics discussing 4-H awards program basics, **creating inclusive environments**, and accommodating youth with autism spectrum disorders (ASD) to be timely for creating afterschool 4-H opportunities with the local school system.
- **State 4-H New Professional's Orientation (NPO), 2013** (April, September, and December)
 - I gained a tremendous amount of information regarding the overall 4-H program, our mission, and our programmatic duties by attending the NPO series. The first series presented an overview of 4-H, how to create a county-specific program, and **evaluation methods**. The second series gave focus to organizational systems and managing those county-based 4-H programs. **Volunteer recruitment**, program delivery, and **conflict resolution** were addressed in the third installment.
- **State 4-H Program Webinar Monthly Updates, 2013-Present**
 - I have gained pertinent information to help me successfully conduct my job through sessions centered on 4-H awards programs, recognition techniques, camping updates, **various educational contests**, club enrollment, curriculum updates, and proper ES-237 reporting.
- **Information Management Classes (Adobe/Constant Contact), 2015**
 - Sessions provided me with skillsets to better produce informational material for clientele and more easily disseminate said material throughout the community.
- **NCD4E4-HA District Meetings, 2015-Present**
 - I have utilized information gained regarding time management, **collaborative work with county departments**, and programming to underserved populations.
- **State Extension Conferences, 2015, 2016**
 - I have readily utilized pertinent information related to maintaining and recruiting community clubs and offering diversified programming. Equally valuable are sessions I partook of related to **website design**, reporting systems, and a variety of program-specific classes such as weed identification, ration balancing for ruminants, and forage analysis.
- **NCAE4-HA Annual Conference, 2016**
 - Classes concerning **reaching underserved populations** and new STEM programming were helpful in school enrichment programs I offered to local middle schools.

- **Basics of Conducting an Embryology Workshop, 2016**
 - This workshop provided invaluable assistance in helping me to customize my county-based training and **augment in-person training with online offerings** as well.
- **NCAE4-HA Winter Professional meetings, 2016, 2018**
 - I found classes pertaining to reaching untapped populations and procedures for applying to service awards helpful for both myself and those I work with.
- **Agricultural & Human Sciences Training for 4-H Agents, 2017**
 - The “inclusive tools for Extension programming” session was wonderful; equally valuable was the caregivers’ workshop which has provided the groundwork for a new training collaboration between myself and the FCS Agent in our county.
- **Extension District Conference, 2017**
 - Information provided regarding offering superior customer service has helped me to create similar trainings for my volunteers in which we market our 4-H program.
- **NAE4-HA Professional Development Monthly Webinar Series, 2017**
 - I have participated in a variety of webinars focused on time management, creating partnerships within Extension, adding technology to camping programs, and creating **cultures of appreciation**. Many of these techniques have already been implemented in my Extension work.

I feel that it is a necessity for me to share the skills and knowledge gained from the aforementioned trainings by incorporating these learning opportunities into the programs I conduct, [articles I have written](#), and presentations I have delivered for various educators and community agencies. Such opportunities include:

- **Presenter at the Chatham County Board of Commissioners Annual Report, 2013-Present**
- **Guest speaker for United Way Community Awareness Week, 2013-2017**
- **Community Youth Agency Representative for Chatham County, 2014-2017**; assisted with program presentations to Rotary Club of Pittsboro, Rotary Club of Siler City, Pittsboro Kiwanis, Boys & Girls Club, and Communities in Schools – Chatham County.
- **Collaborated with local Parks & Recreation Director, Tracy Burnett, to bring a series of 4-H “grab-and-go” lessons to day camp programming hosted by Chatham County for youth in underserved area of the county in 2015.**

I also regularly participate in the **4-H Agents’ Q&A listserv**, answering questions and sharing advice with agents and program assistants across the state. I have shared many of my resources I have developed with others in hopes that they will follow suit and do the same for other colleagues.

Formal coursework completed

I enrolled in a master’s program in Animal Science at NC State University in the spring semester of 2012 and completed that program in the spring semester of 2014. I began my PhD program in Physiology at NC State University in the fall semester of 2014 with placement in a biomedical engineering lab, but I transitioned my doctoral work in the spring of 2015 to a degree program in Agriculture and Extension Education to better align with my desired career path. In

conjunction with my doctoral studies, I embarked on a minor course of study through the Youth, Family, and Community Sciences (YFCS) program and received a Graduate Certificate in 2017 in Youth Leadership & Development. I have now completed all of the coursework required for my doctoral degree and have begun working on my dissertation research, which is based upon an international agriculture and policy framework that will explore the educational and cultural barriers female agricultural producers face within Central America. Below are courses I have taken since 2012 and grades received:

Semester	Course	Hours	Grade
Master of Animal Science			
Spring 2012	ANS 552, Advanced Reproduction and Biotechnology	3	A
Summer 2012	ANS 540, Selection of Domestic Animals	3	A
Fall 2012	ANS 550, Applied Ruminant Nutrition	3	A
Fall 2012	ANS 525, Advanced Feed Science & Technology	3	A+
Spring 2013	AEE 526, Informational Technology in AEE	3	A+
Spring 2013	FM 580, Feed Quality Assurance	3	A
Summer 2013	ANS 575, Genomic Proteomics	3	A+
Summer 2013	NTR 500, Principles of Human Nutrition	3	A
Fall 2013	AEE 501, Foundational Ag & Extension Education	3	A+
Fall 2013	ANS 601, Animal Science Seminar	1	S
Fall 2013	ST 511, Experimental Stats Bio Sec I	3	A
Spring 2014	ANS 530, Applied Animal Reproduction	3	A
Spring 2014	TOX 501, Principles of Toxicology	4	A+
PhD – Physiology			
Fall 2014	GN 850, Professional Ethics	1	S
Fall 2014	PHY 893, Doctoral Supervised Research	3	S
EdD – Agriculture & Extension Education			
Spring 2015	AEE 523, Adult Education in Agriculture	3	A+
Spring 2015	AEE 577, Evaluation AEE	3	A+
Spring 2015	AEE 735, Effective Teaching in Agriculture	3	A
Fall 2015	AEE 521, Program Planning in AEE	3	A+
Fall 2015	AEE 578, Scientific Inquiry	3	A
Fall 2015	YFCS 556, Organizational System in Youth/Family Settings	3	A+
Spring 2016	AEE 777, Qualitative Research in ALS	3	A+
Spring 2016	ST 508, Statistics for Behavioral Sciences II	3	A
Summer 2016	AEE 507, Comparative Ag & Extension Education Programs	3	A
Fall 2016	AEE 705, International AEE	3	A+
Fall 2016	YFCS 553, Concepts in Child & Youth Development	3	A+
Fall 2016	YFCS 554, Collaborations & Partnerships in FYD	3	A+
Spring 2017	AEE 579, Research Design in AEE	3	A
Spring 2017	YFCS 550, Family & Youth Professionals as Leaders	3	A+
Spring 2017	YFCS 585, Professional Ethics in Family Policy	3	A+
Fall 2017	AEE 895, Doctoral Dissertation Research	6	S
Spring 2018	AEE 895, Doctoral Dissertation Research	3	-

Evidence of team efforts and value of teamwork

Investing in the time and resources to develop quality partnerships and collaborative efforts has been tremendously important in my work as an Extension professional. Understanding how to utilize the resources provided within my own and neighboring county Extension offices, local non-profits, and other departmental agencies has allowed my programming efforts to reach new and diverse audiences. Some of those most prominent efforts include the following:

- **4-H Summer Science Days, 2012-2013.** This summer program was designed to introduce youth to a variety of **STEM and STEM-related careers**. The 4-H Agent, myself (program assistant), and 4-H agents from Moore, Scotland, Richmond, and Hoke Counties developed this camping experience where youth could travel to various locations around the state to experience these available careers first-hand.
- **Heritage Breed 4-H Embryology Program, 2013-Present.** The 4-H Embryology Program had been offered in our county for a number of years before I joined the local office, but when I took over the program myself in 2013, I understood that there were tremendous resources in our local community to help us greatly enhance the program. In conjunction with the local Area Specialized Agent – Poultry and the Program Manager at the Livestock Conservancy in Pittsboro, NC, we were able to partner to create a heritage breed-focused Embryology Program that has **garnered national attention**. In partnership with Chatham County Schools, that program is now offered county-wide.
- **SNAP-Ed for Chatham County Schools, 2013-Present.** In partnership with the Family Consumer Sciences Agent, we have been implementing specialized SNAP-Ed (Supplemental Nutrition Assistance Program - Education) programming to youth in the Siler City area to assist them in making **healthy food choices** and **increasing their physical activity**. The nutrition expertise provided by the FCS Agent and partnership of Chatham County Schools have been vital resources.
- **4-H Butterfly Project, 2013-Present.** Seeing the need for a school enrichment program that could assist educators in better assisting students to conceptualize required Science Essential Standards objectives in the classroom, I **partnered with state curriculum specialist staff** and other county-based Extension professionals to begin work on a butterfly curriculum for elementary schools. That program was formally piloted in 2017 and has been a tremendous success here in the county with the Chatham County Schools and charter schools systems.
- **4-H + YMCA Afterschool Programs, 2014-Present.** In order to reach as many youth as possible within the county, it was evident that 4-H programming should travel *to the youth* instead of the youth traveling *to the 4-H programming*. In partnership with the YMCA of Chatham County, which conducts afterschool programming at 14 K-8 Chatham County Schools, we were able to bring monthly 4-H educational units into existing programs and increase our outreach capacity by over 250 youth annually.
- **4-H Adventures Day Camp Program, 2014-Present.** In partnership with the Chatham County Parks & Recreation Department, Chatham County 4-H was able to bring 4-H programming to a very rural area of the county at Northwest District Park near Silk Hope, NC. In order to expose youth to a variety of topics related to agriculture, STEM,

nutrition, safety, leadership skills, etc., I have **partnered with various leaders from the local community** to assist with programming during the camp; such leaders include: staff from the NC Cooperative Extension – Chatham County Center (livestock, horticulture, FCS, poultry, sustainable agriculture, and dairy), Soil & Water, NC Forestry, Silk Hope Volunteer Fire Department, Chatham County Sheriff’s Office, NC Wildlife Resources Commission, Central Electric Membership Corporation, Chatham County Historical Association, Chatham County Health Department, Chatham County Farm Services Agency (FSA), Chatham County Animal Rescue and Education (CARE), and numerous other entities. Exposure to these entities increased youth awareness of community groups, enabling them to consider possible future career paths and increasing their notion of civic engagement.

- **4-H & Residential Camp Partnerships, 2014-Present.** In partnership with Chatham County Department of Social Services (DSS) and Communities in Schools (CIS) – Chatham County, 4-H has been able to work with youth currently in foster care and/or receiving mentorship services from CIS to attend residential camp during the summer months. Each year, DSS and CIS identify youth from their programs who could benefit tremendously from a week of 4-H camp under the guidance of supportive and uplifting camp staff. Each year of this program, I have applied for grants from Central Electric Membership Corporation (\$3,000) and Triangle Community Foundation (\$10,500) to pay the registration costs in full; if not for the assistance provided by **need-based scholarships**, such families could not afford to send their child to camp. Many of these youth have joined our 4-H community clubs as a result of summer camp participation.
- **4-H Programming and Extension Master Gardener Volunteers (EMGVs), 2016-Present.** Due to the fact that much of our 4-H programming aligns with programming currently offered by EMG volunteers, I partnered with our county’s horticulture agent and first class of EMGV graduates in 2016 to help implement butterfly programs and vermicomposting lessons at local schools and summer camps. Their expertise has been invaluable and has **increased our in-classroom presence** within the school system **by over 300%** during the last two years.
- **4-H & Chatham County Emergency Operations, 2017-Present.** Discussions began in 2017 with the Chatham County Emergency Management Operator to bring a youth community preparedness opportunity into the county. Based on input from my 4-H advisory committee, I teamed with county operations staff to gain certification in MyPI (My Preparedness Initiative) North Carolina, a subset of MyPI National, to bring **youth community preparedness training** to teenagers within Chatham County. We are currently in discussions to develop a summer camp component of this program (to be offered in July 2018) and possible partnerships with Moore and Orange Counties.

List associations/affiliations that enhance your professional development. What roles did you play and/or positions did you hold?

- **ASAS** – American Society of Animal Science; member since 2012
- **NCAEPAAT** – North Carolina Association of Extension Program Assistants, Associates, and Technicians; member 2013-2015

- **NCDAE4-HA** – North Central District Association of Extension 4-H Agents; member since 2015
 - Rapport Committee member, 2015-2016
 - Public Relations & Information Committee member, 2016-2017
 - Constitution Committee member, 2017-2018
 - Non-association North Central District 4-H Program Committees include:
 - Horse Committee (2015-Present) – assist with educational competitions and volunteer recruitment
 - Volunteer Committee (2016-Present) – assist with Fall Leaders’ Day, Volunteer Leaders Conference duties, and volunteer recognition opportunities
- **NCAE4-HA** – North Carolina Association of Extension 4-H Agents; member since 2015
- **NACDEP** – National Association of Community Development Extension Professionals; member since 2017

What committees/opportunities in the county have you been involved in that relate to your position or support the mission of Extension? What is your Extension related community leadership involvement?

- Communities in Schools of Chatham County, Mentor Program (2013-Present)
- Chatham County Youth Dairy Advisory Committee Member (2014-Present)
- Chatham County Livestock Association, Advisor (2016-Present)
- United Way of Chatham County Volunteer Advisory Committee Member (2016-Present)
- Chatham County Agriculture Board, County Liaison & Advisor (2017-Present)

Community events/projects/organizations that I have participated in with contributing leadership roles include:

- **Chatham County Agricultural Awareness Day**, 2013-2016; event planning with Farm Bureau and Chatham County Soil & Water
- **Chatham County Healthy Kids Day**, 2014-Present; partnership with YMCA
- **Chatham County Earth Day Celebration**, 2015-Present; partnership with Chatham Solid Waste & Recycling
- **Virginia Cross STEM Career Exploration Days**, 2015-Present; partnership with Chatham County Schools
- **Chatham County Spring Ag Fest**, 2017-Present; event planning with Farm Bureau, Chatham County Soil & Water, Chatham County FSA, North Carolina Forestry, and the Chatham County Agriculture & Conference Center
- **Chatham County Livestock Association**, 2017-Present; association program planning

Honors, awards, recognitions received from 2013-2017:

- **Master of Animal Science**, 2014, NC State University (4.0 GPA)

- **Dr. John G. Richardson International Study Experience Award, 2015**
- **Promoted to Assistant Extension Agent (4-H), 2015**
- **Induction into NC State's Chapter of the Honor Society of Phi Kappa Phi, 2015-Present;** based on graduate work (master's and doctoral) with 4.16 GPA
- **Livestock Conservancy National Conference Speaker, 2016 - Amherst, Massachusetts;** presented on the collaborative efforts of 4-H and heritage breeders to bring genetic conservation and rare breed focus to 4-H Embryology Programs
- **United Way of Chatham County Service Award, 2016;** based on service to Chatham County and NC Commission on Volunteerism & Community Service
- **Graduate Certificate, 2017, NC State University (4.16 GPA) – Youth Leadership and Development**

List self-directed learning activities focused on career and professional development:

- **2017-Present:** I have enrolled in the [Chatham Leadership Academy](#), offered by Chatham County Government, with coursework focused on the supervisory track; this includes 106 hours of classwork related to financial planning, computer software, conflict management, and budgeting. This track should be completed in 2019.
- **2016-Present:** A substantial portion of our community contains native Spanish-speakers; similar to national statistics, approximately 13% of the US population are native Spanish-speakers. I have been engaging in [online Spanish classes](#) to better enable me to communicate with and serve that community population.
- **2016-Present:** Due to a significant focus on programming centered on cattle and cattle-related projects for my clientele, it is necessary to continually educate myself regarding trends, markets, and resources available to local producers. I have subscribed to [webinar sessions](#) offered by the **Southeast Cattle Advisor**, a collaborative effort of USDA-CSREES, Southern Region Risk Management Education Center, and local universities, which disseminates research-based marketing and production risk management information to ag-related professionals.
- **2015-Present:** In our community, Extension plays a significant role in **community preparedness efforts** and assisting with emergency action plans. As such, it was beneficial for me to take part in [CERT](#) (Community Emergency Response Team), [AERT](#) (Agriculture Emergency Response Team), and most recently, [MyPI](#) (My Preparedness Initiative) training certifications to better prepare myself and my community for future disaster relief roles.