

Delaware (Delaware State University, University of Delaware Combined) Annual Report - FY2021

Report Status: Approved as of 07/08/2022

Contributing Organizations

Delaware State University
University of Delaware

Executive Summary

Overview

Given the food systems issues related to COVID-19, it is not only necessary to produce enough food for the world population but also necessary to explore new crops for local production, explore safe methods for food storage and distribution, and educate consumers on safe food handling practices. Given the disruptions to food systems and changes in food purchasing habits by consumers in response to COVID-19 this issue was especially critical in 2021. According to a 2019 USDA report (Coleman-Jensen et al., 2019), more than 37 million people, including more than 11 million children, lived in a food insecure household before COVID-19. It is believed that these insecurities have been exacerbated by COVID-19 with disproportionate impacts to people of color. Additional pressures have been placed on food service industries because of the pandemic as capacities have been placed on indoor dining and consumer eating habits have transitioned to more take out and food preparation at home. Impact statements reflect UD and DSU research and extension efforts to improve food security and food safety within Delaware prior to and in response to the COVID-19 crisis

Several critical issue area features impacts related to our institutions' response to COVID-19. Innovation has been at the forefront of Extension educational efforts during the pandemic. All extension programs have migrated to an online format with no lead time. The silver lining in COVID-19 is Extension's ability to be flexible and responsive and adapt as needed to continue to provide excellence in educational programming in an all-new format. Between UD and DSU, hundreds of programs have been presented online since the pandemic began. UD Extension took this opportunity to enhance their web presence and now maintains a repository of online courses for individuals to watch asynchronously (<https://www.udel.edu/academics/colleges/canr/cooperative-extension/online-courses/>). We have continued to meet educational needs for certification in pesticides, nutrient management, and food safety at the level before COVID-19. DSU participated as co-lead the education and training of multiple users, focusing on small-scale limited-resource and minority producers and ranchers for the purpose of preventing the spread and mitigate infection and transmission of SARS-CoV2.

We will be adjusting our critical issues within the next planning process. Two changes for the future will be to include food insecurity and food safety within the nutrition and wellness critical issue and also to include Science, technology and Engineering, Arts and Math in the Personal and Economic Development critical issue.

Critical Issue: Environmental Stewardship in a Changing Climate

Environmental Stewardship in a Changing Climate critical issue area, impact stories feature research and extension effort around climate adaptations and mitigations. Warming temperatures, changes to our precipitation regime, and rising seas are expected to impact nearly every walk of life from how natural systems function, to how our food and goods are produced, to where humans live, work, and recreate. Impact stories focus on efforts to identify crop varieties that are resilient to heat and drought, understanding contaminant and carbon cycling under changing climatic conditions, identifying opportunities for mitigating greenhouse gases on our natural and working lands and ecosystem services on these landscapes in Delaware, and efforts to make our coastal communities more resilient.

Critical Issue: Personal and Economic Development

Under the Personal & Economic Development critical issue area, impact stories feature efforts to build new skills in youth and adults. The 4-H program has a long history of youth skill building and creating new leaders. Exposing youth to careers in science, technology, engineering, art, and math (STEAM) has been identified as a critical need as these fields are expected to continue to grow in the future.

And, adults still need support building their own skills to care for themselves and others. Again, the pandemic emphasized how critical these efforts are. Impact stories focus on efforts to create adult health insurance literacy, expand appreciation for STEAM fields in youth, and learn life skills and compassion for others in need

Critical Issue: Nutrition and Wellness

We have focused on research and extension activities to address food insecurity and food safety within our Nutrition & Wellness critical issue area. Given the food demands described above, it is not only necessary to produce enough food for the world population but also necessary to explore new crops for local production, explore safe methods for food storage and distribution, and educate consumers on safe food handling practices. Given the disruptions to food systems and changes in food purchasing habits by consumers in response to COVID-19 this issue was especially critical in 2020. According to a 2019 USDA report (Coleman-Jensen et al., 2019), more than 37 million people, including more than 11 million children, lived in a food insecure household before COVID-19. It is believed that these insecurities have been exacerbated by COVID-19 with disproportionate impacts to people of color. Additional pressures have been placed on food service industries because of the pandemic as capacities have been placed on indoor dining and consumer eating habits have transitioned to more take out and food preparation at home. Impact statements reflect UD and DSU research and extension efforts to improve food security and food safety within Delaware prior to and in response to the COVID-19 crisis

Critical Issue: Food Safety

THIS TEXT IS DUPLICATE OF BELOW NUTRITION AND WELLNESS

We have focused on research and extension activities to address food insecurity and food safety within our Nutrition & Wellness critical issue area. Given the food demands described above, it is not only necessary to produce enough food for the world population but also necessary to explore new crops for local production, explore safe methods for food storage and distribution, and educate consumers on safe food handling practices. Given the disruptions to food systems and changes in food purchasing habits by consumers in response to COVID-19 this issue was especially critical in 2020. According to a 2019 USDA report (Coleman-Jensen et al., 2019), more than 37 million people, including more than 11 million children, lived in a food insecure household before COVID-19. It is believed that these insecurities have been exacerbated by COVID-19 with disproportionate impacts to people of color. Additional pressures have been placed on food service industries because of the pandemic as capacities have been placed on indoor dining and consumer eating habits have transitioned to more take out and food preparation at home. Impact statements reflect UD and DSU research and extension efforts to improve food security and food safety within Delaware prior to and in response to the COVID-19 crisis.

Critical Issue: Science, Technology, Engineering, Arts & Math

DUPLICATE OF PERSONAL AND ECONOMIC DEVELOPMENT ABOVE

Under the Personal & Economic Development critical issue area, impact stories feature efforts to build new skills in youth and adults. The 4-H program has a long history of youth skill building and creating new leaders. Exposing youth to careers in science, technology, engineering, art, and math (STEAM) has been identified as a critical need as these fields are expected to continue to grow in the future. And, adults still need support building their own skills to care for themselves and others. Again, the pandemic emphasized how critical these efforts are. Impact stories focus on efforts to create adult health insurance literacy, expand appreciation for STEAM fields in youth, and learn life skills and compassion for others in need

Critical Issue: Sustainable Production Systems for Agricultural and Urban Landscapes

Within our Sustainable Production Systems for Agriculture and Urban Landscapes critical issue area, we have focused on impacts that feature work done on best practices in production. A 2010 report led by the University of Delaware College of Agriculture & Natural Resources ("The Impact of Agriculture on Delaware's Economy") found that the total economic contribution of all categories of agriculture in Delaware was \$7.95 billion in industry output and that the agricultural industry contributed \$2.5 billion in value-added activity, and \$1.6 billion in labor income, supporting 30,000 jobs. With more than 7.7 billion people in the world, farmers are tasked with producing more food on fewer acres in manner that limits environmental degradation. This requires continual improvements in practices to maximize yield, maintain profitability, and efficiently and effectively use inputs. Impact stories feature the research and extension activities around bee health, weed management, pest management, resilient plant properties, practices to improve animal health, and research to support a new aquaculture industry in the state. These activities help to identify and promote the best practices keep our producers profitable and competitive and meeting consumer demands for food and ag products

Merit and Scientific Peer Review Processes

Updates

None

Stakeholder Input

Actions to seek stakeholder input that encouraged their participation with a brief explanation

During COVID, we have added survey's to on online educational effort to assure that we are getting feedback on program needs in this new environment.

Methods to identify individuals and groups and brief explanation

None

Methods for collecting stakeholder input and brief explanation

None

A statement of how the input will be considered and brief explanation of what you learned from your stakeholders

None

Highlighted Results by Project or Program

Critical Issue

Environmental Stewardship in a Changing Climate

[Going the Extra Mile with Mailed Distribution of Credit Materials](#)

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002463



Going the Extra Mile with Mailed Distribution of Credit Materials

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

As required by Delaware law, those who apply fertilizer or manure to 10 or more acres and/or raise 8,000 pounds of live weight animals annually are required to become certified through the Delaware Nutrient Management Program. Once initially certified, those individuals must maintain their status through continuing education credit hours.

In 2020, UD Extension's Nutrient Management team expanded its online educational programming to accommodate COVID-19 pandemic restrictions. This work was continued in 2021 when credits were offered through 114 face-to-face programs or live webinars as well as through multiple self-paced online modules that could be done anywhere at any time — as long as participants had reliable internet access.

It soon became apparent, however, that program participants taking COVID-19 precautions who did *not* have access to reliable internet were being left behind.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

UD Extension's Nutrient Management program needed to provide opportunities that could be completed anywhere, at any time, and without internet access. To meet the needs of these individuals, continuing education modules were created and reformatted to be printed and distributed as hard copies. Program participants who requested these materials would receive up to 11 distinct fact sheets (totaling 6.25 credits) with corresponding quizzes they could return via provided return envelope. Modules were deliberately chosen to be inclusive of as many professionals as possible, with topics ranging from agronomy to poultry production to pasture management and everything in between. With assistance from the Delaware Department of Agriculture, the program was widely advertised through print media, with a large article on the program published in the Delmarva Farmer.

Although this initiative required UD staff to spend many hours developing and printing modules, mailing packets, grading quizzes and completing data entry, they were excited for the opportunity to bring clientele back into compliance with the Delaware Nutrient Management Law.

Briefly describe how your target audience benefited from your project's activities.

As of December 2021, 405 modules worth 217.25 credits have been completed and returned by 53 program participants statewide (an 81.5% total return rate). Participants often returned quizzes with notes of gratitude to the UD staff:

"Thanks for facilitating a path to renew my certification! This is a very workable solution for me."

"Thank you so much for sending these to me! I appreciate it very much!"

Briefly describe how the broader public benefited from your project's activities.

UD Cooperative Extension prides itself on making every effort to accommodate all of its community members, without discriminating based on age, ability, income, or any other factor. This initiative allowed the UD Nutrient Management Program to fill a needs gap created by the COVID-19 pandemic and offer continuing education credit opportunities to all Delawareans, even those without reliable internet access.

Improving Delaware Plant Health, One Plant at a Time

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002462



Improving Delaware Plant Health, One Plant at a Time

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Plants decline and die for many reasons: diseases, insects, pests, abiotic issues and more. The University of Delaware Plant Diagnostic Clinic helps farmers, home gardeners, agribusiness clientele, landscapers and other community members in the mid-Atlantic region with their plant health problems. It is necessary to provide Extension agents and specialists, commercial businesses, federal and state officials, and private citizens with fast, reliable, and accurate disease diagnostics, and insect and weed/plant identification, so they can best manage disease and pest issues and know what management practices to take to remedy them for their situation. Disease and pest detection and prevention is essential to ensure agricultural and ornamental plant sustainability.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

In 2021, the UD Plant Diagnostic Clinic diagnosed 660 plant disease, insect, plant and weed identification samples. The majority of samples submitted were for disease diagnostics. In addition to the plant diagnostician, diagnostic consultants included faculty, staff and experts specializing in entomology, agronomy, horticulture, nutrient management, turfgrass science, soil science and plant pathology. Sample Results and personalized management recommendations were communicated with clients in a timely manner.

Briefly describe how your target audience benefited from your project's activities.

People depend on the UD Plant Diagnostic Clinic for reliable and timely disease and pest diagnostics and accurate and up-to-date management strategies. Diagnostic Results were shared with the National Plant Diagnostic Network, state regulatory agencies, agricultural, horticultural and local communities as needed and through UD Extension outreach events. Client testimonials and replies indicated that the work done in the clinic was well-received and supplied people with the information, tools and strategies needed to remedy their disease, pest, weed and abiotic issues.

Client feedback included...

"Just want to say THANK YOU!!! You/your lab help my business immensely. So if there is ever anything I can do to repay the favor, please don't hesitate!!! I have to keep you in business to keep mine in business!!!"

"Great info ! Thanks for your quick response ! I will look forward to your help in the future as I'm sure more issues will develop as I go into my third season here."

Briefly describe how the broader public benefited from your project's activities.

Reduced plant disease and increased plant health and production

Marsh Habitat Quality & Blue Crab Population

Project Director

Gulnihal Ozbay

Organization

Delaware State University

Accession Number

7002680



Marsh Habitat Quality & Blue Crab Population

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

As a commercially important wild harvest fishery species, there is considerable interest in monitoring blue crab population levels and improving our understanding of their ecology to enhance their management. Blue crabs are opportunistic omnivores with a broad potential prey base including plants, detritus, worms, bivalves, small fish, and even other blue crabs. Therefore, the blue crab diet may be highly reflective of local prey bases where different combinations of prey items may affect their growth, survival, and population size differently. Blackbird Creek, located in northern Delaware, is characterized by extensive salt marshes populated by saltmarsh cordgrass (*Sporobolus alterniflorus*, also known as *Spartina alterniflora*) and the invasive common reed (*Phragmites australis*). It is the only estuarine system in Delaware that has not been physically altered and is a National Estuarine Research Reserve System. Blackbird Creek hosts a widespread native blue crab population and local Delawareans routinely visit the creek for crabbing. However, as the shoreline of Blackbird Creek changes with the spread of the common reed, biodiversity within the Creek has declined. As such an assessment of blue crab feeding ecology in response to a changing climate including increases in the invasive common reed are needed to predict how the blue crab population of Blackbird Creek may be affected and to promote effective management of the remaining population. For this project, we focus on two complementary approaches to assess blue crab feeding ecology: 1) Stomach content analyses which provide insight into prey items recently consumed by individual blue crabs, and 2) stable isotope analyses which, when taken from different target tissues, provide longer-term trends on blue crab feeding ecology integrated over different time scales.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

We collected blue crabs from five sites in Blackbird Creek using baited crab traps deployed overnight. These sites have been previously characterized by the dominant vegetation on the shoreline. Water quality data was taken onsite using handheld instruments, and water samples were collected for lab analyses of sediment and nutrient content. The water quality parameters measured onsite include temperature, pH, salinity, conductivity, Total Dissolved Solids (TDS), and dissolved oxygen. Nutrient parameters include nitrates, nitrites, ammonia, alkalinity, and calcium hardness. Collected crabs were frozen for stomach content analyses. Tissue samples will be taken for stable isotope analyses. In 2020, crabs were collected on two

separate occasions in early and late October. Fieldwork was completed in 2021 and lab work to complete gut analysis has commenced. Sediment sample processing also started in fall 2021. Prey items found in crab stomachs will be identified and compared between sites as well as carbon and nitrogen stable isotope ratios. Links between each crab's stomach contents and that crab's stable isotope ratios will also be examined. Prey items found in crab stomachs are compared among sites. Carbon and nitrogen stable isotope ratios are also being compared among sites. Relationships between each crab's stomach contents and that crab's stable isotope ratios are being examined.

Briefly describe how your target audience benefited from your project's activities.

Two professional staff, three graduate students, and one undergraduate student contributed to the program. Crabs were collected on two separate occasions in early and late October. Young technical staff and students involved in this project developed skillsets for field monitoring and sampling. They learned how to use the boat, do sampling from the boat and work around the watershed. They learned to collect data, analyze and disseminate their data and later learn to present to the audiences. They also developed skills for taking good field sampling notes and developing a written report. They learned to work together while individually developing their own skillsets for any activities they involved in.

Briefly describe how the broader public benefited from your project's activities.

Blue crabs are an important top predator within salt marsh estuary environments. They are also a valuable fishery for recreational and commercial operations. Our program will enhance our understanding of blue crab feeding ecology within Blackbird Creek, providing insight for the management of this valuable population. This project outcomes will be valuable resource for the state agencies and resource managers and also public to become more considered as we observe relationship between the impacts of land use activities on blue crab population.

Describe and explain any major changes or problems encountered in approach. Additionally, note opportunities for training and professional development provided, how results have been disseminated to communities of interest, and any new details regarding what the project or program plans to do during the next reporting period to accomplish the goals.

Not Provided.

Critical Issue

Food Safety

[Ensuring food safety for Delaware consumers](#)

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002467



Ensuring food safety for Delaware consumers

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Foodborne illnesses are a common and costly – yet preventable – public health issue. According to the Centers for Disease Control and Prevention, approximately one in six Americans (nearly 48 million people) get sick, 128,000 are hospitalized and 3,000 die of foodborne illnesses each year (CDC, 2017). UD Extension addresses this problem in a variety of ways by educating and engaging with a variety of professionals, from producers and regulators to entrepreneurs and community organizations.

In the agricultural sector, the 2016 Food Safety Modernization Act (FSMA) Produce Rule requires that growers of fresh consumed produce attend a Produce Safety Alliance (PSA) Grower Training Course, approved by the US Food and Drug Administration.

In the foodservice sector, the State of Delaware requires that every licensed food service establishment have at least one person in charge of each shift certified in food safety through an approved food safety course. In addition, individuals who want to produce certain foods from home must take an educational food safety course that culminates in a certification exam.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

UD Extension works with Delawareans in both industries to offer relevant training opportunities to fulfill federal and state training requirements and reduce the instances of foodborne illness among consumers.

To help Delaware and Maryland producers comply with the federal Produce Safety Rule, five University of Delaware representatives facilitated virtual Produce Safety Alliance (PSA) Grower Training Courses in January, February and November of 2021. To help them complete their required FSMA on-farm inspections, a team comprised of UD Extension and Delaware Department of Agriculture food safety leaders assisted producers with the On-Farm Readiness Review (OFRR): a scheme designed to move farmers away from the audit checklist and foster dialogue.

Similarly, UD Extension offered Servsafe®, Dinesafe, and Food Safety for Entrepreneurs courses to Delawareans in the foodservice industry. Instructors from UD Extension conducted eight Servsafe® classes, one Dinesafe class and one (hybrid format) Food Safety for Entrepreneurs training.

Briefly describe how your target audience benefited from your project's activities.

In 2021, 56 attendees completed PSA training and received Association of Food and Drug Officials (AFDO) certificates. Post-training tests for 2021 indicate that scores increased on average 14% from previous years. Data from the last five years shows that 95 percent of attendees felt that the information provided prepared them to implement regulatory requirements.

UD Extension and DDA staff completed seven OFRRs averaging about 3 hours per site. The 19 personnel involved were receptive to the suggestions for FSMA-compliant farm improvements. Some specific issues addressed during these reviews included improving handwashing room facilities, modifying packing areas for easier cleaning and improving drainage to prevent flooding.

Within the foodservice sector, 56 individuals attended Servsafe® classes (42 passed the exam), 22 individuals attended the Dinesafe training program and 18 individuals attended the Entrepreneur classes (all 18 passed exam). Post-program surveys from participants who attended Servsafe® and Dinesafe classes showed that those individuals serve approximately 19,000 customers per day.

Briefly describe how the broader public benefited from your project's activities.

UD Extension worked with Delawareans in the agricultural and food service sectors to help them fulfill federal and state training requirements and reduce the instances of foodborne illness among consumers.

Critical Issue

Nutrition and Wellness

Better Health for Delaware's Youth

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002436



Scoring better health for Delaware's youth

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

During the summer of 2021, Delaware 4-H offered the Soccer for Success program: an all-levels, inclusive youth development program that incorporates health, wellness and soccer. This program reached 182 youth 6 to 12 years old at Eisenberg Elementary School, Dagsboro and Milford Boys & Girls Clubs, Laurel Public Library, and (remotely) at Lake Forest School District. Additionally, 65 youth attending Sussex 4-H Camp or The Ark Day Camp received a one-hour introduction to soccer.

A teens-as-teachers model was implemented for Soccer for Success to train five teen Health and Wellness Ambassadors. These teens engaged in healthy living behaviors themselves and assisted at Soccer for Success site locations serving as models and educators for the youth involved. Eight adults and one teen completed the coach-mentor training to carry out Soccer for Success lessons at their respective locations.

Briefly describe how your target audience benefited from your project's activities.

The 182 youth who participated in the entire program received at least 8 to 15 hours of physical activity and education and were gifted pinnies/t-shirts, shin guards, soccer balls and bags. Additionally, the host sites were permitted to keep the pop-up soccer goals to promote activity year-round.

The Soccer for Success Program was well received by youth and staff alike statewide;

- “Your soccer educators are doing an amazing job with our kids. We appreciate all that you guys are doing.” “The kids have absolutely loved this program!” — Eisenberg Elementary site coordinators.

- “It was an awesome summer and thank you for the great collaboration. We definitely look forward to whatever programs you have available next year.” — Child Care Director, Milford Boys & Girls Club.

- “Our kids loved Soccer for Success so thank you for introducing us to the program and for your help,” — 2021 leader/parent.

- “We absolutely LOVED working with you guys last summer. The students still talk about it” — Participating site leader.

Briefly describe how the broader public benefited from your project's activities.

The Delaware 4-H Soccer for Success program brought health, wellness and soccer education to 247 Delaware youth and provided them with equipment and skills to be more active year-round.

Vaccinate with Confidence

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7000132



In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Haitian communities in Delaware, [estimated to have a population of close to 15,000](#)¹, exhibit high vaccine hesitancy and low vaccination rates. According to key informants, this population is concerned with how fast the vaccine was developed and believe there is not enough knowledge about it. Some even express concern that the vaccine is being tested on those that take it.

Consequently, members of the Haitian community who do seek education or vaccinations are left to navigate the process alone, an effort made difficult due to lack of accessible and appropriate resources.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

The Extension Collaborative on Immunization and Teaching Engagement initiative (EXCITE) addresses vaccination disparities in underserved communities. University of Delaware Cooperative Extension collaborated with Haitian leaders and state health entities to create and distribute COVID-19 information and resources to Delaware's Haitian communities. This includes providing educational materials, health products (masks and hand sanitizer) and displays for in person events statewide.

Briefly describe how your target audience benefited from your project's activities.

The EXCITE initiative directly reached more than 1,000 individuals at community events and created ten educational materials for Haitian Creole and Spanish speakers. At those events that offered the COVID-19 vaccine, 46 community members received the vaccination. UD Extension shared updates on this work and relevant information about COVID-19 current events and news on our website and social media accounts.

UD Extension also facilitated discussions between Haitian leaders and the Delaware state marketing team to decrease the gap between information offered at the state level and the needs of the Haitian community. These discussions included prioritizing materials, examining translations and keeping information culturally relevant.

Next, the State of Delaware, Haitian leaders and other health professionals in Delaware will work together to develop new messaging that partners can directly share with Haitian audiences statewide. These materials will include videos, posters, handouts and digital media messaging.

Briefly describe how the broader public benefited from your project's activities.

Haitian communities in Delaware exhibit high vaccine hesitancy and low vaccination rates. To improve rates, UD Cooperative Extension (via EXCITE) collaborated with Haitian leaders and state health entities to create and distribute COVID-19 information and resources to Delaware's Haitian communities. This project reached more than 1,000 individuals, created ten educational materials for Haitian Creole and Spanish speakers and vaccinated 46 people.

[Addressing Chronic Disease Through Lunchtime Physical Activity](#)

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002466



[Addressing Chronic Disease Through Lunchtime Physical Activity](#)

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Chronic diseases such as heart disease, cancer and diabetes are the leading causes of death and disability in the United States. Many chronic diseases are caused by a shortlist of risk behaviors, including lack of physical activity. According to the Delaware Behavioral Risk Factor Survey, about one-fourth of the adult population in Delaware reports having been diagnosed with arthritis. The prevalence of arthritis increases with age: about 25 percent of 45 to 54 year-olds reported having arthritis and the prevalence increased to just over 36 percent among 55 to 64-year-olds and just over 47 percent among those aged 65

and older. Of Delaware adults diagnosed with arthritis, around 13 percent reported that arthritis limited their activities, more than nine percent stated arthritis limited their ability to work and more than five percent stated their arthritis limited their social activities.

Hypertension and high blood cholesterol, both of which affect more than a third of the state's adult population, are the most prevalent chronic conditions. In 2017, 34.9 percent of Delaware residents aged 18 and older reported they had been told by a health care professional that they have high blood pressure. Additionally, more than 34 percent of Delaware adults reported they had been diagnosed with high blood cholesterol.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

The Walk With Ease program is an evidence-based fitness program sponsored by the Arthritis Foundation. The Walk With Ease is proven to

:

- Reduce the pain and discomfort of arthritis

- Increase balance, strength and walking pace

- Build confidence in one's ability to be physically active

- Improve overall health

For six weeks, participants joined live virtual education sessions once per week during their lunch break and participated in self-directed physical activity at least three times per week when it was convenient for them. In addition, weekly guidebook reading assignments, email support and additional resources are provided.

Briefly describe how your target audience benefited from your project's activities.

2021 Walk With Ease program participants reported:

- 100% were physically active for at least 11 to 30 minutes three or more days per week

- 96% felt that maintaining or increasing their physical activity was important

- 86% felt confident in maintaining or increasing their physical activity

- 80% increased their understanding of the benefits of exercise for people with arthritis and chronic disease, as well as their knowledge about physical activity and walking

- 100% plan to continue their physical activity routine as a result of the Walk With Ease Program

- 80% stated the Walk With Ease helped or supported their efforts to be physically active

- 80% stated they would recommend Walk With Ease to a friend, family member or co-worker
- 100% stated they used the Walk With Ease participant guidebook
- 80% stated they will use the participant guidebook, emails or handouts in the future
- 100% stated they were happy with the program length
- 80% were happy with the Walk With Ease program overall
- Other program accomplishments reported by program participants:
 - "I started riding my bike more."
 - I lost an additional three pounds..."
 - "I liked the Walk With Ease program and have been using the workbook...I have arthritis but was also recently diagnosed with IT band tendonitis, so the stretching exercises have really helped with that."

Briefly describe how the broader public benefited from your project's activities.

The Walk With Ease program provides Delawareans the knowledge and support they need to begin and maintain a cost-effective, basic fitness program. This is also a wonderful program for employers to offer their employees!

Eating Smart & Moving More Across Delaware

Project Director
 Michelle Rodgers
 Organization
 University of Delaware
 Accession Number
 7002465



Eating Smart & Moving More Across Delaware

Final Result

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

educating individuals about healthy eating and using food resources wisely is critical to addressing obesity and chronic disease among people in Delaware's low-income populations.

According to the United States Census Bureau (2018), the poverty rate in Delaware is 12.5 percent, a figure that includes 13.7 percent of families with children under 18 and 31 percent of families with both a female head of a household and children under 18. Statewide, the average SNAP household income is \$28,258 and 36.6 percent of SNAP families live below the poverty line. As a result, 61,275 households, representing 125,239 Delawareans, received SNAP benefits in 2019. (United States Department of Agriculture - USDA).

At the same time, Delaware's adult obesity rate currently sits at 33.5 percent, with the eighteenth highest adult obesity rate in the nation and the sixteenth highest youth rate for ages 10 to 17.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

To address these concerns, UD Cooperative Extension offers the Expanded Food and Nutrition Education Program (EFNEP), an educational opportunity that boasts a minimum of 6 hours of interactive, hands-on education. The program focuses on developing participants' skills to make healthy food choices based on their budget, use their resources wisely, handle food safely and participate in physical activity each day. These tools help improve a family's self-efficacy in choosing and preparing healthier food options.

Briefly describe how your target audience benefited from your project's activities.

In 2021, 212 Delawareans participated in EFNEP. As a result...

- 91% improved one or more food resource management skills, including
 - planning meals in advance (42%),

 - comparing prices when shopping (37%),

 - using a grocery list (27%), and

 - cooking dinner at home (34%).

- 65% showed improvement in one or more food safety practices.

- 33% increased fruit intake.

- 40% increased vegetable intake, including
 - 40% eating dark green vegetables more often each week.

- 60% of participants showed improvement in one or more physical activity behaviors:
 - 40% increasing the number of days they exercised at least 30 minutes a day, and

 - 42% making small changes to be active more often.

Briefly describe how the broader public benefited from your project's activities.

The Expanded Food and Nutrition Education Program improves the health and wellbeing of limited income adults throughout Delaware by introducing them to nutritious foods, improving their food safety practices, increasing their physical activity, and increasing their overall knowledge surrounding healthy eating.

[Improving Nutrition Education and Access for Delaware's Low-Income Communities](#)

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002468



In 2-3 sentences, briefly describe the issue or problem that your project addresses.

The ongoing COVID-19 pandemic continues to impact family food security throughout the nation and in Delaware. In order to better understand and meet the needs of families and individuals throughout the state, the University of Delaware shifted activities funded through SNAP-Education to focus on surveying individuals about online ordering and changing retail needs given the situation and also looked at opportunities to engage individuals in changing environments to better support safe and healthy ways to access and use fruits and vegetables.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Throughout 2021, University of Delaware Cooperative Extension continued to address the needs of the communities across the state with large numbers of SNAP-eligible residents. Strategies focused on research related to topic interests for social media, research on retail needs during a changing shopping climate, and education and access strategies for youth and families around gardens and school-based learning. The research on retail needs will be conducted in FY2022 via survey and results will be used to inform a pilot program for families in Dover and Harrington.

Briefly describe how your target audience benefited from your project's activities.

To better understand what people are seeking in terms of education through social media platforms, a market survey was conducted in spring 2021. A total of 417 respondents representing communities throughout the state provided feedback. These results will inform ongoing educational efforts via social media:

- 44% of respondents 25 to 44 years old would prefer to engage in nutrition education through virtual live programming.
- 64% of respondents shared that the hardest part of eating healthy or engaging in nutrition education is that it is too expensive.
- 81% of respondents are looking for information around healthy eating on a budget.

Additionally, 341 students and their families now have access to fresh produce through a school garden thanks to new beds built on the school grounds. Finally, nutrition educators produced videos to support the use of farmers market produce, an initiative that gained 6,258 views just on YouTube alone in 6 months.

Briefly describe how the broader public benefited from your project's activities.

Increased fruit and vegetable intake

[Addressing tobacco, drug and alcohol use among Delaware teens](#)

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002464



In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Addressing tobacco, drug and alcohol use among Delaware's youth helps ensure they become healthy and successful adults. And while the use of alcohol products and prescription drugs is declining among these age groups, data from the 2021 Delaware Epidemiological Profile Substance Use, Mental Health, and Related Issues paints a concerning picture:

In the last month, (2020) among Delaware eighth-graders...

- o 7% have consumed alcohol,

- o 5% have used vapes/e-cigarettes,

- o 7% have used marijuana and

- o 3% have abused prescription painkillers.

In the reported period (2018-2019) past month use among eleventh graders...

- o 23% have consumed alcohol,

- o 12% have used vapes/e-cigarettes,

- o 23% have used marijuana,

3% have abused prescription painkillers.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

UD Cooperative Extension 4-H educators helped youth and adults in Delaware develop skills necessary to avoid tobacco, drug and alcohol use while building leadership. We achieved this by creating belonging and trust within communities through dozens of direct education programs, community activities and information dissemination.

Briefly describe how your target audience benefited from your project's activities.

These efforts culminated in reaching scores of Delawareans of all ages and a number of positive and promising comments.

Direct education programs:

- o Botvin Lifeskills Program (598 youth participants)

- o Botvin Teachers (74 adult participants)

- o GEM Mindfulness (258 youth and adult participants)
 - One GEM for Teachers participant noted that she “came to know each student so much better than had previously and to understand their motivations and needs.” Her plan is to utilize the lessons with her 9th grade students, and then circle back with them at 12th grade to review how they have completed their goals.

- Youth Wellness and Fitness (46 youth/teen participants)
 - Escape the Vape Lessons (459 youth and adult participants)
 - Of the youth participants surveyed, 52% and 43% of youth answered definitely yes and probably yes to the question Do you think young people risk harming themselves if they vape from 1-5 times per day?
 - Botvin Prescription Drug Abuse (7 Teen Ambassadors Trained and 100 youth participants)
 - Nutrition & Fitness Lessons (PANO) (439 youth and adult participants)
 - Common Household Items Teens Misuse & Drug and Gambling Trends (97 adult participants)
- Community activities and outreach:
- A National Drug and Alcohol Facts contest
 - 100% of youth participants agreed or strongly agreed that they *became aware of something I had not known about related to tobacco, alcohol, or drug use.*
 - Virtual and in-person Health and Wellness Ambassadors Teen Group leadership meeting, 5k walk and 5k hike (18 reached)
 - 4-H National Healthy Living Summit (3 of our teens taught for 40 teens across the nation)
 - Delaware Goes Purple Collaboration with the Sussex County Health Coalition
 - Plogging for Purple cleanup with Consequence of Habit (42 youth and adults reached) Participants collected **39** pounds of litter

Information dissemination:

- Social media posts and website content (2811 youth reached / 5105 adults reached)
- [4-H Behavioral Health and Wellness Website](#) curriculum (46 teens reached)
 - Of teens that completed this Youth Wellness and Fitness Curriculum, 100% strongly agree and agree that exercise impacts both physical and mental health!
- Kids Day Display at the DE State Fair (reached 500 youth and adults)
- 21 Days of Mindful Breathing Booklet (59 booklet requests, representing education for 5449 youth and 1305 adults)

Briefly describe how the broader public benefited from your project's activities.

Delaware 4-H, Cooperative Extension, and many external partners used a multifaceted to build a sense of belonging and trust between adults and youth to help them make positive choices about tobacco, alcohol, and drugs and healthy habits.

[The Brown Bag Parenting Education Program](#)

Project Director

Quadia Muhammad

Organization

Delaware State University

Accession Number

7002692



The Brown Bag Parenting Education Program

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Strong families are the basic building unit for our future citizens, yet those charged with this important responsibility often lack the resources to become the best parents possible. For clients receiving Temporary Assistance for Needy Families (TANF), access to parent education resources can be especially challenging. The Brown Bag Parenting Education Program fills this gap by providing access to research-based education to Delaware's most vulnerable citizens. Brown Bag Parenting (BBP) is an at-home learning program that is a compilation of disciplinary, nutritional, financial, and educational activities that parents, grandparents or caregivers can use with their pre-K to 13-year-old children. Clients who complete and pass the program receive a certificate that is accepted by Delaware Health and Human Services - Temporary Assistance for Needy Families (TANF). From January through mid-December 2021, 425 clients enrolled in the Brown Bag Parenting Education program. Of the 425 clients enrolled, 250 clients completed the parenting education certificate.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Of the 425 clients enrolled, 250 clients completed the parenting education certificate. During 2021, there was an increase in client participation in Kent and Sussex counties resulting in a 25% increase from 2020. As this is the second year of the COVID-19 pandemic, Brown Bag is one of the few programs that participants can complete in a non-traditional setting. Eight lessons comprise the program, along with quizzes and assessments to evaluate the client's knowledge. Parents who have completed the program shared that the lessons on communicating within the family have helped them to resolve familial issues, to work together as a team, and to become better listeners. Additionally, BBP places a lot of emphasis on nutrition. Parents have commented on how these lessons have taught them to be conscientious decision-makers when they are buying food, preparing meals, and feeding their families. BBP gives parents the knowledge and resources to be engaged, thoughtful, parents.

Briefly describe how your target audience benefited from your project's activities.

The Brown Bag Parenting Education program is now more accessible, and communication is more efficient for low-income Delawareans receiving TANF. The Family and Consumer Science Educator received positive feedback about the program from clients and case managers alike.

Briefly describe how the broader public benefited from your project's activities.

This program builds stronger families which makes a stronger community.

Critical Issue

Personal and Economic Development

[Green Job's Virtual Camp](#)

Project Director

Quadia Muhammad

Organization

Delaware State University

Accession Number



Green Job's Virtual Camp

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Over the summer, Green Job students attended a virtual camp in partnership with Delaware State University's Cooperative Extension's Small Farms program. Small Farms coordinator, Andy Wetherill, noted the lack of financial education for students (despite this being the first job for many). The Green Jobs program, administered through the mayor's office in Wilmington Delaware, provides 14 -18-year-old Wilmington residents with a six-week experiential outdoor experience in environmental work, career exploration, agriculture, business and mentoring. As a partner organization in the program, Delaware State University provides 25 hours of experiential learning in Agriculture, food and nutrition, finance and entrepreneurship. To further enhance program goals, Mr. Wetherill requested the integration of financial literacy to enhance career readiness among the students that participated in the programs. Thus Mrs. Quadia Muhammad the Family and Consumer Educators delivered the financial literacy training

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

A total of 10 participants benefited from this training in 2021. Ninety percent of the students indicated that they benefited greatly from the training and further stated that they will adopt some of the learned practices in the future.

Briefly describe how your target audience benefited from your project's activities.

By introducing financial literacy education into the Green Jobs program, students were better equipped to handle financial situations, learned how to save and budget, and increased their knowledge of banking and credit, with the overall goal of establishing a habit of saving. The course included a PowerPoint titled "Money Lessons with Jay-Z" and a budgeting activity. The session was followed by a Q&A session which was open and engaging. The three-hour training provided students with practical knowledge, skill-building opportunities, and resources they could use to manage their finances with confidence. Students discussed their future goals which included attending college, purchasing a home, and starting a business. By providing comprehensive financial education, Green Jobs is helping its students to enhance their financial skills and to become good financial stewards. As a result, students gained or improved knowledge, skills, and confidence to manage their money effectively, to achieve economic independence, and to reach their future financial goals.

Briefly describe how the broader public benefited from your project's activities.

As youth learn and understand how to handle finance situations, it makes the next generation better equipped to stay fiscally responsible.

Outdoor Paint Party

Project Director

Beverly Banks

Organization

Delaware State University

Accession Number

7002697



Outdoor Paint Party

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Underserved communities, especially youth, like being a part of something positive and enjoy being part of the upbeat activity. They also like the ability to share in the success of activity by being a mentor as well as being appreciated.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

OUTDOOR PAINT PARTY! Due to COVID there has been limited one-on-one contacts with youth and adults. This created isolation from 4-H members, volunteers and parents. Youth were not able to work together in person to accomplish goals. When the weather became warmer and the restrictions were lifted to be able to function outside with masks and other COVID guidelines, a recreational activity was opened to those 4-H youth, parents, and volunteers who wanted to participate, A committee was formed. With resources coming from a team of workers, the activity was scheduled. Each committee member was able to bring resources to the table.

Briefly describe how your target audience benefited from your project's activities.

Youth involved became more self-confident. The importance of being needed and able to share various talents lends less free time from the zoom, Facebook or any form of technology. Youth became disinterested in more zooming to learn. This project was a breath of fresh air. Youth became part of the decision-making and how the activity would run. Involving the youth gave them the opportunity to promote positive youth development. The environment of the day gave the youth the challenge of sharing their power and instruction for various ways to structure the activity. During this time the adults and youth were able to build partnerships with each other. The adults and youth determined that working together for the same goal. The participants were able to learn from each other. The youth were engaged. It gave them another opportunity to share in the controlled atmosphere. Both adults and youth allowed the day to flow learning from each other. The youth were the mentors of the day. They gave the instruction, worked with younger participants, served grab and go lunches, and awarded participation certificates. The day went well, and everyone served on the clean-up committee. Adults aided in purchasing supplies and assisted in the set-up. The children also incorporated physical activities that increased learning how to play corn hole and participated in simple games.

Briefly describe how the broader public benefited from your project's activities.

Instilling the ability to help others in youth makes for next generation of caregivers.

[Assessing Skill Development in Delaware Extension Volunteers](#)

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002459



Assessing Skill Development in Delaware Extension Volunteers

Final Result

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Delaware Cooperative Extension has more than 3,000 volunteers that cut across several research-based programs, including 4-H Youth Development, Master Food Educators, Master Gardeners and Master Naturalists. These volunteers amplify Extension's efforts by taking on responsibility for various projects, programs, events and activities. They must know their subject matter content and develop their skills in leadership, communication and teamwork. Regular assessments help determine necessary changes to our volunteer learning environments.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Working with the University of Delaware's Center for Research in Education and Social Policy (CRESP), Extension personnel from both the University of Delaware and Delaware State University, designed a two-phased study of Delaware Extension volunteer programs. Phase one entailed a series of volunteer focus groups from the Master Food Educator, Master Gardener, and 4-H programs. Focus group feedback informed phase two, the development of a quantitative survey tool that was distributed via email to current program volunteers with at least two years of service. In total, 404 volunteers received the survey during the spring and fall of 2021, and 215 responses were received (65% response rate). Survey respondents were

asked to indicate their motivations for volunteering, rate the quality of their training and their volunteer experience, and share how they have personally developed from their volunteer experience. CRESA staff used descriptive statistics to summarize all closed-ended survey responses, while open-ended responses were reviewed, coded, and analyzed using thematic analysis.

Briefly describe how your target audience benefited from your project's activities.

Most respondents volunteered for one Extension program (the majority represented the Master Gardener program) and identified as female, caucasian/white, and Non-Hispanic, with 68 as the mean age of respondents (range 31-85). About half of the respondents volunteer in New Castle County with the other half volunteering in Kent and Sussex counties.

Respondents acknowledged gains in their knowledge, skills, and abilities since becoming an Extension volunteer. Specifically, respondents expressed the greatest gains pertained to their sense of making a valuable contribution to the community (90%) and their confidence in their abilities (86%). Moreover, respondents felt they had experienced gains in their:

- self-esteem (60%),
- ability to work as part of a team (60%),
- comfort speaking with others (57%),
- ability to lead/encourage others (56%)
- comfort making presentations in the community (51%), and
- ability to make decisions and solve problems (51%).

Conversely, most respondents indicated no change because of their volunteer experience with respect to their:

- ability to follow instructions (61%),
- comfort with public speaking (53%), and
- ability to manage meetings (53%).

Extension programming directed at developing volunteer skills should focus on these areas while continuing to further develop the skills that respondents reported gaining.

In addition to their increasing their knowledge, skills, and abilities, most respondents indicated they have taken on a different role(s) (59%) and are engaged more (60%) at the community level since becoming an Extension volunteer — suggesting that Extension volunteers are more likely to engage in community issues. However, 59% of the respondents who volunteer with other organizations felt they do not apply the skills learned in their Extension work to their other volunteer experiences. Extension programming focused at volunteer skill development should emphasize how these skills can translate to volunteer and leadership efforts that benefit communities statewide.

Briefly describe how the broader public benefited from your project's activities.

A study of Delaware Cooperative Extension's 3,000 + volunteers has revealed that future volunteer skill development initiatives should emphasize how these skills can translate to volunteer and leadership efforts that benefit communities statewide, including those outside of Extension.

Building resilience in agriculture populations under stress

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002460



Building resilience in agriculture populations under stress

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

The stress and mental health issues that farm and agricultural populations face are well known. In 2019 the Northeast Regional Farmers and Ranchers Stress Assistance Network (FRSAN-NE) organized an evidence-based action network to offer practical and realistic responses to reduce stress and promote the mental health and well-being of farmers, ranchers, agricultural workers and agro-fishing workers and their families throughout the region.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

To provide an inclusive network of service providers dedicated to advancing the well-being of these individuals, the University of Delaware Cooperative Extension received funding to institute a FRSAN-NE Extension Cohort and hired a part-time coordinator, Jerri Husch, PhD in February, 2021. The initiative brought together Extension professionals in the Northeast to build on their cumulative expertise in dealing with farm stress, mental health and family, community and farm resilience.

Each land grant university in the region participated in the project. Together these members identified resources, created new training activities and worked with other FRSAN Cohorts to address the diversity of assistance needed for agricultural populations under stress.

From March 2021 to December 2022, the FRSAN Extension Cohort:

- Increased meeting participation from 3 to 14 committed members.

- Communicated regularly with more than 70 Extension professionals across the Northeast.

- Received a \$25,000 award for the “Using Humor for Communication” initiative, resulting in the formation of a Humor and Podcast Advisory team, hiring humor consultants, producing three training videos and designing a podcast series.

- Organized Monthly Extension Cohort meetings that built support for cross-state connections, wrote and analyzed survey questions to gain insight into Extension professionals’ emotional and professional support needs, facilitated discussion on potential workshops and delivered Extension-oriented presentations and workshops including the Queer Cohort report, NE Latinx Agricultural Communities and Stress and Farm Business.

- Drafted ‘train the trainer’ and education; materials for use in “Using Humor for Communication” workshops for service providers.
 - Promoted the research and collection of community-level GIS mapping data to understand the dimensions of diversity across agricultural communities in the Northeast.
- Meanwhile, active membership in the FRSAN Training Working Group
- Reviewed guiding documents for this group.
 - Supported development of procedures for all FRSAN Cohort training workshops.
 - Promoted and conducted Farm and Farm Family Resilience trainings and shared available resources.
 - Organized and implemented three “Latinx Workshops” with seven expert panelists that reached more than 30 participants. (The workshops and supporting materials were made available in both English and Spanish.)

Briefly describe how your target audience benefited from your project's activities.

The FRSAN Extension Cohort raised awareness of:

- The use of humor and improvisation as viable communication strategies for working with agriculture stress and mental health-related issues (garnering support for funding a “humor” project and related podcasts).
- Current Extension farm stress programs and how they can be adapted for different regions, needs and agriculture service providers.
- Relevant and culturally appropriate materials for Black, Indigenous and people of color.
- The availability of translation and “language justice” support for diverse communities.
- A “safe space” for conversations and connections across Extension professionals across the Northeast to identify needs and problem solve.

Briefly describe how the broader public benefited from your project's activities.

The Northeast Regional Farmers and Ranchers Stress Assistance Network expanded its reach in 2021 to more farmers, ranchers, agricultural and agro-fishing workers and their families to help them reduce stress and improve their mental health and well-being. This was achieved by creating and promoting an inclusive network of service providers dedicated to advancing the well-being of these individuals and by increasing the confidence and capability of service providers in offering appropriate mental wellbeing support.

[Extension volunteers make waves in their communities](#)

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number


In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Delaware Cooperative Extension brings university knowledge and resources to the people of Delaware — a mission driven mainly by the organization's agents, faculty and staff. But reaching the population of an entire state is inherently difficult, and limitations on capacity, funding and in-person programming can be challenging to overcome.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Delaware Cooperative Extensions' unique volunteer programs increase our ability to engage with the citizens of our state with a personal, community-oriented approach.

In 2021, these groups received extensive training in topics ranging from each program's subject matter to interpretive program design and evaluation, citizen science concepts, PSE community-level change theory and virtual learning/educating skills. In many of these programs, certifications relevant to the subject areas is also achieved at the completion of training.

Briefly describe how your target audience benefited from your project's activities.
Master Gardeners

The 2021 training class consisted of 57 Master Gardener trainees from New Castle, Kent, and Sussex counties. They are expected to complete the training program (course of study), volunteer 40 hours and gain an additional 5 hours of advanced training by Dec. 31, 2022, to become a certified Master Gardener.

Master Naturalists

Of the 46 participants eligible to receive full certification this year, 23 have graduated. The majority of the other half are still continuing their efforts to achieve certification. There will be an additional 54 eligible to receive full certification in 2022.

All three cohorts have begun their volunteer service with their respective Local Organizing Partners, and many have given above and beyond the 40 hours per year requirement. This has resulted in more than 1000 volunteer hours performed by Delaware Master Naturalists across 14 different organizations statewide.

Master Beekeepers

Of the approximately 32 candidates tested, ten will become Master Beekeepers that will go on to serve and educate in their state.

Master Wellness Volunteers

Three new volunteers were trained in the Well Connected Community Master Wellness Volunteer Curriculum. Added to the existing volunteers, 20 are continuing to engage virtually in health and wellness activities (training and events). To date, there are three school and community garden coordinators, one mindfulness and well-being coordinator and 16 master food educators. Volunteers have engaged in 71.5 hours of service for Extension.

4-H Health & Wellness Ambassadors

At present, there are 31 teens ages 12-18 enrolled from the 2021 year. Trained in topics including EFNEP Building My Body, Healthy Habits Up for the Challenge, Soccer for Success and Botvin LifeSkills Prescription Drug Abuse, these teens took their knowledge to their communities, reaching a total of 399 youth.

4-H youth and adult volunteers

Thirty-one youth and leaders attended a 4-H virtual training event to learn how to offer a virtual Critical Thinking Judging Contest to allow more youth to be involved and increase participation.

Briefly describe how the broader public benefited from your project's activities.

Training offered through Delaware Cooperative Extension enables our Master Gardeners, Master Naturalists, Master Beekeepers, Master Wellness Volunteers, 4-H Health & Wellness Ambassadors and 4-H youth and adult volunteers to extend our reach beyond current audiences, bringing university knowledge and resources to the people of Delaware.

Building skills and community through 4-H Service Learning

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002458



Building skills and community through 4-H Service Learning

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

The Delaware 4-H Program is known for providing a variety of hands-on learning opportunities to our members. 4-H service learning packs a double benefit: responding to a local community need while building personal character through service.

Researchers from New Mexico University have found that “students who are more civically engaged tend to perform better in school subjects such as reading, history, science and mathematics and are more apt to complete high school.” Additionally, community service was found to enhance students’ problem-solving, teamwork and planning skills. Our 4-H members reap these benefits through their many statewide community service projects and activities

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Throughout the year, 4-H Volunteers and staff provided Delaware 4-H members 5 to 19 years old with dozens of community service opportunities. Members volunteered to make cards for soldiers, donate to the Delaware Food Bank, clean up coastlines, made tray favors for the elderly, assist animal shelters, send cards to first responders, create care packages for the homeless and much more. On their website, Delaware 4-H created a list of more than 100 Community Service activities and ideas that members can access.

Briefly describe how your target audience benefited from your project's activities.

Delaware 4-H recently surveyed its youth members and adult volunteers for feedback about service projects. Many 4-H members reported an increased awareness of community needs and indicated that taking action in their community proved valuable. One member shared, “I feel like I accomplished something by helping someone I don’t even know.” Another member said, “I feel good when I help others and learn about the needs of individuals such as children, people with special needs and animals.”

Based on the results from our surveys (n=56), 4-H members are learning four essential life skills, including:

- Empathy (65%),

- Teamwork (27%),

- Leadership (25%), and

- Organization (10%).

Our members reported their most rewarding community service fell into the following categories:

- Donating or making items for the needy (39%)
- Helping the elderly (33%)
- Helping to clean our environment (31%), and
- Community improvement (10%).

When our youth respond to a local call to serve others, especially at a younger age, it starts a rewarding life habit. They can directly see the positive change in their community. They feel the benefit in themselves as well. They become change agents.

Our youngest 4-H servant leaders know they are making an impact in their communities. One 4-H member said it best. “We can’t do it all, but we can do something!”

Briefly describe how the broader public benefited from your project's activities.

Throughout 2021, Delaware 4-H members 5 to 19 years old were provided with dozens of community service opportunities that benefitted their communities and helped them build empathy, teamwork, leadership and organizational skills.

Life Skill and Mentorship for Delaware Youth

Project Director
 Harry Thayer
 Organization
 Delaware State University
 Accession Number
 7002687



Ladies and Gentlemen’s clubs of Delaware

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

This program targets low income, largely minority, at-risk youth that have been problem students are not gaining the necessary educational skills that lead to passing the mandatory state testing implemented by the State of Delaware, Department of Education. Without successful completion of these tests, students will be retained. The students identified have negative behavioral, social or academic issues not necessarily associated with the school system none the less the problematic issues exist. With a goal of educating students, change negative behaviors and allow these students to become respectable and responsible members of their schools and communities.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

65 youth in middle and high school attend weekly virtual meetings that include various activities and workshops that include conflict resolution, team building, self-esteem, mentoring, workforce preparation, financial planning, drug, alcohol, and smoking prevention, and other positive reinforcement. Students are then accessed by a point system that allows them to gain privileges that boost confidence levels for greater gains in the four keys areas of concentration, behavior, social and education. Each student goal is to reach 100 points per week. Points are given for good progress reports, good behavior and overall positive progress. Club goals are read and reinforced each meeting helping to build unity among club members. Each student is required to carry themselves in a gentlemanly and ladylike manner at all times, hence the name of the club.

Briefly describe how your target audience benefited from your project's activities.

Program Outcomes include greater knowledge by Delaware youth of the importance of academic performance, social skills, and job preparedness to their future careers. Youth adopting behaviors that reduce their risk of using alcohol, tobacco and related substances as well as youth and adults adopting increased leadership, communication, conflict management and decision-making skills.

Briefly describe how the broader public benefited from your project's activities.

Behavior change is the goal of this program, which gets students reconnect in school and community to be a positive member that can make better choices.

Master Gardener Workshops Online

Project Director

Megan Pleasanton

Organization

Delaware State University

Accession Number

7002688



Master Gardener Workshops Online

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

MG Workshops Online and Open to all The Kent County Master Gardeners are a group of volunteer's part of Delaware Cooperative Extension. The mission of the Master Gardener program is to extend knowledge of research based sustainable gardening practices to the community. The volunteers typically offer workshops in person with a hands-on approach at the Kent County Extension office or at the DSU Outreach and Research Center. The program needed to make some adjustments to be able to provide gardening educational opportunities to the community. Therefore, all the workshops for 2021 were offered online via ZOOM. Volunteers sprang into action creating live online workshop experiences with topics that ranged from backyard composting, a full vegetable series to houseplants 101.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

The Kent County Master Gardeners have held 17 live online workshops with a total of more than 850 participants in attendance. These workshops were recorded live and published on our new Delaware State University Master Gardener Webpage and directed to the DSU YouTube channel where there have been viewed by more than 500 people. Creating an online learning experience offered the opportunity for a wider reach of participants from different states and countries. Master Gardeners offering online workshops was increased participation numbers from traditional years. There was continued engagement with the community regarding sustainable gardening practices while maintaining compliance with the governor's stay at home orders. This opportunity also allowed the Master Gardener Volunteers to continue with their volunteer services by switching their techniques to a virtual platform. Once the Pandemic is over or lessens and workshops start to be conducted in the traditional way, the program will continue to offer the virtual experience to those that may not be able to attend in person. This could help those that work full time or those with mobility issues in the future.

The Sale Must go on: MG Virtual Plant Sale 2021 The Kent County Master Gardeners are a group of volunteer's part of Delaware Cooperative Extension. The mission of the Master Gardener program is to extend knowledge of research based sustainable gardening practices to the community. Each year they offer scholarships to students residing in Kent County Majoring in Horticulture or a related field. The scholarships are funded by profits from the annual plant sale held by the volunteers. In 2020 the volunteers were unable to have a plant sale therefore they needed to think outside of the box on how they would come up with the revenue to continue with the Scholarships for 2021. After many planning meetings and a written request to the Provost, they were approved to have a virtual plant sale where the customers would pick up the plants during designated

times while the volunteers wore appropriate Personal Protection Equipment to help reduce the spread of the COVID Virus. The volunteers donated all the plants for the sale and sold over 800 plants for a total income over \$4000 to be used for scholarships in 2022.

Briefly describe how your target audience benefited from your project's activities.

This opportunity also allowed the Master Gardener Volunteers to continue with their volunteer services by switching their techniques to a virtual platform. Once the Pandemic is over or lessens and workshops start to be conducted in the traditional way, the program will continue to offer the virtual experience to those that may not be able to attend in person. This could help those that work full time or those with mobility issues in the future.

Briefly describe how the broader public benefited from your project's activities.

The public benefits from the online access to workshops that were traditionally only available in-person during the workdays or weekends which not everyone that wanted to attend could. With the virtual workshops, the public can watch any time that suits.

Remembering the Past

Project Director

Beverly Banks

Organization

Delaware State University

Accession Number

7002698



Remembering the Past

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

The participants and younger generations do not know the history and struggles of slavery as individuals - to explain the sacrifices and able to face the hardships in order to solve problems and achieve individual goals - in several zoom lessons it has been instilled in youth to be knowledgeable of their history and embrace who they are.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Participants ended the session by seeing themselves as future goal achievers and thinking about future endeavors and visions to allow them to be respected and responsible of choices they make, have the courage to move outside the walls and accomplish greater things and pursue whatever they set forth before them as achievers. The participants will be able to reach back and keep the history alive to the younger generations because that is probably the only way that they at least experience the legacy. Most school don't include black history in the plan of study and if so, very little is taught except during black history month when Martin Luther King Jr. is at the forefront. There is more to it than that!

Briefly describe how your target audience benefited from your project's activities.

During this information experience, participants were able to encourage each other. They were able to develop and adopt quality ethical principles and behaviors that last forever. The participants learned the appreciation of their history. The learned to be the best citizens of courage and integrity. Youth were able to make vision boards and write down their plans in becoming and achieving their personal goals of who they want to become professionally. Youth were exposed to the idea of reading books and doing research to make them better aware of future plans. By explaining and modeling certain characteristics, the youth became better in caring for their community and volunteering to make a difference. The challenge to summarize this lesson, was for the youth to submit their own thoughts of being black and express how they feel.

Briefly describe how the broader public benefited from your project's activities.

As youth discover their past and learn history, they become more interested in themselves, their families and their communities. The youth also have a greater chance of doing better in school.

Seafood Distribution

Project Director

Dennis McIntosh

Organization

Delaware State University

Accession Number

7002682



Seafood Distribution

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Like most small businesses, DE fishers and aquaculture producers acutely felt the impact from COVID-19 as restaurants, one of their prime market outlets, were forced to close. As many of these individuals are small, family run establishments this impact was a significant blow to their financial stability. Further, most of the aquaculture producers in DE were just brining their first crop to market, so were carrying a large amount of overhead with virtually no returns.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

To help address this, Dr. Ed Hale and I applied for COVID Rapid Response funds from NOAA Sea Grant. Funds were used in three ways. The first effort was to establish a 'community supported fishery' or CSF. The CSF allowed us to connect these fishers and farmers with members of the community to sale/purchase fresh local seafood. This was facilitated by Drs. McIntosh and Hale serving as order takers, distribution site hosts, and delivery drivers. This was followed by the establishment of a local seafood website (<https://www.deseagrant.org/de-seafood-suppliers>) aimed at supporting direct to consumer sales of DE seafood. Our last activity was to use COVID Rapid Response funds to purchase oysters from the growers that were too big for their half shell markets and use these in restoration projects with the Center for the Inland Bays, and to help oyster harvesters in DE bay to enhance their beds for future harvest and sales.

Briefly describe how your target audience benefited from your project's activities.

The local seafood website continues to be a resource for DE fishers and aquaculture farmers. Despite the fact that several of the inland bays' shellfish growers have since cultivated relationships with local restaurants, our efforts have enabled some of these individuals to begin to develop multiple direct to consumer markets. Examples of this include sales at farmers markets, live shucking events at wedding and other events, the establishment of retail storefronts, and sale to wholesalers. The investment of funds from the NOAA COVID Rapid Response, and the creativity of Dr. Hale and the rest of the DE Sea Grant staff have enabled these business' to not only survive the pandemic, but most have come through stringer than when they started.

Briefly describe how the broader public benefited from your project's activities.

Through this new marketing channels, the public has a better connection to the local growers and fisherman. That connection means more local seafood being available for the public.

Teaching Youth Compassion for Those in Need

Project Director

Beverly Banks

Organization

Delaware State University

Accession Number

7002696



In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Working with local youth to show that DE communities care about those who went through devastation of a tornado and wish to do what they can to make a difference in the time of critical need.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Lend a hand campaign - members of DSU 4-H partnered with local church, YMCA and 50K Souls to collect cases of water to be delivered to those affected by the devastating and deadly tornadoes in KY.

Briefly describe how your target audience benefited from your project's activities.

During the year youth commit to giving back wherever they can. When this community came to light over the media, youth wanted to be a part of this project. They took this opportunity as a community service project. A couple of the youth were able to make contact to members of the local church which in turn the members contacted others. Within a couple of days, the cases of water were collected. Several youth and adults were able to load the donations on the truck and driven to distribution center. The youth accomplished a goal by supporting communities which were hit hard in crisis by encouragement to people letting them know that are not forgotten and that other care. The youth/adults working together were able to collect 60 cases.

Briefly describe how the broader public benefited from your project's activities.

Engaging today's youth into projects where they are members that assist and show compassionate for those in trouble, will make a better for our community as those children continue that behavior into adulthood.

Critical Issue

Science, Technology, Engineering, Arts & Math

Summer Science Programming

Project Director

Dean Purnell

Organization

Delaware State University

Accession Number

7002683



Summer Science Programming

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Students participating in summer science programming with Dean Purnell were able to walk through hands-on experiments using household items such as sunscreen and sun-sensitive paper, Mentos and Coke, and the most beloved combination, dry ice and fruit. The dry ice and fruit experiment is one of the most exciting as students learn how dry ice (solid carbon dioxide) placed in a pan with a rack of watermelon slices above it creates the cool phenomenon known as fizzy fruit. During these experiments, students are free to think about the scientific principles they are learning about and how they apply to everyday life. Students participating in summer science programming with Dean Purnell experience three distinct outcomes through this endeavor. The first is that they learned how to think critically and to solve problems. The second outcome is that students learn to ask good questions. These experiences with science help the students to not only ask "why" but also "what if?" This kind of engagement will serve them for a lifetime as they engage with a rapidly, ever-changing world. The skill of knowing how to ask good questions will lead them to places of innovation rather than stagnation.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Students participating in summer science programming with Dean Purnell experience three distinct outcomes through this endeavor. The first is that they learned how to think critically and to solve problems. The second outcome is that students learn to ask good questions. These experiences with science help the students to not only ask “why” but also “what if?” This kind of engagement will serve them for a lifetime as they engage with a rapidly, ever-changing world. The skill of knowing how to ask good questions will lead them to places of innovation rather than stagnation.

The final area for these students has been largely relational. By consistently showing up and taking an interest in student’s well-being, Mr. Purnell has earned their trust. One specific way this was demonstrated was when a guest speaker (Ms. Kim Graham from DSU) came to talk to students about vaccines. During this session, students were able to communicate their concerns and questions about vaccines in general. It was also revealed that they were willing to talk to someone that they had never met before because they trust Mr. Purnell. They trust that he will not do anything to harm them or mislead them. On this particular summer day, these students expressed what they truly want and need from adults: Be present, caring, and trustworthy and we can and will learn from you!

The Covid-19 pandemic turned so much of what is normal, upside down. The opportunity to have limited face-to-face programming again was truly appreciated by everyone. Dean Purnell’s commitment to youth was emphasized and reestablished while they casually snacked on “fizzy” watermelon!

Briefly describe how your target audience benefited from your project's activities.

Youth learned how to think critically and to solve problems and learned to ask good questions. These experiences with science help the students to not only ask “why” but also “what if?” This kind of engagement will serve them for a lifetime as they engage with a rapidly, ever-changing world. The skill of knowing how to ask good questions will lead them to places of innovation rather than stagnation.

Briefly describe how the broader public benefited from your project's activities.

This type of science exposé can assist students to be interested in STEM as they continue their education to be the next generation of scientists.

DSU 4-H partnered with the Positive Points Program

Project Director
D'reardon Thayer
Organization
Delaware State University
Accession Number
7002686



DSU 4-H partnered with the Positive Points Program

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

In today’s society there is a tremendous need for young people to know how to create technology and not just consume it. Estimates show that 65% of today's students will be employed in jobs that don't yet exist and 60% of new jobs created this century will require skills in STEM-related fields. The reality with this situation is that not enough students are being drawn to STEM in school and the community. At 4-H, we know a major part of the solution to this problem is to expose kids to STEM topics at an early age through experiences that are hands-on, fun and relatable to the real world.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

In order to help address this problem DSU 4-H partnered with the Positive Points Program. Positive Points is an enrichment program that offers an array of educational and cultural opportunities for personal development to the residents of properties owned and managed by Arbor Management, LLC. The theme of the program was Space, Science, and Inventions

where children were provided hands-on experiments to gain STEM knowledge.

Briefly describe how your target audience benefited from your project's activities.

The program concluded with nearly all students gaining knowledge in STEM areas and careers. Most students stated that the experiences were brand new to them and they had not participated with anything of its kind in the past.

Briefly describe how the broader public benefited from your project's activities.

As more youth get exposed to STEM early, the more likely those students will continue on the path into a science based career.

Critical Issue

Sustainable Production Systems for Agricultural and Urban Landscapes

Personal Connections Help Poultry Growers Access Pandemic Relief

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002457



Personal Connections Help Poultry Growers Access Pandemic Relief

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

In 2020, the COVID-19 pandemic greatly impacted contract poultry growers, who experienced extended layouts between flocks, and kept flocks longer than normal due to changes in the supply chain and workforce availability. Some growers had their flocks depopulated, which resulted in even longer layouts. To offer financial relief, the U.S. Department of Agriculture (USDA) created the Coronavirus Food Assistance Program (CFAP 2). While previous relief programs had excluded poultry, Farm Service Agency (FSA) began accepting applications for the program in March 2021. By August, USDA updated the program making it more equitable for contract producers who had reduced revenue due to the 2019 outbreak. Rule changes for eligibility caused confusion for producers, which resulted in fewer producers applying for the program. As the October deadline 12 approached, program participation was lacking.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

On September 8, the Delaware Farm Service Agency (FSA) state executive director contacted the University of Delaware's poultry extension agent. Information had been emailed from different sources with little impact on applications. The poultry extension agent sprung into action; she personally called every poultry grower on her contact list. The Extension Nutrient Management Program also sent emails encouraging producers to contact the agent to learn more. In total, more than 130 growers were contacted. The team made producers aware of the CFAP 2 program, eligibility requirements and the documents needed. Many of the growers contacted were unaware of the program; some were not familiar with the Delaware Farm Service Agency. The poultry extension agent provided the FSA contact information for the respective county where their farm was located. Some growers who had applied were not aware of the rule change that allowed them to compare their income not only from 2019, but also from 2018. This explanation resulted in more producers qualifying for the program.

Briefly describe how your target audience benefited from your project's activities.

As a result of the personal outreach from Delaware Cooperative Extension to producers, program enrollment jumped from 97 to 237 contract poultry producers applying for the CFAP 2 program prior to the October 12 deadline. Program payments were made to growers towards the end of November. FSA issued over \$7.5 million in program payments to eligible producers in Delaware. Robin Talley, state executive director of Farm Service Agency, acknowledged the program's participation and success to Delaware Cooperative Extension.

“Thank you! I believe the trust these growers have in you was an important factor in them following through to contact our offices.”

Briefly describe how the broader public benefited from your project's activities.

UD's poultry extension agent personally contacted more than 130 poultry growers to assist them in taking advantage of available pandemic relief resources. As a result, Delaware's CFAP 2 program enrollment jumped from 97 to 237 and total payments in Delaware exceeded 7.5 million dollars

Helping Delaware Soybeans Grow

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002455



Helping Delaware Soybeans

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Delaware farmers planted 150,000 acres of soybeans in 2020. Before the 2021 growing season, University of Delaware Cooperative Extension personnel teamed up to provide important research updates. In March 2021, soybean prices were higher than previous years and continued to rise much of the spring. UD's goal was to maximize profits for attendees. In 2021, varietal decisions were largely based around herbicide packages. Diseases, insects and weeds all reduce the potential yields of soybeans when present; proper fertilization is key for maximum return-on-investment.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

To educate farmers, the UD's extension specialist in entomology discussed common insect pests and management options. UD's extension specialist in weed science discussed new herbicide packages in detail to educate farmers of their options. UD's extension specialist in agronomy and Sussex County ag agent discussed avoidance of misapplication of chemicals by fertility recommendations and application strategies. Disease observations and nematode management options were presented by UD's extension specialist in plant pathology. Resistance to weeds, insects and diseases was an overarching theme throughout the training and rotating chemistries to avoid resistance was covered along with cultural practices to limit each of the pests. Finally, the vice president of market intelligence from the United Soybean Board provided an overview of domestic and international soybean markets.

Briefly describe how your target audience benefited from your project's activities.

Attendees shared positive experiences about each of the topic areas presented at Soybean School and will apply the knowledge to their management strategy.

- 97.5 percent learned something new about soybean insect pests.

- 80 percent will change their insect management strategy.

- 90 percent learned something new about managing soybean cyst nematodes.

- 72.5 percent will change their soybean cyst nematode management strategy.

- o 92.5 percent learned something new about potassium fertility in soybeans and 100 percent learned something new about fertigation.
- o 62.5 percent will change their fertility management.
- o 87.5 percent learned something new about weed control in soybeans.
- o 73.7 percent will change their weed management strategy.
- o 84.6 percent learned something new about soybean markets.
- o 42.5 percent will change their soybean marketing strategy.

These management changes will lead to more profitable operations in the short term as pests are better controlled and long term as participants properly identify their pest and fertility issues and avoid misapplications of pesticides and fertilizers.

Briefly describe how the broader public benefited from your project's activities.

Soybean School provided important updates before the 2021 growing season and potentially increased yield and profitability for the farmers who attended and knowledge to provide accurate recommendations for the advisors and scouts who attended. Profitability is key to the long-term resilience of grain farming operations in Delaware.

Improving Profitability through Successful Lambing and Kidding

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002456



Successful Lambing and Kidding

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Successful lambing and kidding is critical to the profitability of sheep and goat operations. The lambing and kidding time period poses one of the biggest risks to profitability in the annual production cycle. For small ruminant producers, 70 to 80 percent of death losses occur during these two weeks. According to Purina Mills sheep specialist Mark Johnson, "Success or failure during lambing season is the largest single factor affecting the profitability of the sheep flock."

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

To increase producers' chances of success and profitability of their livestock operation, the Delaware Cooperative Extension Small Ruminant Team recognized the need for additional education. The team designed and offered a virtual and in-person lambing and kidding webinar with guest speaker Kevin Pelzer, DVM and large animal clinician from the Virginia-Maryland College of Veterinary Medicine and Virginia Tech. Information covered in the webinar included the stages of lambing and kidding, how to handle problems, how to deliver healthy lambs and kids, and health Issues during gestation and after lambing or kidding.

Briefly describe how your target audience benefited from your project's activities.

In total, 82 individuals participated live and 110 viewed the webinar recording. A Qualtrics survey was distributed to individuals who participated in the webinar by either method and 42 surveys were returned. The responses represented a combined 2,457 acres managed and 886 sheep and goats owned or managed by workshop participants. Results indicated that:

- o 93 percent agreed or strongly agreed that the subject matter was presented effectively;
- o 83 percent agreed or strongly agreed that the duration of the webinar was sufficient for the material covered;
- o 98 percent agreed or strongly agreed that the presenter was knowledgeable on the subject matter;
- o 95 percent agreed or strongly agreed that they gained new knowledge as a result of the lambing and kidding webinar; and
- o 93 percent agreed or strongly agreed that they would apply something new they learned in the webinar.

Only two out of 42 participants (four percent) responded they had any technical difficulties in participating in the webinar virtually. Both indicated that it was due to their poor internet connections. The majority of webinar participants (64 percent) were from our region (Delaware and Maryland) with the rest of the participants from other states; three participants classified themselves as international. A 4-H club also watched the webinar as a group as part of their club meeting. Participants found the workshop extremely useful.

“The information was relayed in a very basic, easy to understand way. I learned a lot and glad I participated. I would definitely take another webinar like this,” shared one attendee.

The workshop’s lessons paid off for participants:

“My husband and I have already used multiple things we learned, as we’re right in the middle of lambing over here,” commented another participant.

“Thanks to the information I gained, I was able to effectively assist with a difficult birth and save a very nice lamb and her mom,” added a final attendee.

Briefly describe how the broader public benefited from your project's activities.

To increase producers’ chances of success during lambing and kidding, the Delaware Cooperative Extension Small Ruminant Team designed and offered a virtual and in-person lambing and kidding webinar for 192 participants who manage 2,457 acres and 886 sheep and goats.

Virtual Fruit and Vegetable Grower Meetings Provide Continuing Education During Pandemic

Project Director

Michelle Rodgers

Organization

University of Delaware

Accession Number

7002450



Virtual Fruit and Vegetable Grower Meetings Provide Continuing Education During Pandemic

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

The University of Delaware Cooperative Extension Vegetable and Fruit Program collaborates with the Fruit and Vegetable Growers Association of Delaware (FVGAD) to provide annual educational meetings for growers. These meetings are an opportunity to learn about new production practices and regulatory requirements from state and regional experts. The meetings also allow growers, agricultural consultants and vegetable processor personnel to earn continuing education credits to maintain pesticide applicator, nutrient management or crop advisor certification. The COVID-19 pandemic prevented the typical in-person meetings, held at the Delaware State Fairgrounds as a part of Ag Week.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Four virtual educational sessions were held via Zoom in January 2021, including:

- A fruit session;

- A general session covering produce food safety, extreme weather and labor topics;

- A fresh market vegetable session; and

- A processing vegetable session.

A total of 12 hours of programming was offered featuring 18 different speakers from UD Extension (7), Delaware State University Cooperative Extension (1), UD Extension (3), Delaware Department of Agriculture (2), FVGAD (1) and U.S. Department of Agriculture (1) and Extension programs of nearby states (4). A total of seven Delaware pesticide credits, three Delaware nutrient management credits and 12 CCA credits were offered; Maryland pesticide and nutrient management credits were also offered. Extension staff distributed a link for an online registration system and coached clientele without much Zoom experience through the connection process.

Briefly describe how your target audience benefited from your project's activities.

Attendance at each session was equivalent to or exceeded past attendance at in-person meetings, including:

- 53 at the fruit session,

- 76 at the general session,

- 99 at the fresh market session, and

- 83 at the processing vegetable session.

Thirty-six attendees participated in a post-meeting survey. The majority of respondents (55 percent) indicated a preference for the online meeting at least in some circumstances. The remaining participants preferred in-person meetings with eight percent having a strong preference.

The online credit sign-in system worked well for most people; only 16 percent of participants reported difficulty or were unable to use it. Extension staff personally followed up with several clientele with online difficulty to make sure they received recertification credits. Overall, the online sessions were successful in reaching similar numbers of participants and allowed participants to earn continuing education credits. Some participants struggled online, but in most cases were able to connect with assistance. Online and in-person viewing options are planned for 2022 to accommodate both preferences among clientele.

All respondents indicated that they had learned something new. For most sessions, a majority indicated they would use the information. For the fruit session, all respondents gained new knowledge, 20 percent indicated they expected to use the information they learned. For the general session, 100 percent of respondents gained new knowledge, 63 percent expected to use the information they learned. For the fresh market session all respondents gained new knowledge, 61 percent expected to use the information they learned. For the processing session all respondents gained new knowledge, 79 percent expected to use the information they learned.

Briefly describe how the broader public benefited from your project's activities.

Working within COVID-19 restrictions, virtual Fruit and Vegetable Growers Association of Delaware (FVGAD) meetings helped growers update their knowledge and earn the continuing education credits required to maintain their pesticide applicator, nutrient management and crop advisor certifications.

Alternative agriculture enterprise - Pawpaw

Project Director

Lekha Paudel

Organization

Delaware State University

Accession Number

7002684



Alternative agriculture enterprise - Pawpaw

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Alternative agriculture enterprise of plant or livestock based could be the sustainable source of farm income for limited resource farmers of Delaware. Among many enterprises, the pawpaw (*Asimina triloba*) is one of the United States of America native fruits resembles flavor with tropical fruits banana, mango, and pineapple. The farming of the pawpaw as the US native fruit can be a profitable enterprise for limited resource farmers since the Pawpaw has been doing good in other parts of the US as it has both fresh market and processing appeal.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

College of Agriculture, Science and Technology (CAST) of Delaware State University (DSU) started planting pawpaw during summer of 2019 in Outreach and Research Center of DSU located in Smyrna, DE. Before planting pawpaw in 2019, CAST, partnered with Pawpaw Research Efforts led by Kentucky State University. The purpose of the partnership was to conduct regional varietal trials to see the climatic impact on orchard establishment in north east regions. Total 60 plants have been planted in four rows and each row has 15 plants. Plants are planted in 8 feet apart and row to row distance is 18 feet apart. Combination of 5 variety and 3 plastic tubes resulted 15 treatments which were randomized in 4 replications in Randomized Complete Block Design. The planted varieties are: 1. KSU-Atwood; 2. KSU-Chappell; 3. Shenandoah; 4. Sunflower; 5. Seedling rootstock and supporting tubes are: (a. no shelter; b. open mesh tree tube; c. solid tree tube)

Briefly describe how your target audience benefited from your project's activities.

Plants survival was observed during summer of 2020. Total 5 plants found dead. A plant found dead in first row (5a: seedling rootstock with no shelter; two plants found dead in second row (2A: KSU-Chappel with no shelter) and (5A: seedling rootstock with no shelter). Similarly, two plants found dead in third row (5B: seedling rootstock with open mesh) and (1A: KSU- Atwood with no shelter). No dead found in fourth row. This study shows that almost 92% plants have survived by the end of first year of pawpaw orchard establishment in Delaware climate which is at par with others findings in New England of USA.

Briefly describe how the broader public benefited from your project's activities.

Any new specialty crop tested first, then introduced to the local farmers; is a economic opportunity that our farmers could use as well as a chance for the community to have other fresh & local products.

First State African American Farmers Association (FSAAFA)

Project Director

Andy Wetherill

Organization

Delaware State University

Accession Number

7002685



First State African American Farmers Association (FSAAFA)

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

In the 2017 USDA Agricultural Census, minorities represent less than one percent of agricultural producers in Delaware. Minority producers general lack the financial and technical capacity to operate their farms in a profitable and sustainable fashion. More so, minority farmer producers believe that they need more tailored assistance from institutions that are designed to help them. These producers believe that they can greatly benefit from federal, state and university programs that are available to assist them to improve their operation.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

Since May 2018 to the present, I became a founding member and university Liaison to the First State African American Farmers Association (FSAAFA). The organization serves the interest of the minority population in Delaware. Presently, I serve as advisor to the Association. As the liaison between the farmers' association and the University, I assist in identifying federal state, university programs and education activities that benefit the minority farming community. In addition, I am also the academic instructor for the farm management upper-level class at the university. One output of the class is the farm planning project that each student is required to complete in order to pass the class. The farm management class increases the student's capacity to adopt a business approach to planning a farm business. The paper requires that student create a named business and they are required to complete all the elements of a business plan, that includes, among other things, a projected income statement, production schedule and balance sheet. Students are also required to attend the Delaware State University Virtual Small Farms conference, and complete reading on agricultural articles that is relevant to farm management. One minority student in the class had indicated interest in starting a farm in New Castle County, Delaware. Before the spring of 2021, this student attended agricultural farm tours and workshops that were hosted by Delaware State University Small Farms Program.

Briefly describe how your target audience benefited from your project's activities.

A student who was part of the Farm Management undergraduate class started a new farm Agricultural vegetable farm in New Castle County, Delaware. His business structure and operation were created by the business planning project paper he completed in the class. The owners of the farms also received farm visits from myself, and other Delaware State University extension specialists and we provided technical assistance. The new business is a 3.8-acre local family farm that is in Middletown, Delaware. The farm will focus on growing vegetable productions and raising small ruminants' livestock. The operation will be producing value added products such as teas, jams and jellies, as well as art and craft items. They are interested in providing agricultural education and experiences to urban families, youth groups and people with disabilities. Produce and other value-added items are sold at the market lot located on the farm. The farm is expected to generate approximately \$10,000 in revenue in the first year of operation. In the long term, Delaware State University cooperative extension will continue to provide tailored technical assistance to the new farm as it seeks to explain.

Briefly describe how the broader public benefited from your project's activities.

Working with this type of organization allows Extension to continue to serve the new and beginning farmers, which will assist in keeping farming in the state for the public to benefit from the ability to buy locally grow products.

Professional Development Series

Project Director

John Clendaniel

Organization

Delaware State University

Accession Number

7002645



Professional Development Series

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

As extension educators, agents, specialists and other Ag service providers get hired they lack the training and understanding to how to work / communicate with their clientele. There is also issues with their time management and ability to collect their impacts through evaluation tools.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

John Clendaniel and Jason Challandes created a professional development workshop series of four virtual trainings to address these concerns. The first workshop was “Making Effective Educational and Informational Presentations”, which addressed creating the proper PowerPoints and information that could be digested by clientele that you're presenting in front us. This was followed by “Improving Your Program Evaluations Skills and Knowledge”, which showcased how to create evaluations when thinking about the end goal impacts as well as how to develop surveys, what type of questions and an overall understanding of the methodologies of doing evaluations survey. We also addressed “How to Get the Best Videos and Tricks on Editing Them” through two training we were able to address iMovie and Final Cut Pro video editing along with capturing the best videos for participants programs. The last workshop was “Strategies for Better Time Management” which taught our participants the best way to address work and personal life events. This also presented strategies how to focus on the most important things and still being able to accomplish the overall successful programs.

Briefly describe how your target audience benefited from your project's activities.

Through these 2021 virtual trainings we reached 243 participants from over 40 different institutions. Using survey data, we were able to see high percentage of knowledge gained as well as 94% of the 164 collected surveys reflected, they participants plan to use learned information. Even though we have to a virtual platform, we had great participation and interaction during each workshop.

Briefly describe how the broader public benefited from your project's activities.

Through professional development, Ag service providers can better reach all community member that have needs that they can address. The better they know the craft of their trade; presentation design, program evaluation, time management and more, the better they can server the public.

Sharing of information and empowering the farming community in Ghana

Project Director

Rose Ogutu

Organization

Delaware State University

Accession Number

7002689



In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Sharing of information and empowering the farming community with various technologies generated from research is what 'Extension' does best. The Carnegie African Diaspora Fellowship sponsored my trip to University of Ghana, Legon to enable me to embark on a 2-month engagement with Horticulture department. The goal was to demonstrate tomato grafting and help develop a curriculum on protected plant production culture. Tomato Production in Ghana is curtailed by soil borne fungal diseases and grafting improved varieties onto hardy 'solanaceous', proven rootstalks would help save the farmers from loses. A graduate student working on tomato grafting project had identified the local plant 'Gboma' as an appropriate root stalk.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

I worked with a graduate student (Prince Amoah) and my host (Prof. Nalaamle) to further tomato grafting activities. Through three organized workshops for students, extension professionals and Technicians, we reached out to a total of 52 participants. Activities involved starting tomato and Gboma seedlings, culminating into a hands-on workshop, where participants practiced grafting and processes of helping the healing of the graft.

Briefly describe how your target audience benefited from your project's activities.

Enthusiastic participants acquired the skill of tomato grafting. We produced a handbook to help guide the process of grafting. Three students have indicated interest in pursuing plant genetics and concentrating on identifying and improving local varieties that could qualify as appropriate rootstalks.

Briefly describe how the broader public benefited from your project's activities.

This transfer of knowledge allows communities that are in need of new technologies to glean that information, which will increase vegetable production for those communities consumption.

Type

Projects / Programs

Projects / Programs without a Critical Issue

1

Advancing One Health through entomology and wildlife ecology research

Project Director

Jeffrey Buler

Organization

University of Delaware

Accession Number

1013225



Advancing One Health through entomology and wildlife ecology research

In 2-3 sentences, briefly describe the issue or problem that your project addresses.

Our team of researchers with a diversity of expertise in insect and wildlife ecology will conduct research on several urgent issues to promote One Health. We will study 1) enhancing biological diversity in urban landscapes, forest, and wetlands, which is linked to providing humans with important ecosystem services like food and clean water, 2) improving human and environment health by reducing disease-causing organisms in domestic animal waste, and 3) improve food security through better understanding of infectious disease spread between animals and humans.

Briefly describe in non-technical terms how your major activities helped you achieve, or make significant progress toward, the goals and objectives described in your non-technical summary.

We collected data and published 21 articles and one book for our research focused on the importance of native plants to insect populations and higher trophic levels, insect systematics, conducting the largest coastal wetland avian and vegetation monitoring program in the United States, and monitoring the health of mammal, waterfowl, and other migratory bird populations. Our activities allowed us to train future scientists and workers in coastal resiliency, wildlife ecology and management, sustainable honey bee management, reducing pathogens in animal waste streams, and improved food security through better understanding of infectious disease spread between animals and humans.

Briefly describe how your target audience benefited from your project's activities.

The wildlife biologist in state and federal agencies saw the immediate benefit of sound data to use for science-based decision making; foresters saw the immediate benefits of sound data to set population goals such that wildlife species do not negatively impact forest regeneration. Delaney trained beekeepers using an intensive 7 day workshop in the summer to teach best practices and multiple graduate and undergraduate students in proper apiary management and colony productivity monitoring.

Briefly describe how the broader public benefited from your project's activities.

Tallamy delivered approximately 100 talks (webinars, seminars, keynote lectures) to conservation organizations, horticultural groups of all types, land conservancies, Master gardeners and Master Naturalists, Zoos, Arboretums, garden clubs, book clubs, and Universities taking the results of our research to the public. The general public benefitted from reduced human-deer conflicts via more effective deer management by resource agencies.

Describe and explain any major changes or problems encountered in approach. Additionally, note opportunities for training and professional development provided, how results have been disseminated to communities of interest, and any new details regarding what the project or program plans to do during the next reporting period to accomplish the goals.

Major problems: Due to building renovations, Dr. Chirnside's research lab was at a temporary location until early 2021. She was relocated to a permanent laboratory in February 2021. The chemical hood required for nitrogen and phosphorus analysis was installed in June 2021. Due to the pandemic, she had limited access to the lab with the reduction of workers due to space restrictions. These interruptions have delayed the progress of the bioreactor experiments and has delayed the timeline for accomplishing the research work. A total of 11 undergraduates and 2 graduate students received direct stipend support. Results were disseminated through more than a dozen public presentations by researchers and undergraduate and graduate students at regional, national, and international scientific meetings, workshops, and organizational meetings. Tallamy gave dozens of podcasts, and NPR interviews to the general public.

21 peer-reviewed publications & 1 book:

1. Dion, J. R., A. M. Holland, J. M. Haus, J. E. Rogerson, and J. L. Bowman. 2021. Birth-site Selection by White-tailed Deer in an Area with Low Risk of Predation. *Northeastern Naturalist* 28:94-105.
2. Holland, A. M., J. M. Haus, T. B. Eyler, M. D. Duda, and J. L. Bowman. 2020. Revisiting hunter perceptions toward chronic wasting disease: changes in behavior over time. *Animals* 10:187: <http://doi:10.3390/ani10020187> .
3. Dion, J. R., J. M. Haus, J. E. Rogerson, and J. L. Bowman. 2020. White-tailed deer neonate survival in the absence of predators. *Ecosphere* 11(6):e03122. <http://dx.doi.org/10.1002/ecs2.3122>
4. Ruskin, K. J., G. Herring, C. A. Eagles-Smith, A. B. Eiklor, C. S. Elphick, M. A. Etterson, C. R. Field, R. A. Longenecker, A. I. Kovach, W. Gregory Shriver, J. Walsh, and B. J. Olsen. 2022. Mercury exposure of tidal marsh songbirds in the northeastern United States and its association with nest survival. *Ecotoxicology*, 31:208-220.
5. Sayers, C. J., M. R. Roeder, L. M. Forrette, D. Roche, G. L. B. Dupont, S. E. Apgar, A. R. Kocek, A. M. Cook, W. G. Shriver, C. S. Elphick, B. Olsen, and D. N. Bonter. 2021. Geographic variation of mercury in breeding tidal marsh sparrows of the northeastern United States. *Ecotoxicology* 30:1929-1940.
6. K.S. Delaplane, J.K. Given, J. Menz, and Deborah A. Delaney. (2021) Colony fitness in the honey bee at queen mating frequencies higher than genetic diversity asymptote, *Behavioral Ecology and Social Biology*, 75 (126).
7. Lewis J. Bartlett, Selina Bruckner, Geoffrey R. Williams, Deborah A. Delaney, Keith S. Delaplane. (2021) A computational approach to tracking age-based task frequency distributions of honey bee worker cohorts, *Journal of Apicultural Research* 61(1): pgs.147-150.

8. Weglarz, K.M. and C.R. Bartlett. 2020. A revision of the planthopper genus *Chionomus* Fennah (Hemiptera: Fulgoroidea: Delphacidae). *Zootaxa* 4811(1): 1-63. <https://doi.org/10.11646/zootaxa.4811.1.1>

9. Tallamy, D.W., Narango, D.L., Mitchell, A. 2021. Do nonnative plants contribute to insect population declines? Invited submission to special issue on "Insect Declines". *Ecological Entomology*, 46(4), 729-742.

10. Piel, G.*, Tallamy, D.W., Narango, D. L. 2021. Lepidoptera host records accurately predict tree use by foraging birds. *Northeastern Naturalist* 28(4): 527-540.

11. Tallamy, D.W. and W. G. Shriver. 2021. Insectivorous birds at risk from insect declines. *The Condor* 123: 1-8.

12. Tallamy, D.W. 2021. *The Nature of Oaks*. Timber Press.

https://www.amazon.com/Nature-Oaks-Ecology-Essential-Native/dp/1643260448/ref=pd_bxgy_img_2/137-4548428-6982721?pd_rd_w=ZUAIN&pf_rd_p=6b3eefea-7b16-43e9-bc45-2e332cbf99da&pf_rd_r=Z4TB0JRZE2QN21B4R4X1&pd_rd_r=6f7e5788-5073-4a95-ad83-1f65c31bdbf2&pd_rd_wg=qRKud&pd_rd_i=1643260448&psc=1

Harvey, K., P. Lavretsky, J. Foth, C. K. Williams. 2021. Wood Duck nesto-philina and clutch genetic composition establish extent of hen competition and promiscuity for these cavity-nesting ducks. *PLoS One* 16:e0257105

13. Lawson, D. M., C. K. Williams, P. Lavretsky, D. L. Howell, and J. C. Fuller. 2021. Mallard-black duck hybridization and population genetic structure in North Carolina. *Journal of Wildlife Management* 85:1243-1255.

14. Lawson, D. M., C. K. Williams, D. L. Howell, and J. C. Fuller. 2021. American black duck nesting ecology in North Carolina. *Journal of Wildlife Management* 85:989-1000.

15. Livolsi, M. C., C. K. Williams, J. M. Coluccy, and M. T. Dibona. 2021. The effect of sea level rise on dabbling duck energetic carrying capacity. *Journal of Wildlife Management* 85:686-695.

16. Williams, C. K., R. D. Applegate, and P. Coppola. 2021. Why are there so many waterfowl and so few northern bobwhite? Rethinking federal coordination. *Journal of Wildlife Management* 85:665-673.

17. Coppola, P, C. K. Williams, T. Terhune, J. Parke, and J. Cecil. 2021. Landscape connectivity influences survival and resource use following long?distance translocation of northern bobwhite. *Journal of Wildlife Management* 85:369-383.

18. Clipp, H. L., J. J. Buler, J. A. Smolinsky, K. G. Horton, A. Farnsworth, E. B. Cohen. Wind conditions over the Caribbean Sea and Atlantic Ocean influence spring stopover of migrating birds along the Gulf of Mexico. 2021. *Ornithology*. ukab051, <https://doi.org/10.1093/ornithology/ukab051>

19. Acosta, A., T. Kelman, E. Matchett, S. Feirer, J. Smolinsky, M. Pitesky, J. Buler. Using the California Waterfowl Tracker to Assess Proximity of Waterfowl to Commercial Poultry in the Central Valley of California. 2021. *Avian Diseases* 65:483-492. <https://doi.org/10.1637/aviandiseases-D-20-00137>

20. Cabrera-Cruz, S., R. Larkin, M. Gimpel, J. Gruber, T. Zenzal, J. Buler. Potential effect of low-rise, downcast artificial lights on nocturnally migrating land birds. 2021. *Integrative and Comparative Biology*. <https://doi.org/10.1093/icb/ibab154>

21. Zenzal, T. J., M. P. Ward, R. H. Diehl, J. J. Buler, J. Smolinsky, J. Deppe, R. Bolus, A. Celis-Murillo, F. R. Moore. 2021. Retreat, detour, or advance? Understanding the movements of birds confronting the Gulf of Mexico. *Oikos* 130:739-752. <https://doi.org/10.1111/oik.07834>

22. McCuen, M. M., M. E. Pitesky, J. J. Buler, S. Acosta, A. Wilcox, R. Bond, S. Diaz-Muñoz. 2021. A comparison of amplification methods to detect Avian Influenza viruses in California wetlands targeted via remote sensing of waterfowl. *Transboundary and Emerging Diseases* 68: 98-109. <https://doi.org/10.1111/tbed.13612>