

## FY 2020 Annual Report of Accomplishments and Results

Arizona

The University of Arizona

### I. Report Overview

The NIFA reviewer will refer to the executive summary submitted in your FY 2020 Plan of Work located in the Institutional Profile. Use this space to provide updates if needed.

#### 1. Executive Summary (Optional)

In addition to what's in the summary, a lot of the impacts of COVID have forced us to look deeply into our operations and any under-served communities more closely. We have taken additional steps to ensure adequate access for our more rural communities to increase basic necessities and even find ways to provide enhanced wi-fi capabilities on our Native American tribes where we have a presence. This has resulted in allowing students of the University to go back home to quarantine during COVID and still be able to be engaged in their classes with the enhanced internet access.

## II. Merit and Scientific Peer Review Processes

The NIFA reviewer will refer to your 2020 Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA's attention.

Process	Updates ONLY
1. The <u>Merit Review Process</u>	
2. The <u>Scientific Peer Review Process</u>	

### III. Stakeholder Input

The NIFA reviewer will refer to your 2020 Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA's attention.

Stakeholder Input Aspects	Updates ONLY
1. Actions taken to seek stakeholder input that encouraged their participation with a brief explanation	
2. Methods to identify individuals and groups and brief explanation.	
3. Methods for collecting stakeholder input and brief explanation.	
4. A Statement of how the input will be considered and brief explanation of what you learned from your stakeholders.	

**IV. Critical Issues Table of Contents**

No.	Critical Issues in order of appearance in Table V. Activities and Accomplishments
1.	A sustainable, profitable, and competitive food and fiber system in Arizona
2.	Enhance natural resource conservation and management
3.	Improve the health, safety, and economic security of Arizona communities
4.	Arizona Youth focus and preparation
5.	Prepare Arizonans for solutions of the future

**V. Activities and Accomplishments**

Please provide information for activities that represent the best work of your institution(s). In your outcome or impact statement, please include the following elements (in any order): 1) the issue and its significance (e.g. who cares and why); 2) a brief description of key activities undertaken to achieve the goals and objectives; 3) changes in knowledge, behavior, or condition resulting from the project or program’s activities; 4) who benefited and how. Please weave supporting data into the narrative.

No.	Project or Program Title	Outcome/Impact Statement	Critical Issue Name or No.
1.	<b>Gila County Ag Daze</b>	<p>With the world’s population expected to surpass 9.1-billion people by 2050, we need to increase our food production by 70%. But with an alarming rate of 4<sup>th</sup> and 5<sup>th</sup> graders not knowing where their food comes from, Arizona Cooperative Extension has found ways to reach them and provide that curriculum so they can consider careers in agriculture.</p> <p>Gila County Extension Faculty (R. Carstens, A. Hall, A. Dixon) and various community volunteers spend several weeks teaching lessons on their specific topic (Agriculture in Arizona, Nutrition, Farming, Dairy, Mining, Rangeland Health, Cotton, and Ranching). The end of the lessons are marked by a field trip to H4 Ranch in Gila County. R. Carstens created the</p>	A sustainable, profitable, and competitive food and fiber system in Arizona

		<p>introductory agriculture lesson. This curriculum explores the food and fiber production in Arizona, and possible careers in the field of agriculture. Funding is provided by Tonto Natural Resource Conservation District and various community sponsors.</p> <p>Immediately after "Introduction to Agriculture in Arizona" lesson, 78% of students were verbally able to identify, or make the connection that the 5 Cs of Arizona are important because of the agricultural impact it has in Arizona. Due to COVID-19 the experience at the H4 Ranch was cancelled so the post evaluation was not completed this year. However, we plan to continue with this curriculum and expand to other parts of the state.</p>	
<p><b>2.</b></p>	<p><b>Dairy Profitability and Sustainability Programs for Arizona</b></p>	<p>Dairy production in the state of Arizona has some unique challenges that can hinder the stakeholder's profitability as well as hinder the sustainability of the industry within the state. The objective of this program is to identify problems specific to our region that impact dairy profitability and sustainability. The main areas are related to dairy production in the arid Southwest and milk quality/food safety.</p> <p>Currently, the program is supported entirely through Dairy Extension funds and research dollars and I serve as the only specialist. Specific projects are implemented using research trials, workshops, seminars and peer-reviewed and extension/popular press publications. In 2020 the main areas covered were related to cow comfort, bird control on the dairy, water conservation, mastitis prevention and milk quality (mycotoxin/aflatoxin control). The largest contributor to inputs is through personal on farm visits. In 2020 we continued to visit farms in the state to build a stronger network within the stakeholders. We also collaborated with Dr. Tronstad in several grants to provide information about several of</p>	<p>A sustainable, profitable, and competitive food and fiber system in Arizona</p>

2020 Annual Report of Accomplishments and Results (AREERA)

		<p>the USDA insurance programs. We included some of those documents in a series of videos presented in our dairy extension youtube page. We are seeking external help (consultants and industry personnel) to gain access to the remaining 20% of the producers in the state.</p> <p>In 2020 outcomes included: In the sub-area of milk quality and mastitis control several workshop presentations on forage quality impacts on milk quality, 6 presentation on aflatoxin control in dairy corn (4 invited both nationally and internationally), 2 publication on mycotoxins and mycotoxicosis (1 peer-reviewed paper, one review), 2 popular press articles about our work and 9 training sessions (part of the Arizona Dairy Farm Labor Training Program). In 2020 I continued our participation in the W3173 Impacts of Stress Factors on Performance, Health, and Well-Being of Farm Animals this resulted in one large collaborative study in the ARC and currently 4 publications (1 accepted, 2 in review, and 1 in preparation). We continued our work on the area of bird control with the implementation of an on-farm camera system (Rovey Dairy) and continue to develop a research project to test bird deterrence technology on the farm with the collaboration of ABE department and the Cal Poly SLO Ag. Engineering Department. We submitted a large grant (104K) to test an aflatoxin milk filtering systems through collaboration with Cal Poly SLO and conducted 2 research studies on the impact of heat stress in cattle.</p>	
<p><b>3.</b></p>	<p><b>Forest Health and Sustainability</b></p>	<p>Healthy forests are important to Arizona for many environmental, economic, and social reasons. The forest health Extension programs are designed through the lens of sustainability and climate science. Sustainability is often described as the intersection of three interdependent systems: Economic, Social and Environment. A more accurate model would be to nest our Economic and Social systems within</p>	<p>Enhance natural resource conservation and management</p>

		<p>the Environmental system. Climate change impacts (such as intensified drought, wildfires and flooding), due to anthropogenic global warming, have been identified as significant threats to society by the University of Arizona and International Panel on Climate Change.</p> <p>To address, and in response to COVID-19 social distancing protocols, I initiated a weekly webinar series called Garden Country Extension that features forest health and other natural resources topics and speakers. We've also partnered with AZ Dept of Forest Fire Management (AFFM) to initiate a Fire Adapted Communities Network in Arizona. We've revised, updated and created curriculum and educational materials for youth activities, including the FFA Forestry curriculum, and local youth outreach addressing climate change, forest health, and trees. And we're continuously promoting events and activities using flyers, posters, banners, brochures, Face Book, web, PSAs, newspaper articles, and radio spots to boost participation.</p> <p>The series has provided me an important way to network and maintain relationships with colleagues and clients during COVID-19. The webinars received 317 evaluations. 55% indicated that they learned something new and planned on using what they learned, and 64% indicated they were very likely share what they learned with others.</p>	
<p><b>4.</b></p>	<p><b>Water Management and Policy (WMP)</b></p>	<p>Planning to meet water demands in semi-arid regions is particularly challenging as projected and observed climatic changes for the Southwest increase uncertainties for groundwater dependent communities where aquifers are being replenished by intermittent streamflow events.</p>	<p>Enhance natural resource conservation and management</p>

		<p>In this program, hydrologists and climatologist work together to refine and couple a groundwater model and to downscale climate projections to the area. Results are presented to stakeholders, who engage in a conversation of management alternatives and improving format. Focus groups are conducted with state stakeholders to determine their perspectives, concerns, and priorities for considering environmental water demands in Arizona water policy and management.</p> <p>The results are Increased knowledge and awareness of groundwater hydrology, hydrologic modeling, climate change and climate change impacts on groundwater.</p>	
<p>5.</p>	<p><b>Positive Discipline Coconino County 2020</b></p>	<p>Households suffering from an economic strain, unemployment, substance abuse, and unstable relationships endure immense toxic stress which can lead to child maltreatment. Only about half of northern Arizona’s children live in households with both parents in the home. Approximately 44% of children 0-5 years are cared for by one parent, typically a single mother living in poverty, and 4% are cared for by other relatives or unrelated caretakers. Coconino County reports nearly 20% of adults binge drink, which is above the state and national statistics. Child maltreatment, including physical abuse, psychological abuse, and neglect are the result of unsatisfactory parenting practices.</p> <p>The Positive Discipline Program provides group education to parents and caregivers. Essential elements and education include supporting children in learning behavior management; teaching skills that facilitate the growth of basic life skills; providing parenting that is kind and firm; empowers children to contribute positively to their environment; increase household communication. The primary goal and desired outcome for parenting</p>	<p>Improve the health, safety, and economic security of Arizona communities</p>



		<p>education is to reduce household stress levels and increase positive communication techniques. This program teaches parents positive child behavior management strategies that may prevent child maltreatment and promote familial functioning.</p> <p>The program is evaluated through pre-post paired surveys and if no pair is found, the pre or post knowledge or behavior changes are noted. Results show an increase in the frequency of positive behaviors and a decrease in negative parenting behaviors for all questions. Anecdotal reports from participants state that they valued the information provided and they intended to implement Positive Discipline strategies in their home.</p>	
<p><b>6.</b></p>	<p><b>Native American and Hispanic STEM Outreach</b></p>	<p>The need for Science, Technology, Engineering and Math (STEM) professionals across the country is imperative in order to produce the STEM workforce that the US and tribal communities require and to provide organizations with a diverse workforce that reflects our Nations diversity. The 2016 enrollment numbers for College of Agriculture and Life Sciences is 3.6% of the total 3,255 students enrolled in CALS Majors. The enrollment numbers are similar across colleges and the overall graduation rate for Native American students is 22%.</p> <p>The program emphasizes Native American to envision themselves attending the UA and majoring in STEM-related fields. The students gain a better understanding of the wide range of STEM fields and make the connection that many STEM fields are naturally part of their culture.</p> <p>Several collaborations took place during the outreach efforts and youth were very engaged in the STEM Food Safety Activities. They became aware of the importance of washing hands, fresh produce, how circuitry</p>	<p>Improve the health, safety, and economic security of Arizona communities</p>

		works and thoroughly enjoyed and saw the importance of pursuing STEM careers.	
7.	<b>Healthy Living-4-H Healthy Living Ambassadors</b>	<p>According to the Center for Disease Control in Arizona, 40.7% of adults are overweight and 25.2% are obese. Additionally, 12.7% of Arizona children age 10-17 are overweight and 17.8% are obese. Only about one in four (28.5%) Arizona children age 6-17 are physically active every day. All these statistics and circumstances point to a tremendous need within this state to address health issues at multiple levels. Youth programming in general, and 4-H Youth Development programs in particular, are effective ways to reach the next generation of Arizonans and to prepare them to lead healthier lives.</p> <p>The Arizona 4-H HLA program aims to teach teens about the importance of living a healthy lifestyle and encourages them to promote those concepts within their own communities. The program offers hands-on and engaging activities focused on gardening, nutrition, physical fitness, emotional wellness, and equity and inclusivity. Fitness and emotional health are also addressed by offering participating youth an opportunity to hike the Grand Canyon. The 4-H HLA program is voluntary and is open to any teen who wishes to join, however underserved populations make up the majority of the participants.</p> <p>In the fall of 2020, the 4-H HLA program was re-imagined as 4-H club that would offer virtual educational experiences to any young person within Arizona between the ages of 12 and 18. The young people meet once per month over Zoom and participate in at least one project per semester (13 virtual projects were offered). Due to COVID, it was not possible to offer in-person community service opportunities so youth were encouraged to</p>	Arizona Youth focus and preparation

2020 Annual Report of Accomplishments and Results (AREERA)

		participate in various community service projects on their own time. 102 young people participated in this program in the fall of 2020.	
8.	<b>School Readiness Work Group (EC1/EC2)</b>	<p>Extension faculty and staff in November 2016 it was decided that school readiness should be a priority area FCHS in Arizona. Under my leadership, this work group of nine Extension faculty and staff focused our work on the Child Development Associate (CDA) Credential. The CDA is a nationally recognized professional credential for early childhood education (ECE) teachers. Earning a CDA allows for career advancement and makes teachers more likely to provide the kind of high-quality early care and education that will prepare young children to succeed in school. We decided to focus on the CDA after this was identified as a priority area during a meeting the school readiness workgroup organized with early care and education (ECE) stakeholders.</p> <p>The Extension publication on the CDA that I lead the team in preparing in 2019, was accepted for publication in 2020. However, this project was put on the backburner during 2020 as the team's focus shifted to other more pressing tasks related to adjusting to the COVID-19 pandemic. We plan to resume work in 2021 by preparing a report using the needs assessment data that was collected in 2019.</p>	Arizona Youth focus and preparation
9.	<b>Financial Literacy Education 2020</b>	Based on a statewide needs assessment conducted in 2015 and a subsequent assets for financial education in 2017, the Financial Literacy Education working group was formed. Statistics from the National Financial Capability study (2018) reveal that Arizonans, like most Americans, are not savers. 47% of survey respondents in Arizona reported not having an emergency fund. It is expected that due to the pandemic this situation has been exacerbated for most families. The study also found	Prepare Arizonans for solutions of the future

		<p>that two-thirds of Arizona respondents lack basic financial literacy knowledge.</p> <p>We developed and adapted in-person curriculum to online delivery using Zoom and D2L. This helped us to deliver over 50 workshops of various financial literacy content.</p> <p>In the single session workshop, <i>Where does your Money Go?</i>, participants were asked to respond to survey items pertaining to their intentions as a result of participating in the financial education workshop. 100% of respondents (N = 77) reported that they will think differently about how they manage their money. 99% of respondents (N = 77) reported that they could have more money if they made different spending choices. 63% of participants reported specific “spending leaks” over the course of one year averaging \$3,700 annually in Gila and Pinal Counties.</p> <p>As a result of participating in the workshop, respondents (N=77) planned to:</p> <ul style="list-style-type: none"> <li>Pay off bills 31%</li> <li>Start savings 40%</li> <li>Purchase needed item 29%</li> </ul> <p>Asked what they will do differently in the future based on what they learned in the workshop (N=77):</p> <ul style="list-style-type: none"> <li>Track expenses 30%</li> <li>Reduce spending leaks 26%</li> <li>Spend on needs before wants 19%</li> <li>Develop a spending/savings plan 25%</li> </ul>	
--	--	---	--

<p><b>10.</b></p>	<p><b>University of Arizona Wildcat Corps (EC2)</b></p>	<p>It is estimated that over the next ten years 70% of the jobs in the State of Arizona will require at least some education beyond high school. Yet, currently only 44% of the state’s population meets that threshold (College Success Arizona, 2018) and only 27% of public-school students in Arizona obtained a postsecondary degree within six years of graduation (Arizona Chamber Foundation Policy Brief, 2019). Furthermore, Arizona’s high school graduation rate (78.7%) ranks eighth among western states (MAP Dashboard, 2018), with some counties falling significantly behind, such as Yuma at 72.1% (US Census Data, Quick Facts, 2019). According to the Arizona Board of Regents Report on Education (2020), the drivers of Arizona’s growing economy will be robotics, optics, artificial intelligence (AI), computing and cybersecurity, energy, advanced manufacturing, engineering and biotechnology, which will require higher skill levels and education. Jobs requiring lower skill levels and less educational attainment will be decreasing over the next decade (ABOR, 2020).</p> <p>The University of Arizona (UA) Wildcat Corps members serve at various UA and community partner sites in 12-15 Arizona counties and tribal communities with members recruited locally (17 years of age or older). Member service activities focus on improved academic success for children and youth from birth through post-secondary education and their parents. Improved academic success is achieved by increasing student readiness, skills, attitude, and mindset, which contributes to improved engagement as well as improved social/emotional skills. Activities will employ research-based, hands-on, experiential learning strategies to teach children and youth: life skills such as communication, decision-making, and leadership; how to grow and prepare healthy foods from the garden; the health and educational benefits of good nutrition and physical activity; the</p>	<p>Prepare Arizonans for solutions of the future</p>
-------------------	---	--	--

		<p>importance of water conservation to our environment and communities. Parents learn how to prepare their young children for school and keep school-aged children engaged in learning. These efforts will be accomplished through: development and implementation of engaging, hands-on lessons and activities; partnering with local community organizations, schools, and other groups concerned about youth and educational success and attainment; the development and implementation of summer and after-school programs focused on STEM and life skills; and recruiting, training, and working with community volunteers on programs contributing to academic engagement and success.</p> <p>Over the past year, 76 UA Wildcat Corps Members served over 32,000 hours in 12 Arizona counties and 3 tribal communities in 30 different programs. AmeriCorps members: 75% female, 25% male, 56% identify as a member of a minority group (44% Hispanic, 7% Native American, 3% Asian, and 2% African American), were recruited, received appropriate background check, were oriented to follow AmeriCorps regulations and use reporting system, and participated in various civic engagement activities associated with the Wild Cat Corps program. AmeriCorps members supported STEM education programming to more than 26,000 people last year and mobilized over 2,000 volunteers who provided 8,400 hours of service.</p>	
--	--	--	--