

## Trellis Fund Project Descriptions (Round 6 - 2018)

The Horticulture Innovation Lab's Trellis Fund provides organizations in developing countries access to agricultural expertise of U.S. graduate students, providing benefits to both the students and the in-country institutions. Together, they address horticultural challenges faced by local farmers.

Funding will be available for 15 new projects in the 2018 calendar year as part of the 6th round of Trellis. This document is a summary of the projects seeking a graduate student with relevant expertise, providing basic information to assist in the student recruitment and application processes.

### Project Descriptions (click the link for more information)

[Project #1: Promoting irrigation, improving post-harvest handling and value addition to mushrooms and tomato growing farmers in Kira municipality Wakiso district; Organization: Environmental Conservation and Agricultural Enhancement Uganda \(Eco-Agric Uganda\)](#)

[Project #2: Value addition training of small holder fruit and vegetable farmers in Kyanamuka and Bwunga sub counties Masaka District; Organization: Ndibwami Integrated Rescue project \(NIRP\), Uganda](#)

[Project #3: Promotion of Mulching Technology in Vegetable Production; Adaptation to Climate Change and Malnutrition Alleviation in Northern Tanzania; Organization: Tengeru Horticultural Research and Training Institute \(HORTI-Tengeru\)](#)

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[Project #6: Propagating mango/orange fruit value addition skills and technologies to smallholder fruit farmers in Teso region; Organization: Teso Women Development Enterprise Ltd, Uganda](#)

[Project #7: Training in value addition of mangoes produced in Kintampo Municipality; Organization: Methodist University College Ghana, Wenchi-Campus \(MUCG\)](#)

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[Project #8: Enhancing shelf-life of fruits and vegetables for off-seasonal supply by smallholder farmers; Organization: Mwino Group, Uganda](#)

[Project #9: Kiwi Agribusiness; Organization: Aythos, Inc., Nepal](#)

[Project #10: Biochar to the Rescue of depleted, arid and sandy soils of Anloga, V/R, region, Ghana. Comparing plant harvest values and disease incidence for cultivated beach sand soils to that of Biochar Impregnated cultivated beach sand soils of Anloga, Keta Municipal, Ghana at Anloga, Volta Region, Ghana for improved crop yield.; Organization: Tip Top Foods Limited](#)

[Project #11: Sweet Potato Leaves for Improved Family Nutrition; Organization: Send a Cow Ethiopia \(SACE\)](#)

[Project #12: Extending information on Good Agricultural Practices related to horticultural production for horticultural farmers in Kimironko sector, Gasabo district – Rwanda; Organization: University of Rwanda – College of Agriculture](#)

[Project #13: Enhancing vegetable productivity through effective irrigation and transplanting techniques; Organization: University of Cape Coast \(UCC\), Ghana](#)

[Project #14: Promoting Sustainable Organic Agriculture Among 170+ Vegetable and Fruit farmers in the Ejisu-Juabeng District of Ghana; Organization: Kumasi Institute of Tropical Agriculture \(KITA\)](#)

[Project #15: Soil and plant health schools for improving vegetable production and small land-holder farm economy in Nepal; Organization: Center for Agricultural Research and Development-Nepal \(CARD-Nepal\)](#)

**Project #1: Promoting irrigation, improving post-harvest handling and value addition to mushrooms and tomato growing farmers in Kira municipality Wakiso district; Organization: Environmental Conservation and Agricultural Enhancement Uganda (Eco-Agric Uganda)**

Summary Information	
Country	Uganda
Project Title	Promoting irrigation, improving post-harvest handling and value addition to mushrooms and tomato growing farmers in Kira municipality Wakiso district
Organization	Environmental Conservation and Agricultural Enhancement Uganda (Eco-Agric Uganda)
Updated Project Summary (150 words maximum)	<p>Promoting irrigation, improving post-harvest handling and value addition to mushrooms and tomatoes aims at improving livelihoods and health outcomes of 320 beneficiaries in Kira municipality, Wakiso district. The project will be implemented over twelve months (January 2018-December 2018), with 320 people (80% women) benefiting directly while 2240 people will benefit indirectly. The project will require \$3999.30.</p> <p>Project implementation will be participatory through trainings plus method and result demonstrations. A total of 72 trainings on irrigation farming, post-harvest handling and value addition will be conducted while 16 demonstration sites on irrigation farming will be set up. 16 bucket irrigation kits, 12 solar driers and 16 sealing machines will be procured for 16 demonstration sites to demonstrate on irrigation, vegetable value addition and packaging. For sustainability, five Community Based Trainers will be identified and empowered to continue disseminating information/knowledge and guiding beneficiaries while addressing upcoming challenges after project completion.</p>
Preferred dates of graduate student's in-country travel	April 2018 (This is flexible)

Project objectives	To promote sustainable continuous mushroom and tomato production for improved food security, nutrition and income among 320 vegetable growers by August 2018
Desired skills/expertise	<p>The student needs to have expertise in:</p> <ul style="list-style-type: none"> <li>● Postharvest handling plus value addition tomatoes and mushroom</li> <li>● Small-scale irrigation a secondary desired skill. Designing and implementing low cost small scale irrigation methods will be a secondary activity</li> <li>● Construct and utilize a low cost solar dryer with local materials.</li> <li>● Packaging and Packing house operations</li> <li>● Transportation, storage of fruits and vegetables</li> <li>● Postharvest diseases and disorders and their control</li> <li>● Postharvest logistics for perishable crops</li> <li>● Insect pests in postharvest products and their control</li> <li>● Fruit and vegetable processing</li> <li>● Marketing management for postharvest operations</li> </ul>

**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

Deliverable/Task/Activity	Before	During 1-2 weeks visit	After
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Provide technical knowledge in small scale run off water harvesting, garden planning and designing fields for continuous vegetable production through irrigation	<b>X</b>	<b>X</b>	<b>X</b>
Designing and implementing low cost irrigation will be a secondary activity	<b>X</b>	<b>X</b>	
Develop training materials on tomato and mushroom post-harvest handling and value addition	<b>X</b>		

Help beneficiaries get information and small scale techniques of adding value to the tomatoes and the mushroom plus packaging them to increase shelf life		X	
Teach how to construct and utilize a low cost solar dryer with local materials.		X	
Conduct trainings to community based trainers and farmer on vegetable post-harvest handling and value addition (maturity indices, harvesting and post-harvest handling; factors affecting ripening; pre harvest factors affecting quality on post-harvest life of fruits and vegetables; factors responsible for deterioration; plus the different methods of storage packaging materials and transport of harvested fruits and vegetables)		X	

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**Project #2: Value addition training of small holder fruit and vegetable farmers in Kyanamuka and Buwunga sub counties Masaka District; Organization: Ndibwami Integrated Rescue project (NIRP)**

Summary Information	
Country	Uganda
Project Title	Value addition training of small holder fruit and vegetable farmers in Kyanamuka and Buwunga sub counties Masaka District
Organization	Ndibwami Integrated Rescue project (NIRP)
Updated Project Summary (150 words maximum)	Uganda's horticultural industry is growing very fast due to diversification of the economy, coupled with rapid economic growth. Over the past few years, high-class supermarkets, restaurants and hotels were established and therefore an increased need for quality products. Nowadays, many supermarkets can accept locally produced value-added products. Unfortunately, the fresh fruit and vegetable farmers in Kyanamukaka, and Buwunga sub counties in Masaka District of Uganda have not benefited from this upcoming market. In order to solve the problem that local farmerS face, NIRP wants to mobilize and train 100 farmers, 50 males and 50 females, in modern processing and value-adding. This includes supporting them to produce fresh juice pulp from pineapples, tomato sauce from tomatoes and passion fruit squash from passion fruits. NIRP will also support with packaging and marketing of the products, enhancing farmers associations and link them to companies, which can purchase the processed products.
Preferred dates of graduate student's in-country travel	10th to 22nd June 2018 (this is flexible)

Project objectives	<ul style="list-style-type: none"> <li>● To train 100 farmers in value-addition in fruits and vegetable processing, To form one farmer’s marketing group to market farmers processed products</li> <li>● To establish a fully equipped processing plant with assistance from other development partners who shall supply the processing equipment.</li> </ul>
Desired skills/expertise	<ul style="list-style-type: none"> <li>● Experience in fruit and vegetable preservation and processing of products like tomato sauce, pineapple jam, pineapple pulp and passion fruit squash.</li> <li>● In general, we expect the graduate students to have skills in food processing, preservation, marketing and branding</li> </ul>

**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Preparation of training material	<b>X</b>		
Lead trainer during the training of farmers in value addition and food processing but will be assisted by local food processing specialist		<b>X</b>	
Make a Training report at the end of the Training and outlining recommendations to project sustainability			<b>X</b>

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**Project #3: Promotion of Mulching Technology in Vegetable Production; Adaptation to Climate Change and Malnutrition Alleviation in Northern Tanzania; Organization: Tengeru Horticultural Research and Training Institute (HORTI-Tengeru)**

Summary Information	
Country	Tanzania
Project Title	Promotion of Mulching Technology in Vegetable Production; Adaptation to Climate Change and Malnutrition Alleviation in Northern Tanzania
Organization	Tengeru Horticultural Research and Training Institute (HORTI-Tengeru)
Updated Project Summary (150 words maximum)	Arumeru is one of the districts with high level of malnutrition for children under five due to low consumption of micronutrient-rich vegetables. Production of vegetables in the district has been affected by long drought periods as a result of climate change coupled with poor agronomic practices. The proposed project is intending to address the above mentioned challenges by introducing the use of mulching techniques and good agronomic practices to tomato, African eggplant and African nightshade vegetable growers to conserve moisture and improve productivity. The project will be implemented in Arumeru district, Arusha region and specifically in Nduruma and Manyire villages. Mode of project implementation will involve establishment of demonstrations plots using black plastic and dry grass mulch materials, infield training, use of farmer groups and motivators. It is expected that about 100 growers will benefit from the project. The estimated total budget will be 4000 USD.
Preferred dates of graduate student's in-country travel	Late June 2018 (This is flexible)



Project objectives	<ol style="list-style-type: none"> <li>1. To enhance capacity of 100 vegetable growers from the respective villages on the use of mulching materials at the end of the project.</li> <li>2. To evaluate farmers' preference for introduced types of mulches and recommend for dissemination by the end of the project</li> <li>3. To improve access and availability of information on improved vegetable productivity</li> </ol>
Desired skills/expertise	<p>The U.S. Graduate Student should have the following skills and qualifications;</p> <ul style="list-style-type: none"> <li>● Vegetable production expertise including proper knowledge on nursery establishment and management, transplanting, fertilization, weeding, irrigating, harvesting and handling.</li> <li>● Knowledge/experience on the use of mulching technology and its benefits in vegetable production.</li> <li>● Experience in adult training or learning alliances with smallholder farmers.</li> <li>● Good communication skills.</li> <li>● Committed to help and work with smallholder farmers under Tanzanian context</li> </ul>

### **Deliverables and Activities to be accomplished by the U.S. Graduate Student**

Deliverable/Task/Activity	Before	During 1-2 weeks visit	After
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Develop training material; Improved seeds acquisition, nursery establishment and management, weeding, irrigation, transplanting, use of mulching and its benefits, fertilization, timely harvesting and handling	<b>X</b>		
Classroom training to 6 farmer motivators on improved agronomic practices in vegetable production and use of mulch at HORTI premises		<b>X</b>	
Train 100 farmers on transplanting, mulching, irrigation and fertilization for demo plot		<b>X</b>	

establishment at farmers field (Theory & practical session)			
In addition, the student will be required to calculate a simple cost benefit analysis in production of selected crops while applying different types of mulch as compared to the control. Although the student will not be able to collect all data, the project team will gather the data and send to the student for analysis. The report from the student will also be shared to farmers.			<b>X</b>
Report writing and presentation of what she/he did when in Tanzania		<b>X</b>	<b>X</b>

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**Project #4: Training to Smallholder Farmers on Production of selected Tropical Fruits and provision of Fruits Seedlings; Organization: SYBASH Ltd.**

Summary Information	
Country	Rwanda
Project Title	Training to Smallholder Farmers on Production of selected Tropical Fruits and provision of Fruits Seedlings
Organization	SYBASH Ltd.
Updated Project Summary (150 words maximum)	<p>The majority of Rwandan households (80%+) are engaged in livelihood activities related to agriculture whose productivity remains low due to scarce land resources, unsustainable methods and climate change issues.</p> <p>This project aims to empower smallholder farmers with new information on how small plots can be exploited profitably and sustainably by engaging in agro-forestry. The combination of fruit production with other agricultural enterprises (like the raising of small livestock) allows for increased profits on small plots and has the merit to positively impact the environment. It also has benefits in terms of human nutrition for the family and increased soil fertility for the plot. The project will be implemented in Mayange Sector, Bugesera District, Rwanda. <b>Mangoes</b> and <b>oranges</b> are the main fruits to be used in this project.</p>
Preferred dates of graduate student's in-country travel	Mid-September 2018 (This is flexible)
Project objectives	<ul style="list-style-type: none"> <li>● Educate 20 selected smallholder farmers on fruit production, combination of enterprises and the importance of planting trees to deal with climate change and increase profitability;</li> <li>● Provide 400 fruit trees seedlings to farmers for planting;</li> <li>● Organize planting sessions at farmers' plots and monitor the maintenance of planted fruit trees for 20 farmers.</li> </ul>

Desired skills/expertise	<ul style="list-style-type: none"> <li>● Experience in crop production, sustainable agriculture techniques, rural development, working with small scale farmers, etc.</li> <li>● Designing a cost-effective and water-use efficient irrigation system that would be suitable for smallholder farmers engaging into sustainable horticultural production.</li> </ul>
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**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Reviewing and providing inputs on the Information, Education and Communication (IEC) material related to the project	<b>X</b>		
Providing assistance during the preparation of IEC materials for the trainings	<b>X</b>		
Designing data collection tools for the baseline assessment	<b>X</b>		
Suggesting an irrigation system that can suit local smallholder farmers' settings	<b>X</b>		
Designing of reporting formats			<b>X</b>
Providing suggestions on criteria for selecting smallholder farmers to be trained	<b>X</b>		
Participating in the preparation of project evaluation: choice of relevant indicators, data collection tools' design, analysis of collected data, etc.	<b>X</b>	<b>X</b>	
Testing the suggested irrigation system at SYBASH Ltd demonstration plot to ensure effectiveness before extension to smallholder farmers		<b>X</b>	

Meeting with project partners (Mayange Sector authorities and Rwanda Agriculture Board authorities involved in the project implementation if necessary/possible)		<b>X</b>	
Facilitation in Training and site visits		<b>X</b>	
Documentation of lessons learnt and success stories from the project		<b>X</b>	<b>X</b>

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**Project #5: Fruit Farming for Income Generation and Nutrition Project: Phase II; Organization: Uganda Rural Information and Communication Technology/Educational Center (URICT-Uganda)**

Summary Information	
Country	Uganda
Project Title	FRUIT FARMING FOR INCOME GENERATION AND NUTRITION PROJECT: PHASE II
Organization	UGANDA RURAL INFORMATION AND COMMUNICATION TECHNOLOGY/ EDUCATIONAL CENTER (URICT-UGANDA)
Updated Project Summary (150 words maximum)	<p>In 2013, URICT-Uganda secured Trellis funding for fruit farming for income generation and nutrition in Bukyerimba Village, Kamuli District. URICT worked successfully with UC Davis graduate, Daniel Quinn to train 180 farmers in fruit production, focusing on crop and disease control and gender awareness. See Daniel's photos: <a href="http://bit.ly/2oLSgCt">http://bit.ly/2oLSgCt</a></p> <p>URICT now looks to work with another US graduate with expertise in tropical pests and disease control to extend Phase I activities to Busota village, Kamuli District. Fruit and vegetable farming is the main agricultural activity here, but too many harvests fail due to pests and diseases. Women farmers are especially vulnerable because they are mostly illiterate and confined to local markets, where prices are lower. The project aims to help 400 women farmers by: providing training in disease and pest control; by increasing productivity and access to markets and postharvest management; and by raising household nutrition levels.</p>
Preferred dates of graduate student's in-country travel	URICT - Uganda is flexible on the dates. It entirely depends on the student's availability, but mid-March-June are suggested because of the rainy season
Project objectives	<ul style="list-style-type: none"> <li>● To train 400 women farmers in pest and disease control</li> <li>● To improve productivity and quality of fruit crops through adoption of improved varieties/technology, upgrades of existing methods</li> <li>● To improve farming methods through training in</li> </ul>

	<p>workshops and on site</p> <ul style="list-style-type: none"> <li>● To promote household nutrition through consumption of fruit</li> <li>● Reduce postharvest losses, and improve marketability of the produce and its availability to consumers</li> <li>● To work with a US graduate student and local student to facilitate the transfer of expertise.</li> </ul>
Desired skills/expertise	<ul style="list-style-type: none"> <li>● Skills and experience in growing tropical crops and plants, including organic pest and disease management.</li> <li>● <b>Research:</b> This will involve researching on tropical fruits, pests which affect them, nutrition importance of the fruits and how they can be harvested, processed and put on market with value addition.</li> <li>● <b>Documentation:</b> This involves report writing, sharing and publication with the agreed channels. The documentation will involve also taking photos and short videos. Depending on the willingness of the student, it can also be shared on social media on different platforms</li> <li>● Teamwork and networking</li> <li>● Interest and skills in organic agriculture, including producing fertilizers and income generation via farming</li> <li>● Interest in working with subsistence farmers and addressing gender issues</li> <li>● The student must have an understanding of problems faced by farmers in storing and marketing crops</li> <li>● Pre and post-harvest management of tropical fruits like mangoes, oranges, pineapples and passion fruits</li> <li>● Experience in developing educational materials that will be accessible to farmers who may not have high reading levels or who may be illiterate</li> </ul> <p>Note that most of the tools used will be hand tools. The student will work with a wide range of volunteers who will assist in every way possible. No previous travel experience is needed, but URICT encourages the student to read about Uganda, and to be willing to work with people from different walks of life.</p>

**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Communicate with URICT via email and Skype (~5 hours before travel)	<b>X</b>		
Develop educational materials. This will be done in collaboration with URICT. The topics will include seedling identification, garden preparation, weather/season patterns, planting, crop watching, pest control, harvest management, marketing, organic fertilizers application etc. These will be due in March. (about 35 hours)	<b>X</b>		
Offer technical support and advise on planting, pest control, marketing, and use of bio-products to make fertilizers	<b>X</b>	<b>X</b>	<b>X</b>
Participation in site clearance of demonstration plot and Documentation of the procedure		<b>X</b>	
Site visits will be done as a team, and the student will meet the farmers on their smallholdings; and study visits to bigger project sites and research centers		<b>X</b>	
Training of the locals, including on how to make nursery beds of grafted fruit trees.		<b>X</b>	
URICT will communicate weekly via email and Skype after student's return, where he/she will finish the reports and develop educational materials.			<b>X</b>



URICT will ask the student to write an independent report on the project, make recommendations on how work should proceed after funding ends, and suggest funding options. This will account for the remaining 60 hours.			<b>X</b>
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**Project #6: Propagating mango/orange fruit value addition skills and technologies to smallholder fruit farmers in Teso region; Organization: Teso Women Development Enterprise Ltd**

Summary Information	
Country	Uganda
Project Title	Propagating mango/orange fruit value addition skills and technologies to smallholder fruit farmers in Teso region
Organization	Teso Women Development Enterprise Ltd
Updated Project Summary (150 words maximum)	<p>Teso is one of the regions in Uganda where the mango and citrus fruit sector is among the fastest growing. This sector is important for the rural economy because of its potential to increase incomes of rural farmers through value addition. However, most mango/orange fruits are wasted due to their perishability, thus the need for value addition. Processing enables farmers to expand their productivity without fear of fruit deterioration and guarantees that products (nectar, pulp or juice) reach the consumers in a desired condition. However, the challenge in the path of growth of the mango/orange fruit industry in Teso is inadequacy of knowledge, skills and technologies for fruit processing and value addition. Propagation of fruit processing and value addition knowledge, skills and technologies shall enable fruit farmers keep mango/orange products in unaltered condition for a long time without impairing its quality, palatability, taste, colour, flavor and nutritive value.</p>
Preferred dates of graduate student's in-country travel	March – June 2018 (this is flexible)
Project objectives	<p>The overall goal of this project is to enhance knowledge and skills of small scale farmers in mango and citrus fruit processing. This project is designed to achieve the following specific objectives:</p> <ul style="list-style-type: none"> <li>● To train 10 fruit farmers as trainers in mango and orange fruit processing</li> <li>● To establish a value addition demonstration center</li> <li>● To train 200 fruit farmers in mango/orange fruit processing</li> </ul>

Desired skills/expertise	<ul style="list-style-type: none"> <li>● Proficient in mango/orange fruit juice, mango pulp and mango nectar processing</li> <li>● Skilled and experienced in small-scale fruit processing and preservation techniques</li> <li>● Knowledgeable and skilled in mango/orange juice, pulp and nectar preservation techniques</li> <li>● A good understanding of small scale fruit value addition technologies and equipment</li> <li>● Experience in adult training/learning</li> <li>● Committed to help and work with smallholder farmers</li> <li>● Good facilitation skills</li> </ul>
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**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Training plan for the ToT developed	<b>X</b>		
Training materials and manuals developed and sent to Teso Women staff for printing	<b>X</b>		
Pre-training and post training evaluation forms developed	<b>X</b>		
Guidance on appropriate technologies /equipment for the demonstration center provided	<b>X</b>		
Pre-training and post training questions administered to participants	<b>X</b>	<b>X</b>	
Initial presentation to the team of the training plan (outlines/list of activities, plan, approach, etc.) done	<b>X</b>		

Appropriate and relevant knowledge, skills and technologies transferred to staff and volunteers of Teso women during the training of trainers' course in mango/orange fruit processing.		<b>X</b>	
Trainings and technical assistance delivered		<b>X</b>	
Establish meaningful relationships with the fruit farmers in Teso, ensuring that some of them are mentored and molded into fruit entrepreneurs.	<b>X</b>	<b>X</b>	<b>X</b>
After the trip, the graduate student will continue communicating with the team and offering inclusive if other training opportunities and new technologies in the sector			<b>X</b>

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**Project #7: Training in value addition of mangoes produced in Kintampo Municipality; Organization: Methodist University College Ghana, Wenchi-Campus (MUCG)**

Summary Information	
Country	Ghana
Project Title	Training in value addition of mangoes in Kintampo Municipality
Organization	Methodist University College Ghana (MUCG)
Updated Project Summary (150 words maximum)	<p>Kintampo is the highest mango producing district and also association with the largest members in Brong Ahafo region. Mango farmers continue to cry over poor sales and losses to due to lack of value addition and inadequate marketing of mangoes produced. The loss as farmers indicated at their annual meeting represents about 30% of the total produce. This spoilage translates to loss of income opportunities for farmers already struggling to provide for themselves and their families on a daily basis.</p> <p>The aim of the project is to train 130 farmers in the development of different agro-products from mango fruits into juice, milk shakes, yoghurt, canned and jam. It is anticipated that training of farmers in expanded utilization of mango fruits will create a new market niche. The value added mango products will increase farmers' profit margin and positively affect their family livelihood and that of their communities as a whole.</p>
Preferred dates of graduate student's in-country travel	May to June, 2018
Project objectives	<ul style="list-style-type: none"> <li>● To organise a practical training on the development and packaging of different agro-products from mangoes for 130 beneficiaries (50% women).</li> <li>● To demonstrate to participants the utilisation of mango wastes for composting as a partial substitute of inorganic fertilisers.</li> </ul>

Desired skills/expertise	<p>The U.S. Graduate Student will have the following qualifications and competencies:</p> <ul style="list-style-type: none"> <li>• Expertise in small scale fruit and vegetable processing and preservation, especially mangoes</li> <li>• Experience and knowledge on utilization of fruit &amp; vegetable wastes (composting), especially mango waste</li> <li>• Knowledge in the usage and maintenance of food processing equipment</li> <li>• Accommodate working with mixture of literate and illiterate farmers</li> <li>• Intercultural and interpersonal skills (openness to other cultures)</li> </ul>
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**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Develop training materials on development, processing and packaging of different agro-products from mangoes	<b>X</b>		
Develop practical manual on possible utilisation of mango wastes	<b>X</b>		
Design survey questionnaire for evaluation of farmers before and after trainings	<b>X</b>		
Provision of guidelines on the choice of packaging materials for the respective agro-products.	<b>X</b>		
Technical knowledge on small scale processing of fruits and vegetables transferred	<b>X</b>	<b>X</b>	<b>X</b>
Lead the practical training on small scale processing of mango fruits		<b>X</b>	
Provide guidelines on the choice of packaging materials for the respective agro-products.		<b>X</b>	

Lead field demonstration on utilisation of mango wastes		X	
Review and edit the final project report			X

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**Project #8: Enhancing shelf-life of fruits and vegetables for off-seasonal supply by smallholder farmers; Organization: Mwino Group**

Summary Information	
Country	Uganda
Project Title	Enhancing shelf-life of fruits and vegetables for off-seasonal supply by smallholder farmers
Organization	Mwino Group
Updated Project Summary (150 words maximum)	Our project is aimed at enhancing nutritional security and income of rural households dealing in smallholder agriculture through constructing and utilizing a post-harvest handling and training center to ensure an all year round supply of fruits and vegetables. This is because during off-season, smallholder farmers are hampered by nutritional insecurity and poverty due to fruit and vegetable scarcity. Therefore adopting post-harvest technologies will improve farmer's nutrition and access to profitable markets for better livelihood. Our project emphasis on connecting smallholder farmers to markets will be used as an incentive for increased food production, which automatically increases food for home consumption. Farmers will have surplus to sell at higher prices which in return increases their income so that they can re-invest in post-harvest technologies.
Preferred dates of graduate student's in-country travel	Between July/2018 and August /2018 <i>(A convenient date shall be discussed after consultation with the US student but it should be during the harvesting period which falls in July and August)</i>
Project objectives	<ul style="list-style-type: none"> <li>● To promote the adoption of post-harvest technologies among rural households in smallholder agriculture through training of post-harvest peer advisors as "trainer-of-trainers";</li> <li>● To improve smallholder incomes through reduction in post-harvest losses and collective marketing</li> <li>● To link farmers to profitable markets through improved market information, business skills and improved shelf-life</li> </ul>



Desired skills/expertise	<ul style="list-style-type: none"> <li>● Skills in small-scale postharvest handling, processing and storage for fruits and vegetables, including drying and packaging</li> <li>● Good communication skills</li> <li>● Experience in construction, maintenance, and management of food preservation technologies (i.e. direct solar dryer, chimney solar dryer with reflective surface, cooling technologies (Coolbot and ZECC), clamp, silo and in-ground curing and storage for sweet potatoes, packhouse operations and management)</li> <li>● Experience in leadership skills and business skills training (finance/accounting)</li> </ul>
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### **Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a a baseline survey questionnaire and Monitoring and Evaluation (M&E) tracking tool	<b>X</b>		
Preparation of pictorial/tabulated educational materials and a training video for operation and management of a typical, easy to construct Packhouse, including farm field harvesting techniques for any green leafy vegetable, fruit or root tuber	<b>X</b>		
Developing printed plans with measurements clearly indicated, showing the different parts that can be fitted to make any of our technologies	<b>X</b>		
Prepare printed materials (e.g. training, demonstration aids and written handouts) including direct and chimney solar dryer construction plans drawn to scale / Printed manuals for construction and management of simple post-harvest technologies	<b>X</b>		

Create a printed training manual on leadership skills and business skills	<b>X</b>		
Assist host organization in buying some training equipment from the US that are not in Uganda	<b>X</b>		
The student will be responsible for ~6-7 trainings while in country		<b>X</b>	
Providing or designing labels for the different dried and packaged products to make them competitive in the market			<b>X</b>
Continue helping on issues of improving farmer efficiency in management and construction of postharvest technologies – US student help will depend on farmer queries			<b>X</b>
US student will help in providing techniques for improving solar dried horticultural product quality			<b>X</b>
Other problems will be identified using our monitoring and evaluation toolkit and identified problems will be reported to the US student to find solution			<b>X</b>

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### Project #9: Kiwi Agribusiness; Organization: Aythos, Inc.

Summary Information	
Country	Nepal
Project Title	Kiwi Agribusiness
Organization	Aythos, Inc.
Updated Project Summary (150 words maximum)	<p>In 2012, Aythos worked with Himalayan farmers to plant thousands of kiwi and apple trees. Kiwis have been produced in Nepal for nearly 40 years; however, a recent surge in popularity has increased demand. The problem facing farmers is the limited knowledge of fruit improvement techniques and kiwi markets. In order to be marketable, farmers must gain knowledge on pruning and harvesting techniques, storage, and protection of crops from disease and pest. This project will help farmers to build knowledge through series of trainings such as Kiwi Value-Chain and Cooperative Farming Introduction and Cultivating Quality Training improving the knowledge-base of the kiwi business in Nepal while improving fruit to meet imported kiwi standards. This project will include direct beneficiaries up to 160 local farming families, with women taking the lead on getting organic kiwi products to markets. We see women as being instrumental in manufacturing kiwi-based, value-added products, such as jams and wine. We believe the increased revenue from the sale of these products will benefit entire communities and lead to greater access to education, particularly for girl</p>
Preferred dates of graduate student's in-country travel	The best time for the student to come to Nepal would be between June and October 2018 ( This is flexible)
Project objectives	Help the farmers gain knowledge of pest prevention techniques, the kiwi value- chain in Nepal, value-added kiwi products and cooperative farming practices.

Desired skills/expertise	An understanding of fruit tree/plant cultivation techniques (Kiwi fruit), fruit value-chain systems, farming collectives/cooperative organizing, and an understanding of women's issues in developing rural economies.
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**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

Deliverable/Task/Activity	Before	During 1-2 weeks visit	After
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
<p>Develop and review training programs considering consumers' feedback of kiwi. <i>The student will collaborate with Aythos and have the opportunity to discuss previous trainings, review data collected by Aythos, and learn the current status of kiwi markets in Nepal.</i></p> <p>The student will have the opportunity to read and analyze after-action reports detailing past trainings, as well as surveys implemented by Aythos to help tailor future trainings that will advance farmers' challenges and help them achieve more successful outcomes.</p>	<b>X</b>		
Develop a plan for farmers to cultivate better quality products	<b>X</b>		
The student should communicate via Skype or any other electronic media with Nepali and U.S. staff on a semi-monthly basis for pre-visit work, and more frequent communication as needed.	<b>X</b>		
Work with Nepali staff to make trainings and participants' materials culturally appropriate	<b>X</b>		

Participating in and assisting in the delivery of trainings in multiple villages on improving cultivation techniques based on quality feedback from the consumers, storage, and marketing.		<b>X</b>	
Developing and designing a survey to assess the value of training to the farmers			<b>X</b>
Maintain contact with Aythos staff to learn of project's success.			<b>X</b>

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**Project #10: Biochar to the Rescue of depleted, arid and sandy soils of Anloga, V/R, region, Ghana. Comparing plant harvest values and disease incidence for cultivated beach sand soils to that of Biochar Impregnated cultivated beach sand soils of Anloga, Keta Municipal, Ghana at Anloga, Volta Region, Ghana for improved crop yield.; Organization: Tip Top Foods Limited**

Summary Information	
Country	Ghana
Project Title	Biochar to the Rescue of depleted, arid and sandy soils of Anloga, V/R, region, Ghana. Comparing plant harvest values and disease incidence for cultivated beach sand soils to that of Biochar Impregnated cultivated beach sand soils of Anloga, Keta Municipal, Ghana at Anloga, Volta Region, Ghana for improved crop yield.
Organization	Tip Top Foods Limited
Updated Project Summary (150 words maximum)	To try Biochar incorporation into the sandy soils of Anloga, V/R, Ghana at two levels of concentration with other traditional agronomic practices and compare them with the farmers' practice of farming for various selected crops to compare their values for yield, disease incidence and shelf life, supported by a graduate student from America.
Preferred dates of graduate student's in-country travel	June, 2018. But it is open and flexible for the student, upon communicating with host and the state of research crops to be visited.
Project objectives	<ol style="list-style-type: none"> <li>1. Conduct applied research to compare yield, disease incidence, time to maturity, and longevity in storage for selected traditional crops by August 2018.</li> <li>2. Open a farmer field demonstration plot to educate at least 50 farmers on research results and best practices for using Biochar for crop cultivation by September 2018.</li> <li>3. Train 50 farmers as trainers, who will then train at least 200 farmers, who will train 2000 farmers on the use of Biochar for improved crop production by September 2020.</li> </ol>

Desired skills/expertise	<p>Skills in horticulture with emphasis on arid agriculture and irrigation with an aptitude in Biochar use in agriculture and being familiar with handy soil testing kits from the U.S.A. Skills in field experimental designs and statistical interpretation of results. Emphasis on Farmer Field services and writing skills for and on farm Teaching/Training manual reviewing would be an advantage.</p> <p>As a complement to these strengths, the graduate should have experience in:</p> <ul style="list-style-type: none"> <li>● Soil chemistry</li> <li>● Experimental field designs</li> <li>● Good agronomic practices for organic and biochar incorporation in crop production in an arid environment.</li> <li>● Data collection and analysis</li> <li>● Statistical analysis and results interpretation</li> <li>● Good writing skills to be able to help with training manual write up and completion.</li> </ul>
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#### **Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Review of Project Proposal before the inception of the project	X		
Prepare Monitoring and Evaluation Plan in collaboration with the host organization	X		
Design of Experimental Fields	X		
Brainstorming on Improved Practices for biochar application to soils	X		
Online Evaluation of Incoming Data from the Field	X		
Statistical Analysis and Interpretation	X	X	
Graduate student is expected to statistically test the results and divulge the findings to Trellis through writing a comprehensive report on the project.	X	X	X

Help to develop Training of Trainers Manual for the Farmers Field Visit	X	X	
Complete the experiment by requesting periodically for the field values and finally putting the results to statistical tests.	X	X	
Communication with Tip Top Foods Ltd. CEO, Sena Ahiabor, weekly or when necessary by email, WhatsApp, Skype or phone	X	X	X
Final reporting			X

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**Project #11: Sweet Potato Leaves for Improved Family Nutrition; Organization: Send a Cow Ethiopia (SACE)**

Summary Information	
Country	Ethiopia
Project Title	Sweet Potato Leaves for Improved Family Nutrition
Organization	Send a Cow Ethiopia (SACE)
Updated Project Summary (150 words maximum)	<p>This project intends to develop local scientific and technical capacity of 50 smallholder farmers (70% women) in the preparation of sweet potato leaves for home consumption. Despite evidence of the high nutritional value of sweet potato (<i>Ipomoea batatas</i>) leaves (USDA, 2017; Islam, 2007), they are not commonly used for human consumption due to ingrained food habits and lack of knowledge. They are however used for animal feed. Therefore, Send a Cow Ethiopia, with support from Areka Agricultural Research Centre and Wolayita Sodo University, aims to research the preparation of sweet potato leaves and promote their consumption in Wolayita as a dietary supplement providing essential nutritional requirements, particularly for women and children.</p> <p>The project will be implemented in Ukara and Gurumo Koyscha kebeles of Boloso Sore District in Wolayita Zone of the Southern Nations, Nationalities &amp; Peoples' Region of Ethiopia.</p>
Preferred dates of graduate student's in-country travel	<i>April 2018 (although in varying quantity, sweet potato leaves can be found in April, August, September, November and December – so any of these months would be fine for student travel)</i>
Project objectives	<ol style="list-style-type: none"> <li>1. Literature review on the opportunities to use local variety sweet potato leaves in human nutrition in Wolayita</li> <li>2. Training on sweet potato leaves preparation to 50 farmers (35 female &amp; 15 male) and 15 government agricultural &amp; health extension workers, including testing of locally appropriate cooking styles and learning feedback loops whereby trainers can develop a skill on how to integrate new lessons and apply it in the future by revising what they already know.</li> <li>3. Five community conversations on sweet potato leaves preparation and consumption, addressing 50 people each, including a cooking testing session. Feedback from the</li> </ol>

	<p>community will go into the training notes</p> <ol style="list-style-type: none"> <li>4. Training material production (posters, flyers and pictorial booklets) for local development practitioners</li> <li>5. Recipe booklet production to integrate sweet potato leaves with local food culture</li> <li>6. One dissemination workshop for stakeholders (100 people) to disseminate learning. Exploration of other historically used but now neglected leafy vegetables. The participants of the dissemination workshop will be drawn from farmers in the target district, relevant government offices, AARC, Woliata Sodo University and NGOs working in the area.</li> </ol>
Desired skills/expertise	<p>It is preferable for the US graduate student to have expertise particularly on human nutrition, food science or related field</p> <p>More specifically:</p> <ul style="list-style-type: none"> <li>● Expertise in human nutrition, particularly related to horticulture and other leafy green vegetables</li> <li>● Familiarity with preparation and preservation techniques of indigenous food made of locally available leaves</li> <li>● Experience in conducting action research</li> <li>● Good skill in preparing training materials, developing questionnaires, etc.</li> <li>● Having prior exposure to rural community setting in developing countries</li> <li>● Keen to learn new thoughts from local communities/smallholder farmers and share new insights with others</li> <li>● Excellent communication skills</li> </ul>

### **Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Summary/review of relevant literatures	<b>X</b>		
Draft questionnaire for the baseline survey	<b>X</b>		

Draft design of the recipe booklet and input for its development (before trainings)	<b>X</b>		
Field visit report, including the records of the learning diaries		<b>X</b>	
Presentations for SACE head office, field staff and local university graduate student on the findings of the literature reviewed and lessons from field visits		<b>X</b>	

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**Project #12: Extending information on Good Agricultural Practices related to horticultural production for horticultural farmers in Kimironko sector, Gasabo district – Rwanda; Organization: University of Rwanda – College of Agriculture**

Summary Information	
Country	Rwanda
Project Title	Extending information on Good Agricultural Practices related to horticultural production for horticultural farmers in Kimironko sector, Gasabo district – Rwanda.
Organization	University of Rwanda – College of Agriculture
Updated Project Summary (150 words maximum)	<p>There are approximately 500 horticultural farmers, grouped in 5 cooperatives in Kimironko sector, Gasabo District. These farmers are mainly producing vegetables in wetlands, supplying vegetables to the big market in Kigali city. However, they are facing a number of horticultural challenges, like:</p> <ul style="list-style-type: none"> <li>● Lack of knowledge and information on improved practices that integrate Good Agricultural Practices</li> <li>● Insufficient knowledge on Quality Assurance Systems</li> <li>● Lack of knowledge on how to maintain the quality and safety of their fresh produce</li> </ul> <p>Therefore, the purpose of this project will be to build the capacity of 50 horticultural farmers in that area (Kimironko Sector, Gasabo District) through trainings and field demonstrations on Good Agricultural Practices (GAP) associated with horticultural production.</p>
Preferred dates of graduate student's in-country travel	April 20, 2018 –May 4, 2018 (but these dates are flexible)
Project objectives	<p>The main objective of this project will be to build the capacity of 50 horticultural farmers in Kimironko Sector, Gasabo District.</p> <p>The specific objectives will be to:</p> <ol style="list-style-type: none"> <li>1. Deliver trainings and field demonstrations on Good</li> </ol>

	<p>Agricultural Practices (GAP) associated with horticultural production.</p> <p>2. To use mobile phones as a way of delivering knowledge and information to horticultural farmers in Kimironko sector</p>
Desired skills/expertise	<p>We are seeking a US Graduate student with good background experience in Horticulture and Agronomy, preferably having a demonstrated experience in working with horticultural farmers in the past. Candidates who have the following technical skills will be strongly encouraged:</p> <ul style="list-style-type: none"> <li>● Strong writing skills: Examples include a writing blog posts, producing short analytical reports or an appraisal document.</li> <li>● Experience in designing training materials</li> <li>● Leadership experience at leading conferences and trainings</li> <li>● Communication skills</li> <li>● Flexibility: We are looking for passionate US Graduate student who will combine his/her leadership skills with good humor, patience, and a flexible approach to service to join our project team</li> </ul>

### **Activities and Deliverables to be accomplished by the U.S. Graduate Student**

<b>Tasks/Activities</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Participate in the design of educational materials for the trainings (February – March 2018)	<b>X</b>		
Work with 1 project staff to refine the project M&E plan through a development of a log frame	<b>X</b>	<b>X</b>	<b>X</b>
Participate in training of farmers		<b>X</b>	
Site visits to clientele farmers		<b>X</b>	

Appraising the current horticultural production system from horticultural farmers in Kibagabaga		<b>X</b>	
Analyze horticultural yields (production per acre of land)	<b>X</b>	<b>X</b>	
Help in designing planting layouts		<b>X</b>	
Design a farm management sheet for record keeping purposes		<b>X</b>	<b>X</b>
Produce a short analytical report			<b>X</b>

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**Project #13: Enhancing vegetable productivity through effective irrigation and transplanting techniques; Organization: University of Cape Coast (UCC)**

Summary Information	
Country	Ghana
Project Title	Enhancing vegetable productivity through effective irrigation and transplanting techniques
Organization	University of Cape Coast (UCC)
Updated Project Summary (150 words maximum)	There is low vegetable productivity due to the underutilization of improved production techniques in the Gomoa West District of Ghana. Technologies in irrigation and transplanting are not well understood by farmers, and this tends to affect the production output in the long term. There is a need for relevant research and extension of these methods to vegetable farmers. It is against this background that the project aims to train 60 tomato farmers with minimum composition of 60% females on transplanting and irrigation techniques to enhance productivity. The primary focus is on irrigation and the secondary project activities include: economic viability analysis of seedling quality, transplanting techniques and other general farm enterprises. The critical areas in irrigation include water quality, irrigation scheduling and the design of drip irrigation systems using local materials.
Preferred dates of graduate student's in-country travel	12 <sup>th</sup> -25 <sup>th</sup> June, 2018 (these dates are flexible)
Project objectives	<ul style="list-style-type: none"> <li>● Enhanced skills on drip irrigation system design using relatively inexpensive local materials for adequate distribution of quality water to tomato crops.</li> <li>● Acquisition of skills on economic viability analysis of tomato seedling quality and transplanting.</li> </ul>

Desired skills/expertise	<p>Experience in irrigation, preferably the design of drip systems, water treatment techniques and how to schedule the application of water to the plants. Some basic knowledge on farmers' viability analysis will also be preferred although this is not the main desired expertise of the US graduate student.</p> <p>More specifically:</p> <ol style="list-style-type: none"> <li>1. Experience in the design of drip irrigation system adaptable to local Ghanaian conditions, knowledge of water treatment techniques and how to schedule the application of water to the plants</li> <li>2. Some basic knowledge on farmers' viability analysis will also be preferred although this is not the main desired expertise of the US graduate student</li> <li>3. Must have the ability to communicate well with educated and uneducated people and be able to impart knowledge to people using different approaches. Staff of UCC will assist with interpretation of his/ her ideas to the participants.</li> <li>4. Must be passionate about extending knowledge that will be relevant to improving vegetable productivity among Ghanaian vegetable farmers.</li> <li>5. Must be able to cooperate with local and institutional authorities in obeying the laws of the communities and the host University.</li> <li>6. Must be a good in documenting daily activities and making useful recommendations for the future.</li> </ol>
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### **Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Prepare at least three designs of drip irrigation systems for presentation to the staff and students of UCC and project participants	<b>X</b>		
Prepare the monitoring and evaluation plan of the project in collaboration with the project team.	<b>X</b>		



Prepare necessary training and demonstration aids and written handouts. This will help in the finalization of the training materials for farmers.	X		
Provide information on the design of drip irrigation system to be included in the training material for training 2.	X		
Visit the project sites and interact with farmers during the training session at the project site. After this, he/ she will have to present a formal report on his observation at the project site to UCC.		X	
Present his/her ideas, activities, and methods on the project to UCC authorities.		X	
Be involved in the training of farmers on the use of drip irrigation system for optimum tomato production. Present some simple designs that can be adapted by the farmers.		X	
Continue to be in touch with the staff at UCC after returning to the U.S to obtain a report on the impact of the training on the livelihood of the farmers. Review the document and ascertain if his/her observations and training during his/her visit have been captured in the report.			X
Provide the organization with a report on the overall project assessment at least one month to the end of the year 2018 to be included in the end-of-year report.			X

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**Project #14: Promoting Sustainable Organic Agriculture Among 170+ Vegetable and Fruit farmers in the Ejisu-Juabeng District of Ghana; Organization: Kumasi Institute of Tropical Agriculture (KITA)**

Summary Information	
Country	Ghana
Project Title	Promoting Sustainable Organic Agriculture Among 170+ Vegetable and Fruit farmers in the Ejisu-Juabeng District of Ghana
Organization	Kumasi Institute of Tropical Agriculture
Updated Project Summary (150 words maximum)	<p>This project aims to empower 170+ Vegetable and Fruit farmers to engage in sustainable organic farming through training workshops and field demonstrations. The farmers will be selected from 8 farming communities in the Ejisu-Juabeng District in the Ashanti Region of Ghana. By the end of this project, farmers will learn and apply sustainable organic agronomic practices, like homemade organic pesticides, weedicides and soil amendments, practice sustainable soil management and storage techniques and gain a good market for their organic products. Demand for organic food products for healthy living is rising; there is a need to grow more organic food products. However, sustainable organic farming is a major challenge in Ghana as farmers do not have skills in sustainable agronomic practices. The success of this project will have a direct impact on the livelihood of farmers and promote good health in Ghana.</p>
Preferred dates of graduate student's in-country travel	<i>April, 2018 (This is flexible)</i>
Project objectives	<ol style="list-style-type: none"> <li>1. Workshop training of 170+ vegetable and fruit farmers on basic organic pesticide and weedicide formulations, sustainable soil improvement and cultural practices, storage techniques, marketing and financial management.</li> <li>2. Set-up organic demonstration farms in eight communities.</li> <li>3. Develop and distribute hard copy field guides on sustainable organic farming in Africa.</li> </ol>

Desired skills/expertise	<p>Agronomy</p> <ul style="list-style-type: none"> <li>● Experience in organic pest control</li> <li>● Experience in organic weed control</li> <li>● Experience in sustainable agriculture</li> <li>● Basic animation for design of pictorial manuals</li> <li>● Should love to share knowledge</li> <li>● Basic computer skills</li> <li>● Good human relations</li> <li>● Conversant with field experiment design and desk study</li> </ul>
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### **Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of a monitoring and evaluation plan for the project in collaboration with the host organization project team.	<b>X</b>		
Educate self on issues involved in travelling to Kumasi, Ghana: local customs, health and safety, and environmental issues	<b>X</b>		
Prepare a brief PowerPoint presentation about himself/herself	<b>X</b>		
Review relevant literature on organic pest and weed control	<b>X</b>		
Co-develop step-by-step practice guide on organic weed and pest control with KITA's project team	<b>X</b>		
Identify possible US organizations and companies that are interested in buying organic vegetables and fruits from Africa	<b>X</b>	<b>X</b>	
If time allows plan a simple experiment around 'Charcoal fridge as a sustainable storage facility for fruits and vegetables in rural areas' and write a report on it.	<b>X</b>		
Co-facilitating the trainings		<b>X</b>	

Communicate with project members to receive updates, and help troubleshoot challenges			<b>X</b>
Assist in drafting an action-oriented report to document project impacts			<b>X</b>
Help create and manage social media updates on project to post on KITA's website, facebook, and other media outlets.			<b>X</b>
Ensure Monitoring and Evaluation Plan is being followed			<b>X</b>
Encourage follow-up visits with communities to be conducted			<b>X</b>
If there is time, write a report on his/her Charcoal fridge experiment			<b>X</b>

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**Project #15: Soil and plant health schools for improving vegetable production and small land-holder farm economy in Nepal; Organization: Center for Agricultural Research and Development-Nepal**

Summary Information	
Country	Nepal
Project Title	Soil and plant health schools for improving vegetable production and small land-holder farm economy in Nepal
Organization	Center for Agricultural Research and Development-Nepal (www.cardnepal.org)
Updated Project Summary (150 words maximum)	Soil and crop health provides the foundation for the development of the healthy community. Chitwan district in the central Nepal is the major vegetable production pocket for the surrounding area and the capital city, Kathmandu. Vegetable production in Chitwan faces challenges due to no or low input availability and the lack of knowledge on improved soil and crop health management. A season long farmer's soil and vegetable crop health school will be developed to support local vegetable producers in Chitwan. This project proposes to train innovative vegetable farmers on improved vegetable production and integrated strategies for soil and plant health management. Graduate and undergraduate students will be trained, and experts from Agriculture and Forestry University will be engaged in the successful implementation of the project. Soil and plant health assessment and improved management practices will be demonstrated. Farmer to farmer training will be conducted to scale up the project to the broader area.
Preferred dates of graduate student's in-country travel	We are flexible, mid-March through late April or any time after July is the preferred. We advise student to avoid May – July as Nepal receives 60-70-inches rain in these months alone and roads will be closed most of the time.
Project objectives	<ol style="list-style-type: none"> <li>1. Educate farmers on soil and plant health assessment and managed practices through the intensive weekly on-farm training program</li> <li>2. Train undergraduate and graduate students on integrated plant and soil health assessment of traditional and improved vegetable production practices</li> <li>3. Evaluate the effects of improving vegetable production</li> </ol>

	<p>practices on vegetable production, quality, and economic benefits (a Master's Graduate Student from the Agriculture and Forestry University-Nepal will participate)</p> <p>4. Develop an extension material (handbook)</p>
Desired skills/expertise	<ul style="list-style-type: none"> <li>• Interest and expertise in soil science, sustainable agriculture, pest management (preferred) or any agricultural science</li> <li>• Applied field-based research/extension experience</li> <li>• Highly motivated and enthusiastic to share knowledge with limited-resource growers.</li> <li>• Quickly adaptable to the local people and situations.</li> </ul>

**Deliverables and Activities to be accomplished by the U.S. Graduate Student**

<b>Deliverable/Task/Activity</b>	<b>Before</b>	<b>During 1-2 weeks visit</b>	<b>After</b>
Preparation of the monitoring and evaluation plan of the project in collaboration with the host organization team	<b>X</b>		
Collect training material and prepare posters/training module on integrated nutrient and pest management in vegetable crops (40 hr): <ul style="list-style-type: none"> <li>• Soil health concept and importance in pest management in sustainable vegetable production</li> <li>• Role of integrated crop management for soil and crop health</li> <li>• Soil health assessment guidelines</li> </ul>	<b>X</b>		
Contact with CARD-Nepal to learn about Nepal, and other situations related to the trip	<b>X</b>		

There might be some low-cost equipment/test kits etc. that might be useful to bring during the trip to Nepal for demo purpose. Consider that in consultation with CARD-Nepal Team.	<b>X</b>		
Develop monitoring and evaluation plan of the individual project activities in collaboration with the host organization		<b>X</b>	
Help the research team to interpret soil test results and take field trips to meet farmers (at least 2 farmers' groups)		<b>X</b>	
Participate in soil and pest management training while in Nepal		<b>X</b>	
Interaction with graduate and undergraduate students from Agriculture and Forestry University Nepal		<b>X</b>	
Preparation of evaluation and project progress reports the achievement/impact of the program to CARD-Nepal and Horticulture Innovation Lab (20 hr)			<b>X</b>
Preparation of evaluation and project progress reports the achievement/impact of the program to CARD-Nepal and Horticulture Innovation Lab [in the USA, after the visit]			<b>X</b>
Prepare a blog article (to publish in Horticulture Innovation Lab) reflecting student's experience of working with farmers in Nepal in collaboration with the host organization.			<b>X</b>

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