

2016 Central State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

This document provides a report of Central State University (CSU) combined research and extension annual report of accomplishments and results for Federal Fiscal Year 2016.

Central State University (CSU), the only state-assisted Historically Black College and University (HBCU) in Ohio, became an 1890 Land-Grant Institution on February 7, 2014. The Land Grant Program was officially established in October 2015 and charged to administer land-grant related research and extension programs. However, since this designation, the University has aligned the structure and operation of its Land Grant Program with the mission of the Land Grant legislation to provide educational opportunities to Ohioans. In order to better accommodate the structuring of the Land Grant Program, rather than developing the program under the CSU Conservation Center, the Land Grant Program was developed under the College of Science of Engineering. The Central State University (CSU) land-grant mission continues to deliver research, teaching, and extension services to the people of the state.

As a new 1890 Land Grant Program that is tasked to provide research and extension services in Ohio, CSU had expected challenges because of the level of available funding and with hiring new staff.

However, federal support for research and extension was slightly over \$1 M. State appropriated dollars in Fiscal Year 2016 were at 100 percent match, and in addition, CSU secured a state line item for the institution. With federal and state appropriation, the University has now began structuring, organizing, building, purchasing of equipment, vehicles, supplies, and extending its research and extension presence in the state. Furthermore, the Central State University (CSU) Land Grant Extension has established operating policies, procedures, and developed merit review processes.

The 2016-2020 original Joint Plan of Work (POW) focused on building CSU infrastructure capacity and systematically developing community based planned programs. With the federal and state financial support, the CSU Land Grant Program has spent eighty percent of the time structuring and building institutional capacity and human capital and twenty percent of the time developing programs. According to the 2016-2020 Joint POW, the Program goal was to employ up to 54 extension and research staff in the next five years. To date, CSU has hired 16 full time equivalent (FTE) staff members. We have established an administrative leadership structure consisting of a Dean of the College of Science and Engineering and Director of Land Grant Programs, an Associate Director of Research, and an Associate Director of Extension. The 2016-2020 POW indicates that CSU Land Grant Programs will be executed across the state of Ohio and have co-located County Agents housed with Ohio State University Extension offices in ten of the most diverse and populated cities (Cincinnati, Columbus, Chillicothe, Cleveland, Dayton, Findlay, Sandusky, Toledo, Youngstown, and Xenia). Whereas field specialists and other research and extension support personnel will be located on campus. The 1890 Extension has hired 6 full time staff persons, and is currently in the process of hiring another 12 staff members. On the other hand, the Evans Allen Program has hired 3.5 full time staff persons, and is currently in the process of hiring 5 full time research faculty, 2 full time technician positions, and 3 half time technician positions.

Likewise, the integrated 2016-2020 POW focused on developing four planned programs. The four

planned programs are as follows: 1) Improving Agriculture, Plant, and Economics; 2) Creating Youth Pathways to Success; 3) Developing Better Social Economic Sustainable Communities; and 4) Building Stronger Families and Healthy Communities. CSU Extension has already started building a community based extension program designed to address issues driven by community concerns. It has built partnerships with local community organizations, city, county, state, and federal governments, and other universities in urban and rural communities across Ohio. In this first year, the 1890 extension has already completed programming for Improving Agriculture, Plant Pathology, and Economics and Creating Youth Pathways to Success planned programs; and developing programming for Developing Better Social Economic Sustainable Communities and Building Stronger Families and Healthy Communities. Whereas, the Evans Allen Program has incorporated 3 research projects. The 3 research projects are (a) Optimal Agronomic Practices to Reduce Nutrient Loading in Ohio's Water Bodies, (b) Enhancement of Farm Productivity; Conservation and Sustainable Utilization of Natural Products and (c) Enhanced Crop Production Efficiency through Mechanized Integrated Pest Management Strategies. These projects support a total of 16 FTE.

As the Central State University (CSU) Land Grant Program continues to implement the 2016-2020 Joint Plan of Work, the role of both the research and extension programs participating in multistate activities, expanding stakeholders, and collaborating with other institutions, will continue to play a significant part in aligning the CSU land-grant system's strength, resources, and research programs with the needs of the citizens of the state. CSU Land Grant Research will provide the science for the integrated research, teaching, and extension, while CSU Extension will continue to provide relevant community outreach leadership and education to engage communities and transform Ohioans' lives.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	{No Data Entered}	13.0	{No Data Entered}	5.0
Actual	0.0	10.0	0.0	3.5

II. Merit Review Process

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

- Internal University Panel
- External University Panel
- Combined External and Internal University External Non-University Panel
- Expert Peer Review

2. Brief Explanation

The CSU Land Grant Program merit review process included internal, external, and non-university panels. The following panels were created:

- CSU created a Land Grant Advisory panel to provide guidance on the development of Land Grant Programs. This group meets as an ad hoc committee to review and discuss programs and to provide input in order to better address stakeholders' demands. This group comprised internal, external, and expert members that consist of University officials (faculty and staff), federal, state, and local government personnel, and community leaders from across the state.

- We organized a Central State University Cooperative Extension Program (CEP) "Internal Advisory Committee". This committee comprised faculty selected by the Associate Director to serve four purposes: 1) connect the Extension Program to each Academic College of the University; 2) connect the Cooperative Extension Program to Departments that can assist program development in specific Impact Areas; 3) provide guidance on internal policy development and operations, and 4) serve as peer review experts on publications and other.

The Internal Advisory Committee is a two year appointed position. The committee will

1. Conduct an annual comprehensive and detailed program review at least every other year.
2. Convene every even month to discuss program and policy development.
3. Serve as Peer Reviewers
4. Conduct a review of planned programs.
5. Provide advice in addressing stakeholders' feedback.
6. Serve as part of the Extension Joint Internal and External Council.
7. Evaluate multi & joint program activities.
8. Provide guidance on CEP merit review process.
9. Provide feedback annually on Plan of Work.
10. Review Extension faculty publications before submission and print.
11. Serve as point of contact in College to direct faculty on CEP protocol, process, and procedure.
12. Serve as distributor of relevant grant information to faculty in specific departments of the college.

- For the Evans Allen Research Program, we created an internal review panel comprising the Chairs the College of Science & Engineering and an external review panel comprising external reviewers from the School of Environment and Natural Resources and The Ohio State University.

- In addition, as part of co-location with OSU, the CSU merit process also includes local advisory councils. This group helps provide program direction to CSUE and Research. There have been several meetings in different places to discuss programs, program directions, and community needs.

III. Stakeholder Input

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

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals
- Survey of selected individuals from the general public
- Other (focus groups, public information booths at local gatherings)

Brief explanation.

Stakeholder participation is encouraged in several ways: (1) Public relations makes media announcements about public meetings, listening sessions, and town hall meetings to increase awareness of the Land grant mission and to encourage stakeholders' participation, (2) the co-located Extension offices with OSU Extension work with advisory committees to encourage stakeholders' input for program planning, implementation, and evaluation in order to address issues and concerns expressed within the community, (3) conference surveys from traditional, non-traditional, stakeholder groups, and individuals gather input from stakeholders about programs and program impact, and (4) public forums were used to encourage stakeholders' input.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys
- Other (one on one with existing and stakeholder)

Brief explanation.

Multiple methods were used for the 2015-2016 fiscal year to seek stakeholder input. The approaches included listening sessions, internal focus groups, formal surveys, external focus groups, and advisory councils. These efforts were made to ensure that the stakeholders involved included representatives of the limited resource households in terms of geographic location, family status, income level, race, age, gender, disability status, and users or non-users of

existing educational programs.

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

1. Methods for collecting Stakeholder Input

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

Brief explanation.

The CSU Land Grant Program used multiple methods for collecting stakeholder input: Town hall meetings, surveys, face-to-face, focus groups, one-on-one interactions, and listening sessions. In addition, internal faculty and staff committees, advisory committees, and groups were used to collect stakeholders' input.

3. A statement of how the input will be considered

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

Brief explanation.

The stakeholders' inputs were used to develop relevant research and Extension programs based on community needs. It was essential to us focus and affirm program locations and priorities. The stakeholders helped the CSU Land Grant Program be adaptive to society's needs and identify emerging issues. In addition, the input helped CSU shift direction in staffing arrangements and budgetary considerations based on the greatest needs of the population.

Brief Explanation of what you learned from your Stakeholders

For the research projects under the Evans Allen Research Program, the groups we met informed us as to whether the research projects would bring meaningful impacts. With regard to Project II- Enhancement of Farm Productivity, Conservation and Sustainable Utilization of Natural Products in which the project objectives include enhancing honey bee cultivation through developing model apiaries and establishing a laboratory to produce disease-resistant nuke queens - a technology developed by Purdue University - by artificial insemination, a philanthropic organization and an interest group have expressed support for the project. There had pledged support for the project. We learned that by focusing on critical problems affecting the State, the support from different interest groups increases.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	1151046	0	1117200

2. Totalled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	146350	0	153511
Actual Matching	0	130014	0	146059
Actual All Other	0	0	0	0
Total Actual Expended	0	276364	0	299570

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

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Improving Agriculture, Plant Pathology, and Economics
2	Developing Better Social Economic Sustainable Communities
3	Building Families and Communities
4	Creating Youth Pathways to Success

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Improving Agriculture, Plant Pathology, and Economics

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources		0%		5%
102	Soil, Plant, Water, Nutrient Relationships		5%		10%
111	Conservation and Efficient Use of Water		0%		10%
112	Watershed Protection and Management		0%		10%
133	Pollution Prevention and Mitigation		0%		10%
135	Aquatic and Terrestrial Wildlife		10%		10%
136	Conservation of Biological Diversity		0%		10%
216	Integrated Pest Management Systems		0%		20%
402	Engineering Systems and Equipment		0%		10%
405	Drainage and Irrigation Systems and Facilities		0%		5%
605	Natural Resource and Environmental Economics		15%		0%
608	Community Resource Planning and Development		70%		0%
	Total		100%		100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	4.0	0.0	2.0
Actual Paid	0.0	4.0	0.0	2.0
Actual Volunteer	0.0	0.0	0.0	1.5

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	43905	0	153511
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	43176	0	146059
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

CSU Extension provided over 30 hours of agriculture programming for Ohio's urban and rural citizens:

- CSU conducted 2 conferences- A 2 day Minority, Women, and Small farmer's Conference was held on the CSU main campus. The conference featured 30 community resource planning and development, education and technical presentations, networking sessions, and panel discussions. The conference goal was to provide technical information and learning opportunities to prospective or beginning farmers, ranchers, and other socially disadvantage farmers. Also, we held a 1 day Urban Agriculture Community Conference. The conference featured 10 concurrent workshops on natural resource and environmental economics, and Plant and Water nutrient relationships. The conference goal was to provide technical information and learning opportunities.

- Collaborated with The State Ohio Baptist General Assembly to conduct a 3 day agricultural education workshop for their 6-11 grade youth. The goal was to introduce agriculture and terrestrial wildlife and provide for agricultural learning opportunities.

- Attended a 3 hour Ohio's Farmer Union meeting to explain CSU Land Grant Program's community resource planning and development.

- Conducted a 2 hour agriculture business work shop to educate small and new beginning farmers about developing business plans.

- Held a 2 week camp to educate youth about soil, plant, and water nutrient relationships and appraisal of soil resources.

Three (3) research projects were developed, reviewed internally and externally, and submitted to NIFA under the topics

1. Optimal Agronomic Practices to Reduce Nutrient Loading in Ohio's Water Bodies
2. Enhancement of Farm Productivity; Conservation and Sustainable Utilization of Natural Products
3. Enhance Crop Production Efficiency through Mechanized Integrated Pest Management Strategies

I. Optimal Agronomic Practices to Reduce Nutrient Loading in Ohio's Water Bodies

Under this project search committees for the positions of Research Assistant Professor of Soil science/agronomy, and Research Assistant Professor of Agricultural Engineering/Precision Agriculture for a technicians were set up and the search processes were begun.

II. Enhancement of Farm Productivity; Conservation and Sustainable Utilization of Natural Products

Investigation was conducted on those species which are native plants and candidates for testing for their medicinal properties, *Plectranthus amboinicus*, *Centella asiatica*, *Murraya koenigii* and *Colocasia antiquorum* for cultivation by small farmers. A preliminary data collection field design was formulated for obtaining information on and reptiles and rodents. Three sites were identified and permits to collect data were obtained from the Ohio Department of Natural Resources (ODNR), Division of Parks and Natural Areas; Ohio Historical Society; and ODNR, Division of Wildlife. A set of preliminary data on reptiles and rodents was obtained.

With regard to Project II the following were accomplished:

Directed Energy (DE), which is a combination of UV-A, visible and infrared energy with enough intensity to kill weeds with minimal environmental impact was investigated. Combined with machine vision, directed energy is a powerful tool to control weeds in multiple settings. Global Neighbor, Inc. has gone on to design and build a commercially available, tractor pulled distributed array that can identify weeds with machine vision and accurately kill weeds with computer control. Researchers have established the CSU Mechatronics Laboratory at CSU. A Mechatronics Engineer and two technicians, one in engineering and one in computer, vision are in the process of being hired. Equipment has been purchased for field testing of directed energy, and testing undergraduate students and faculty in soybean test plots begins Spring 2017. The directed energy technology has been shown effective against common weeds found in the Mid-West such as dandelion, crabgrass, and ragweed. This University-Business partnership provides training and part-time jobs in integrated pest management, agricultural robotics, and machine vision to minority undergraduate students at Central State University. The interdisciplinary team of engineers, and plant and computer vision scientists has provided a research core and entrepreneurship capability for a new and expanding program in precision agriculture at Central State University.

2. Brief description of the target audience

The targeted audiences were small farmers, limited resource growers and families, and women and minority farmers from rural and urban areas. AFWRC and CEP information will be shared with fellow scientists, federal, state, and local agencies such as Ohio DNR, ODA, USDA, SWCD, and EPA, political entities, K-12 administrators and counselors, AGR, WRM, NSC, and the proposed Exercise Science majors.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	400	2000	170	500

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

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Educational demonstrations for small, limited-resource, and minority farm families on best management practices and best available technologies on sustainable agriculture

Year	Actual
2016	2

Output #2

Output Measure

- Number of Educational programs, activities, or events on ecosystem services and sustainable agriculture

Year	Actual
2016	1

Output #3

Output Measure

- Research publications related to different components of sustainable agriculture

Year	Actual
2016	3

Output #4

Output Measure

- Research-based, reader-friendly pamphlets, and fact sheets on sustainable agriculture and farm economics
Not reporting on this Output for this Annual Report

Output #5

Output Measure

- In each output measure, we will take inventory on total number of participants.

Year	Actual
2016	200

Output #6

Output Measure

- Student posters, presentation in trade shows, food stores and scientific forums

Year	Actual
2016	8

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	To identify new knowledge, techniques and improved hypothesis on questions related to Natural Resources and Environment
2	To identify research activities Plant Health, Plant production and Products as to generate new knowledge, information, techniques, and tools.
3	To identify research activities related to Agricultural Systems and Technology such as new knowledge, techniques, improved hypothesis on questions.
4	To identify research activities such as new knowledge, techniques and improved hypothesis on questions related to Agricultural Economic and Rural Communities

Outcome #1

1. Outcome Measures

To identify new knowledge, techniques and improved hypothesis on questions related to Natural Resources and Environment

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Receiving knowledge about funding opportunities, programs, technical assistance issues, continues to be the most desired service requested by small urban and rural farmers. CSU Land Grant Program is developing its land-grant system to provide service and solutions to this population of Ohioans.

What has been done

Since establishing the Land Grant Program, we have brought together researchers and state and federal government agencies with urban clients and farmers, to bring essential information on government programs and technical assistance.

Results

Urban and rural clients are aware of financial assistance programs. In addition, they are also aware of both state and local technical assistance providers for agriculture related issues.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

To identify research activities Plant Health, Plant production and Products as to generate new knowledge, information, techniques, and tools.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

To identify research activities related to Agricultural Systems and Technology such as new knowledge, techniques, improved hypothesis on questions.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

To identify research activities such as new knowledge, techniques and improved hypothesis on questions related to Agricultural Economic and Rural Communities

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (support in school for programs)

Brief Explanation

CSU Land Grant Program did not receive federal or state funding until February of 2016. As a result, we were not able to hire an Associate Director of Extension until April and the 4 additional staff until August of 2016. Lack of approval for research projects and equipment resulted in some objectives not getting started as we desired. The condition that we have to have research projects to hire new researchers and technicians delayed the overall process of achieving results on a timely basis. Funding was a significant external factor affecting outcomes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The CSU Land Grant was able to conduct 3 educational conferences to educate socially disadvantaged, limited-resourced, under-served and under-represented groups. Participants' responses from these events were that they received new knowledge. In addition, the evaluation from the population surveyed resulted in learning about specific program needs for new and beginning urban clients interested in farming. From these evaluations, we will incorporate additional topics for the next conference so that our Evan Allen Research Program will be able to engage researchers after they have begun as research faculty.

Key Items of Evaluation

Timely allocation of funding for the research and extension land-grant programs would be most helpful for having specialized staff prepare, distribute, and retrieve better evaluation instruments for the planned program.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Developing Better Social Economic Sustainable Communities

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
602	Business Management, Finance, and Taxation		10%		0%
603	Market Economics		10%		0%
607	Consumer Economics		20%		0%
608	Community Resource Planning and Development		40%		0%
801	Individual and Family Resource Management		20%		0%
	Total		100%		0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	3.0	0.0	1.0
Actual Paid	0.0	1.5	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	29270	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	28784	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The development of the CSU Land Grant Program's developing better socially economically sustainable communities has been a four-phase approach with the goal of transcending social, economic, political, and academic boundaries, all in the interest of assembling wide-ranging expertise in the delivery of services to vulnerable and under-served communities in the state of Ohio. In this four phase approach: 1) we identified each major city where the Land Grant Program will co-locate County agents, 2) we engaged in community discussions with city majors, city managers, and community leaders, 3) we recognized specific community and economic developments, and 4) we garnered letters and commitments of support to jointly address some of the prevailing issues surrounding workforce development, job creation, neighbor restoration, and community revitalization projects. We are still building our planned program for "Developing Better Socially and Economically Sustainable Communities. Below is the timeline that reflects what we have done:

Suggested timeline:

Spring 2015

- Research and gather data on urban areas with under-served communities as evidenced by indicators such as obesity rates, food stamp recipients, distance to supermarkets and other sources of healthy foods, and abandoned and distressed acreage.
- Identify the area most appropriate for the initial seminar/conference.

Summer 2015

- Define conference focus and short-term goals.
- Plan conference date, events, logistics/equipment.

Fall 2015

- Identify prospective collaborators; assess budget impact of their participation.
- Preliminary discussion with collaborators on short- and long-term goals,
- Secure their endorsement and support.
- Secure commitment from collaborators for conference participation.

Fall 2016

- Conference held and completed.
- Analyze feedback from conference participants, observers.
- Assess feedback and conference details for the goal of publishing conference proceedings with student co-authors.

2. Brief description of the target audience

There are more than 340,000 poor families living in Ohio. This represents 11.6 percent of the families in the state which is 16.0 percent of the population, or 1,797,000 people who fall below the poverty line. Much of the cause of this poverty is from a lack of opportunities in the local communities for jobs.

According to the 2015 Ohio Poverty Report, families with children ranging from 7.3% among married couples to 55.3% for those headed by a female single parent experienced poverty during the last year. Because the CSU Land Grant Program is a community based approach focused on both the urban and rural communities, family statistics such as these continue to keep families in Ohio as our number one targeted audience.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	23	22000	0	0

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

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Demonstrate how consumer behavior affects purchasing decisions. Conduct seminars on family economics and spending and their effect on local markets
 Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Conduct and evaluate seminars on poverty, welfare, and economic discrimination

Year	Actual
2016	0

Output #3

Output Measure

- Conduct training for small, minority, farmers, and participate in small business development training with local partners (DDC, TEC, etc.)
Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Conduct and evaluate seminars on poverty, welfare, and economic discrimination

Year	Actual
2016	0

Output #5

Output Measure

- Establish urban farms within local (Greene and Montgomery County) municipalities.
Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Conduct Personal Finance Seminars, Retirement Seminars
Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Conduct Seminars in predatory lending and protecting the consumer.
Not reporting on this Output for this Annual Report

Output #8

Output Measure

- Conduct seminars in building better relationships and reducing household stress.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Demonstrate how consumer behavior affects purchasing decisions. Conduct seminars on family economics and spending and thier effect on local markets. The Planned Program will interface with local and regional relief agencies in order to sponsor seminars on selected topics including shopping in your neighborhood, consuming products grown and raised by local farmers, making better economic decisions, and leveraging the distribution of labor in the family.
2	Conduct and evaluate seminars on poverty, welfare, and economic discrimination in underserved and economically at-risk communities. These seminars will cover a variety of topics including fair housing, economic discrimination, equal pay in the workplace, job availability, and the availability of economic opportunities in the geographic area. Seminars will also be used to teach participants to dress for interviews, interviewing skills, completing employment applications, and career planning.
3	Engage economic development & entrepreneurial partners in Greene & Montgomery counties to conduct quarterly education workshops to promote sustainable agriculture development in urban areas Partner with Dayton Development Coalition & Dayton Entrepreneur Center to provide information on sustainable business formation by embedding agriculture specific business development with standard financial business management skills. Collaborate with the Greene County & Montgomery County Small Business Development Centers to provide group discussions to urban farm entrepreneurs to learn about funding sources and small business loans. Conduct yearly one-day seminar with County stakeholders with breakout sessions to include the following: entrepreneurial urban farming workshops with case studies, commercial food marketing, managing a startup business, and how to successfully transition from farm to market in an urban setting.
4	Programs in this area will develop business educational workshops to engage minority farmers in Ohio over a five year period resulting in effective farm to table management practices to benefit urban communities. Engage with municipality stakeholders to target green spaces in targeted food desert areas to develop community urban farming plots. Conduct group discussions in faith based locations to educate individuals how to raise their own gardens in urban settings and promote healthier food choices Conduct train-the-trainer demonstrations with agriculture partners on the most effective urban gardening techniques on an on-going basis.
5	Conduct Personal Finance Seminars teaching participants how to develop household budgets. Conduct seminars on retirement planning. Teach participants the benefit of having good credit ratings and how to develop banking habits that will result in having good credit.
6	Conduct seminars in building better relationships and reducing household stress and in relationship management focused on keeping children in functional households. Plan activities with the child support advocate groups. This outcome can also benefit from teen parenting seminars, alcohol and drug abuse resistance, and attending college.

Outcome #1

1. Outcome Measures

Demonstrate how consumer behavior affects purchasing decisions. Conduct seminars on family economics and spending and their effect on local markets. The Planned Program will interface with local and regional relief agencies in order to sponsor seminars on selected topics including shopping in your neighborhood, consuming products grown and raised by local farmers, making better economic decisions, and leveraging the distribution of labor in the family.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Conduct and evaluate seminars on poverty, welfare, and economic discrimination in underserved and economically at-risk communities. These seminars will cover a variety of topics including fair housing, economic discrimination, equal pay in the workplace, job availability, and the availability of economic opportunities in the geographic area. Seminars will also be used to teach participants to dress for interviews, interviewing skills, completing employment applications, and career planning.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Engage economic development & entrepreneurial partners in Greene & Montgomery counties to conduct quarterly education workshops to promote sustainable agriculture development in urban areas Partner with Dayton Development Coalition & Dayton Entrepreneur Center to provide information on sustainable business formation by embedding agriculture specific business development with standard financial business management skills. Collaborate with the Greene County & Montgomery County Small Business Development Centers to provide group discussions to urban farm entrepreneurs to learn about funding sources and small business loans. Conduct yearly one-day seminar with County stakeholders with breakout sessions to include the following: entrepreneurial urban farming workshops with case studies, commercial food marketing, managing a startup business, and how to successfully transition from farm to market in an urban setting.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Programs in this area will develop business educational workshops to engage minority farmers in Ohio over a five year period resulting in effective farm to table management practices to benefit urban communities. Engage with municipality stakeholders to target green spaces in targeted food desert areas to develop community urban farming plots. Conduct group discussions in faith based locations to educate individuals how to raise their own gardens in urban settings and promote

healthier food choices Conduct train-the-trainer demonstrations with agriculture partners on the most effective urban gardening techniques on an on-going basis.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Information from faith-base institutions has shown a significant need and desire to provide community based-solutions for the on-going pandemic with community food and hunger issues throughout Ohio. Community gardens have been a way by which they prefer to engage communities.

What has been done

The CSU Land Grant Program has met with several faith-based organizations across the state to discuss the development of community gardens. We have invited them to be a part of our 2017 conferences and establish a partnership so that we are able to provided more direct technical and educational assistance.

Results

The relationships have shifted the CSU community garden assistance from more faith-based institutions to work with the CSU Land Grant Program with gardening and 4-H Youth.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #5

1. Outcome Measures

Conduct Personal Finance Seminars teaching participants how to develop household budgets. Conduct seminars on retirement planning. Teach participants the benefit of having good credit ratings and how to develop banking habits that will result in having good credit.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Conduct seminars in building better relationships and reducing household stress and in relationship management focused on keeping children in functional households. Plan activities with the child support advocate groups. This outcome can also benefit from teen parenting seminars, alcohol and drug abuse resistance, and attending college.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (staffing and Funding)

Brief Explanation

The CSU Land Grant Program did not receive federal or state funding until February of 2016. As a result, CSU Land Grant Program was unable to hire staff for the Developing Better Social and Economic Sustainable Communities program until March 2016. Lack of approval for of research projects and approvals of equipment resulted in some objectives not getting started as we desired. The condition that we have to have research projects to hire new researchers and technicians delayed the overall process of achieving results on a timely basis. Funding was a significant external factor affecting outcomes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

No evaluation was conducted on the program.

Key Items of Evaluation

N/A

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Building Families and Communities

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food		5%		0%
702	Requirements and Function of Nutrients and Other Food Components		5%		0%
703	Nutrition Education and Behavior		30%		0%
704	Nutrition and Hunger in the Population		20%		0%
724	Healthy Lifestyle		5%		0%
801	Individual and Family Resource Management		20%		0%
802	Human Development and Family Well-Being		15%		0%
	Total		100%		0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	3.0	0.0	1.0
Actual Paid	0.0	1.5	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	29270	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	28784	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Centers for Disease Control (CDC's) Division of Nutrition, Physical Activity, and Obesity (DNPAO) utilizes a public health approach to address the role of nutrition and physical activity in improving the public's health and preventing and controlling chronic diseases. Given the complex nature of addressing family and community needs as a subject, the areas are broadly supported in scientific areas ranging from nutrition education and behavior, healthy lifestyle, to individual and family resource management, and human development and family well-being. As a result, the CSU Land Grant Program engaged a university faculty to investigate developing a program that can guide families and communities to make informed decisions regarding healthy living and their well-being. The Land Grant Program also sent faculty to national training sessions to explore research information that can introduce solutions that will help address public and chronic disease issues. This resulted in applying applied research to investigate the role of nutrition in preventing and controlling diseases with public health.

2. Brief description of the target audience

According to the 2015 Ohio Poverty Report, families with children ranging from 7.3% among married couples to 55.3% for those headed by a female single parent experienced poverty during the last year. Poverty appears to have a strong correlation to poor health in families. Therefore, single parents will continue to be one of the top audiences that our planned program Building Families and Communities will target.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	230	460	0	0

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

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational sessions held. Total number of participants in this event/project who are defined as under-represented individuals (e.g. women, minorities, individuals with disabilities, small farm owners, etc.) Total number of participants in this event/project who are defined as under-served individuals (i.e. individuals whose needs have not been addressed in past events)
 Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Participants will identify influences on food intake and dietary patterns specifically in relation to decision making
2	Participants will describe and identify elements of a healthy lifestyle
3	Participants will describe elements of individual and family resource management
4	Participants will identify characteristics of human development related to social, cognitive, emotional, and physical development of individuals and families over the human lifespan

Outcome #1

1. Outcome Measures

Participants will identify influences on food intake and dietary patterns specifically in relation to decision making

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Participants will describe and identify elements of a healthy lifestyle

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Participants will describe elements of individual and family resource management

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Participants will identify characteristics of human development related to social, cognitive, emotional, and physical development of individuals and families over the human lifespan

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (staffing and funding)

Brief Explanation

The CSU Land Grant Program did not receive federal or state funding until February of 2016. As a result, the CSU Land Grant Program was unable to hire staff for the Building Families and Communities planned program until March 2016. Lack of approval for research projects and approval of equipment resulted in some objectives not getting

started as we desired. The condition that we have to have research projects to hire new researchers and technicians delayed the overall process of achieving results on a timely basis. Funding was a significant external factor affecting outcomes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

No evaluation was conducted on the program.

Key Items of Evaluation

N/A

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Creating Youth Pathways to Success

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management		10%		0%
806	Youth Development		90%		0%
	Total		100%		0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	3.0	0.0	1.0
Actual Paid	0.0	3.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	43905	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	29270	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The CSU Land Grant Program Creating Youth Pathways to Success planned program is a 4-H STEAM Youth After School Program designed as a hands-on inquiry-based fun, but relevant experiential youth program. It is a youth leadership development program designed to incorporate a traditional 4-H program into a community based approach. The CSU Land Grant Program Creating Youth Pathways to Success planned program has completed the following youth programs:

- Partnered with The State Ohio Baptist General Assembly to conduct a 3 day agricultural education workshop for their 6-11 grade youth from across the state. The program integrates a 4-H STEAM program to introduce agricultural and terrestrial wildlife and provide for agriculture learning opportunities.
- Held a 2 week half day Seed to Bloom summer camp program to educate 6th , 7th , and 8th grade youth about soil, plant, and water nutrient relationships, and appraisal of soil resources.
- AG STEM Camp. Thirty (25) rising 6th, 7th and 8th grade students to participate in the program. During the day they will be exposed to all major areas of STEAM courses and their interconnectivity to Agriculture in addition to the Youth Professional Development courses in alignment with nationally recognized 4-H programs. All STEAM courses are focused on Agricultural based projects. Field trips to partnering agricultural-based businesses are part of the program.
- We have established 3 4-H After School Programs with schools and faith based Institutions. There are an additional 7 organizations that we are currently planning to partner our afterschool program with.

2. Brief description of the target audience

We are targeting underserved and socially disadvantaged communities in urban communities. We are targeting

- Groups from public and private schools, FFA, and 4H clubs
- K-5 & Rising 6th, 7th, 8th grades and High school 9th , 10th , and 11thgrades
- Elementary School (K-5) discovery of science and its importance to every day life.
- Middle Schools: (6-8): exploring science (building skills) and leadership development
- High Schools (9-11): skills applications and leadership development

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	40	0	1000	2000

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

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Technical skills development (STEM): Discovery , exploration and application of STEM (Ag-STEM connectivity)
 Not reporting on this Output for this Annual Report

Output #2

Output Measure

- How to obtain and use available resources of time, money, and human capital to achieve and improve quality of life.
 Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Understand the factors that affect decision making processes such as availability of resources, life events, living patterns, values, goals, interests, and external issues such as public issues, policies and programs.
 Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Get an understanding of the social, cognitive and emotional development of individuals

Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Promotion of positive youth development

Year	Actual
2016	0

Output #6

Output Measure

- Promotion of positive youth development

Year	Actual
2016	0

Output #7

Output Measure

- Understanding Civic, public and academic structures. Civic engagement

Not reporting on this Output for this Annual Report

Output #8

Output Measure

- Community service/ Volunteerism

Year	Actual
2016	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Technical skills development Science, Technology, Engineering, Agriculture, and Math (STEAM): Discovery , Exploration, and Application of STEM (Ag-STEM connectivity)

Outcome #1

1. Outcome Measures

Technical skills development Science, Technology, Engineering, Agriculture, and Math (STEAM):
Discovery , Exploration, and Application of STEM (Ag-STEM connectivity)

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many of our Ohio urban communities are experiencing problems the youth need for having alternative after school youth programs. The CSU Land Grant Program offers an alternative education and development youth program.

What has been done

The CSU Land Grant Program has completed the following youth programs:

*Partnered with The State Ohio Baptist General Assembly to conduct a 3 day agricultural education workshop for their 6-11 grade youth from across the state.

*Held a 2 week half day Seed to Bloom summer camp program to educate 6th , 7th , and 8th grade youth about soil, plant, and water nutrient relationships.

*AG STEM Camp has held a Twenty-Five (25) rising 6th, 7th and 8th grade students to participate in the program. During the day they will be exposed to all major areas of STEAM

*We have established 3 4-H After school programs with choools and faith-based Institutions. There are an additional 7 organizations that we are currently planning to partner our afterschool program with.

Results

The program has fostered collaboration from public and private schools with 4-H after School STEAM programming.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Other (staff and funding)

Brief Explanation

The CSU Land Grant Program did not receive federal or state funding until February of 2016. As a result, the CSU Land Grant Program delayed hiring staff for Creating Youth Pathways to Success planned program until March 2016. Lack of, approval for research projects and approval for equipment resulted in some objectives not getting started as we desired. The condition that we have to have research projects to hire new researchers and technicians delayed the overall process of achieving results on a timely basis. Funding was a significant external factor to affect outcomes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

No evaluation was conducted on the program.

Key Items of Evaluation

N/A

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

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