

Sustainability Fee Project Grant Report Guidelines
 for grants awarded during FY2016
 Due by 5pm August 1, 2016
 Email pdf or word doc to cfs@georgiasouthern.edu

Please provide the following information in order to help the Center for Sustainability document the success of the Sustainability Fee Grant Program.

Date: 8/1/2016
Name(s): Subhrajit Saha (PI), Amber Monroe (Co-I), and Ryan M. Day (Co-I)
Unit/Department(s): Biology
E-mail address: ssaha@georgiasouthern.edu
Phone: 912-4785480
Project title: Georgia Southern Aquaponics: Sustainable Food Production on Campus
Amount granted: \$ 21132.00
Amount spent: \$ 10137.38

I. Project Outcomes/Value

Detail the planned and actual outcomes of the project here.

Provided below.

Project Timeline - Is your project *completed* or still *in progress*?

If not yet completed, please explain why it is delayed and provide a projected completion date.* (*Note – an amended final report will be due one month after the projected completion date).

The research portion of the project started in July 2015 and ended in December 2015. The education and training portion started in September 2015 and ended in May 2016. Amended final report has been submitted.

Project Outcomes -List the *proposed* project goals/objectives and *actual* outcomes of the grant. Describe any successes, challenges and observations.

Proposed Goals	Actual outcomes
To understand the effects of crayfish aquaponics systems on growth and yield of agricultural crops.	Goal accomplished. We observed the effects on Basil, Parsley and Pepper.
To compare the production of crop between hydroponic and aquaponics system.	Goal accomplished. We observed the crop production differences between hydroponic and aquaponics system.
Educate the GSU students about soilless agricultural systems	Over 100 GSU students have been educated directly.

Sustainability Improvements – clearly state how your project has improved campus or community sustainability and explain how you assessed the improvement. If funds were used to purchase products intended to reduce energy, water use, waste, labor cost, etc., please provide information and

calculations that show the expected return on investment for your grant.

This project certainly had the potential to contribute to campus sustainability. The project had a focal area of educating the GSU students and the community about sustainable food production through aquaponics. We had over hundred students received training and a large number of community people attended the workshop and the greenhouse demonstrations. Both the students and the community expressed interest in carrying out aquaponic projects at home. Crop seedlings and crayfish sample were distributed among the interested participants, so that they can start their own aquaponics. Students, faculty, and staff have expressed interest in setting up their own systems at home. Individuals (from near and far) have contacted us via Facebook requesting advice on their own systems. Several people came and took leftover nutrient rich tank water from the project to use in their homegardens.

Outreach – how did you publicize your Sustainability Fee grant/project? Please attach copies of all publicity (news articles, web pages, fliers, newsletter, etc.) associated with your grant. If no publicity measures have been taken yet, what are your plans for publicity of your project?

The project was publicized via demonstration, workshop, Facebook and by making a short film for YouTube.

Green Fest, 2015: An aquaponic workshop was organized at the Statesboro Green Fest took place on October 3, 2015 (<http://academics.georgiasouthern.edu/sustainability/events/greenfest/>). The PI and co-investigators of this project organized the workshop, which involved hands on demonstration for making aquaponics at home (See Picture 5 and 6). About 70 – 80 people visited the workshop booth.

Short-film: A demonstration video/short-film was developed using the aquaponics study and Has been uploaded in YouTube (<https://www.youtube.com/watch?v=Wdor4kNa2WE>) (See Picture 7). This film has the potential educate people beyond GSU and Statesboro.

All the evidences of publicity are given at the end of this document.

Budget report- provide an explanation of how all funds were used and explain any deviation from the original budget.

The funds were used as per the original budget was provided and there were no deviation. The total amount spent for materials/supplies were \$ 5370.38 and \$4767.00 was spent for student salary. We did not spend all the money. The reason we could save money because, we received a lot of volunteers from Agroecology and Biology of Plants classes, who were willing to help and we did not have to hire and pay. Also, we received local company donations, such as seedlings and borrowed several equipment from GSU colleagues instead of buying them. Altogether, these factors helped us save the student fee money.

Data As Of: 7/10/2016		Departmental Financial Expense Summary Report			Date:	7/11/2016	
Department	3600116	Sustainability Project-Saha	Program	15990	Other Student Services	Page:	114
Manager	Saha, Subhrajit K		Class	11000	Gen Opns - General		
Fund Code	13000	Student Activities	Bdgt Pd	2016			

Account	Account Descr	Project	Budget	Encumbered	Expended	Total Obligation	Balance
524000	Salaries-Student Assistants		6,500.00			4,767.00	1,733.00
524100	Salaries-Student Assistants			0.00	4,767.00		
	Total Personal Services		<u>6,500.00</u>	<u>0.00</u>	<u>4,767.00</u>	<u>4,767.00</u>	<u>1,733.00</u>
700000	Oper Supp and Exp-Budget Ac		14,632.00			5,370.38	9,261.62
714100	Supplies & Materials Expense			0.00	5,370.38		
	Total Operating Supplies and Exp		<u>14,632.00</u>	<u>0.00</u>	<u>5,370.38</u>	<u>5,370.38</u>	<u>9,261.62</u>
Total Deptid: 3600116 Fund: 13000 Prog: 15990 Class: 11000			<u>21,132.00</u>	<u>0.00</u>	<u>10,137.38</u>	<u>10,137.38</u>	<u>10,994.62</u>

II. Student and Community Impact

Because these grant funds come directly from a \$10 Student Sustainability Fee, it is important to document how they benefit students. Please provide information on the following:

#Undergraduate students employed by the grant, and length of employment (# hours/week for x weeks)

One undergraduate student was employed by this project in Fall 2015 and Spring 2016.

- Amber Monroe, 10 hours/week for 41 weeks

#Graduate students employed by the grant, and length of employment (# hours/week for x weeks)

Two graduate students were employed by this project.

- Matthew Pfister, 15 hours/week for 3 weeks
- Ryan Day, 15 hours/week for 3 weeks

volunteers involved in the project, including total # of volunteer hours

Total 11 volunteer students worked in this project (Fall 2015 and Spring 2016). Total volunteering hours including all events and activities exceeded 100 hours.

students reached through classes or other means

Over 100 students were reached directly from classes and indirectly from other sources.

community members reached

Over 100 community members were reached from workshops and via Facebook.

Grant Leverage

Were you able to leverage your work for additional outcomes? Indicate the following if they apply.

Scientific Publication: A scientific publication in a peer-reviewed journal is expected. The manuscript has been submitted and it is currently under review. Once published it will reach the scientific community.

Project abstract

Provide a one paragraph abstract of the completed project and a photo (preferably including some of the people involved with the project at work) to be posted on the CfS web page. Also include links to all web pages on which this work is discussed or displayed

Georgia Southern Aquaponics: Sustainable Food Production on Campus

The traditional agricultural systems are challenged by declining soil resources and alternative agricultural practices that require limited space and no soil are being recognized. With the funding support from the Student Sustainability Fee grant, a soilless food production study comparing aquaponic (crayfish and plant crop) and hydroponic (plant crop only) was conducted at the Biology department of Georgia Southern University (GSU), Statesboro, GA in 2015 – 2016. The objectives were, i) to understand how the crop growth and yield (basil, pepper, and parsley) differ between aquaponics and hydroponics, and ii) to educate the GSU students and the community about the sustainable soilless agricultural food production. We are expecting a scientific publication from the research portion of the project. The education and outreach portion included regular training and demonstrations in greenhouse, workshop at Statesboro Green Fest 2015, creating a Facebook page and making a short educational film. (www.youtube.com/watch?v=Wdor4kNa2WE). Over 10 students were involved in this project and over 100 GSU students and 100 community members were trained via demonstrations and workshop. The Facebook page and the short film has already reached several hundred people within and beyond Statesboro and have the potential to reach many more in future. The key people involved in this project were, Dr. Subhrajit Saha, Ms. Amber Monroe, Mr. Ryan Day, and Mr. Matthew Pfister, all from the Agroecology Lab of the Biology department at GSU.



Outreach: Continued...

Picture 1: Promotional Leaflet



GEORGIA SOUTHERN AQUAPONICS PROJECT



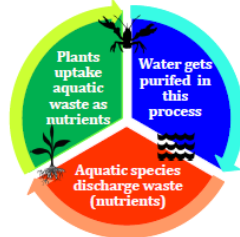
What is Aquaponics?

Aquaponics is a soil-less agricultural system where crops are grown in water in association with aquatic animals, such as fishes or crayfishes. In this sustainable food production system, animal waste is used as a nutrient source for plants replacing the need for fertilizers.



Project Members: Amber Monroe, Ryan Martin Day and Matthew Pfister
Advisor: Subhrajit Saha

How does it work?



Want to Learn More?

Want to Learn More About Aquaponics?
 Send Us an E-mail at georgiasouthernaquaponics@gmail.com
 to Come Take a Tour of the Georgia Southern Aquaponics Project and Learn How You Can Make Your Own Aquaponics at Home!
Hurry! Tours Offered Until November 2015!



Why is it Important?

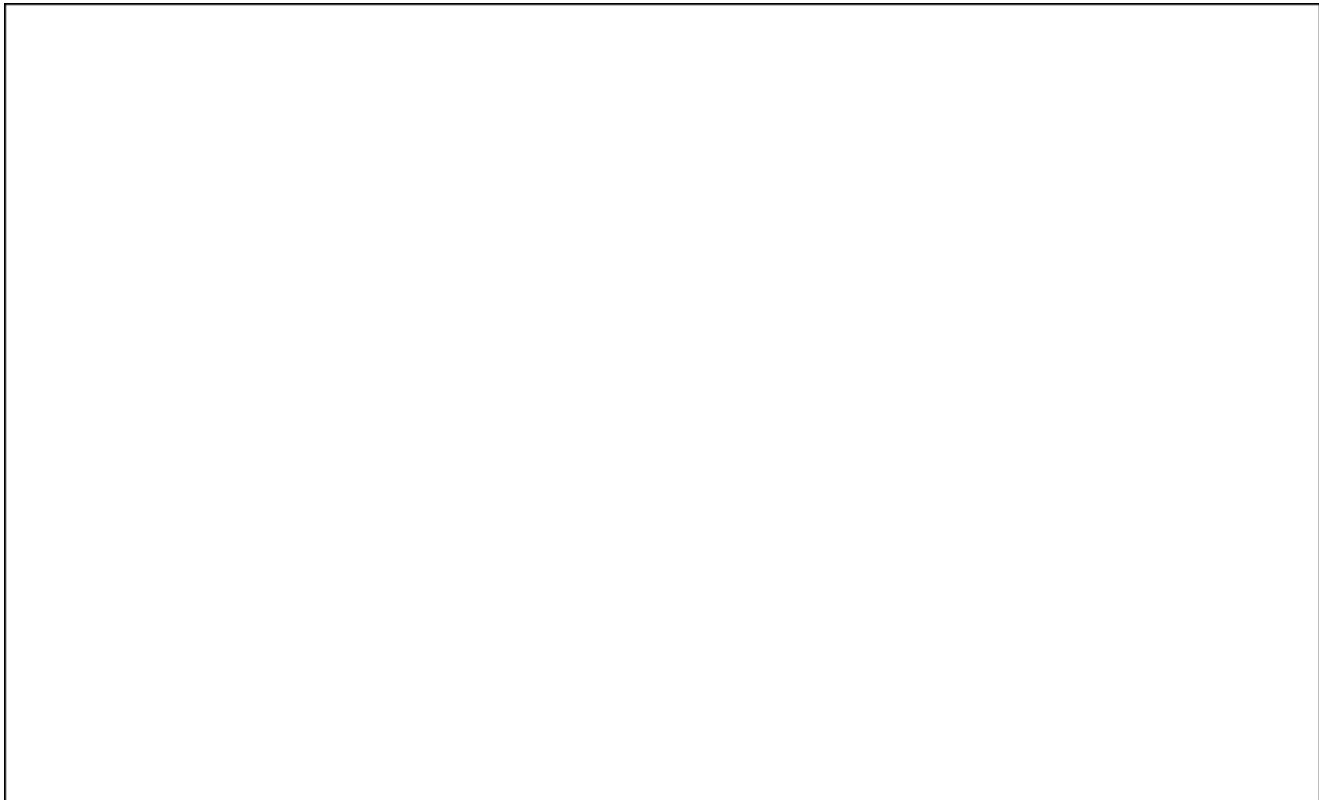
- Growing Population : Land Shortage
- Indoor Vertical Layers: Less Land
- Crops and Fishes Grown Together
- Year Round Cultivation of Crops
- Reduced Environmental Pollution

Aquaponics Research

GSU Student Sustainability Fee Project
 College of Undergraduate Research Project
 Study Crops: Lettuce, Pepper, Parsley, Basil
 Aquatic Species: Crayfish



Picture 2: Educational Posters



Picture 3: Aquaponic Demonstration



Picture 4: Aquaponic Demonstration



Picture 5: Greenest 2015-Downtown Aquaponic Workshop



Picture 6: Greenest 2015-Downtown Aquaponic Workshop



Picture 7: Educational Short-Film



<https://www.youtube.com/watch?v=Wdor4kNa2WE>

Picture 8: Facebook Page



Georgia Southern Aquaponics

Create Page @username

Send Message Liked Message

Home About Photos Events More

Community

Status Photo / Video Offer, Event +

Search for posts on this Page

Write something...

100% response rate, 48-mins response time
Respond faster to turn on the badge

163 likes 0 this week
Yamini Gollapudi and 6 other friends

Georgia Southern Aquaponics
Published by Amber Christina Monroe (?) · April 14 · Statesboro ·

Hey guys! Remember, we're holding aquaponics demos in the greenhouse until 12:15 today for No Impact Week. See you soon!