

Trellis Fund 2018 - Project Descriptions and Student Roles

Deadline extended to November 20, 2017

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.

We've extended the deadline for students to apply for five postharvest and value addition 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.

Click the links 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 Buwunga sub counties Masaka District; Organization: Ndibwami Integrated Rescue project \(NIRP\), Uganda](#)

[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 \(MUCG\)](#)

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

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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"> ● Postharvest handling plus value addition tomatoes and mushroom ● Small-scale irrigation a secondary desired skill. Designing and implementing low cost small scale irrigation methods will be a secondary activity ● Construct and utilize a low cost solar dryer with local materials. ● Packaging and Packing house operations ● Transportation, storage of fruits and vegetables ● Postharvest diseases and disorders and their control ● Postharvest logistics for perishable crops ● Insect pests in postharvest products and their control ● Fruit and vegetable processing ● Marketing management for postharvest operations

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.	X		

Provide technical knowledge in small scale run off water harvesting, garden planning and designing fields for continuous vegetable production through irrigation	X	X	X
Designing and implementing low cost irrigation will be a secondary activity	X	X	
Develop training materials on tomato and mushroom post-harvest handling and value addition	X		
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"> ● To train 100 farmers in value-addition in fruits and vegetable processing, To form one farmer’s marketing group to market farmers processed products ● To establish a fully equipped processing plant with assistance from other development partners who shall supply the processing equipment.
Desired skills/expertise	<ul style="list-style-type: none"> ● Experience in fruit and vegetable preservation and processing of products like tomato sauce, pineapple jam, pineapple pulp and passion fruit squash. ● In general, we expect the graduate students to have skills in food processing, preservation, marketing and branding

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.	X		
Preparation of training material	X		
Lead trainer during the training of farmers in value addition and food processing but will be assisted by local food processing specialist		X	
Make a Training report at the end of the Training and outlining recommendations to project sustainability			X

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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"> ● To train 10 fruit farmers as trainers in mango and orange fruit processing

	<ul style="list-style-type: none"> ● To establish a value addition demonstration center ● To train 200 fruit farmers in mango/orange fruit processing
Desired skills/expertise	<ul style="list-style-type: none"> ● Proficient in mango/orange fruit juice, mango pulp and mango nectar processing ● Skilled and experienced in small-scale fruit processing and preservation techniques ● Knowledgeable and skilled in mango/orange juice, pulp and nectar preservation techniques ● A good understanding of small scale fruit value addition technologies and equipment ● Experience in adult training/learning ● Committed to help and work with smallholder farmers ● Good facilitation skills

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.	X		
Training plan for the ToT developed	X		
Training materials and manuals developed and sent to Teso Women staff for printing	X		
Pre-training and post training evaluation forms developed	X		

Guidance on appropriate technologies /equipment for the demonstration center provided	X		
Pre-training and post training questions administered to participants	X	X	
Initial presentation to the team of the training plan (outlines/list of activities, plan, approach, etc.) done	X		
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.		X	
Trainings and technical assistance delivered		X	
Establish meaningful relationships with the fruit farmers in Teso, ensuring that some of them are mentored and molded into fruit entrepreneurs.	X	X	X
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			X

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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"> ● To organise a practical training on the development and packaging of different agro-products from mangoes for 130 beneficiaries (50% women). ● To demonstrate to participants the utilisation of mango wastes for composting as a partial substitute of inorganic fertilisers.
Desired skills/expertise	<p>The U.S. Graduate Student will have the following qualifications and competencies:</p> <ul style="list-style-type: none"> ● Expertise in small scale fruit and vegetable processing and preservation, especially mangoes ● Experience and knowledge on utilization of fruit & vegetable wastes (composting), especially mango waste ● Knowledge in the usage and maintenance of food processing equipment ● Accommodate working with mixture of literate and illiterate farmers ● Intercultural and interpersonal skills (openness to other cultures)

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.	X		
Develop training materials on development, processing and packaging of different agro-products from mangoes	X		
Develop practical manual on possible utilisation of mango wastes	X		
Design survey questionnaire for evaluation of farmers before and after trainings	X		

Provision of guidelines on the choice of packaging materials for the respective agro-products.	X		
Technical knowledge on small scale processing of fruits and vegetables transferred	X	X	X
Lead the practical training on small scale processing of mango fruits		X	
Provide guidelines on the choice of packaging materials for the respective agro-products.		X	
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"> ● 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"; ● To improve smallholder incomes through reduction in post-harvest losses and collective marketing ● To link farmers to profitable markets through improved market information, business skills and improved shelf-life
Desired skills/expertise	<ul style="list-style-type: none"> ● Skills in small-scale postharvest handling, processing and storage for fruits and vegetables, including drying and packaging ● Good communication skills ● 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) ● Experience in leadership skills and business skills training (finance/accounting)

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 a baseline survey questionnaire and Monitoring and Evaluation (M&E) tracking tool	X		
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	X		

Developing printed plans with measurements clearly indicated, showing the different parts that can be fitted to make any of our technologies	X		
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	X		
Create a printed training manual on leadership skills and business skills	X		
Assist host organization in buying some training equipment from the US that are not in Uganda	X		
The student will be responsible for ~6-7 trainings while in country		X	
Providing or designing labels for the different dried and packaged products to make them competitive in the market			X
Continue helping on issues of improving farmer efficiency in management and construction of postharvest technologies – US student help will depend on farmer queries			X
US student will help in providing techniques for improving solar dried horticultural product quality			X

Other problems will be identified using our monitoring and evaluation toolkit and identified problems will be reported to the US student to find solution			X
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