Trellis Fund Student Application Directions

The Horticulture Innovation Lab Trellis Fund connects U.S. graduate students who have agricultural expertise with organizations in developing countries, generating benefits for both the students and the in-country institutions. Each Trellis student will be assigned to a single developing-world organization and will work with that organization to provide relevant, science-based information to address problems facing their beneficiaries.

Purpose

Organizations in developing countries identify a horticultural problem facing local farmers and propose a project to the Horticulture Innovation Lab's Trellis Fund. The Trellis Fund matches selected organizations with graduate students who have skills relevant to the proposed project. Each student then works with the funded organization to help the project connect with information and to reach their goals. In this way organizations are able to extend new ideas, information, and technologies to their communities, while graduate students gain hands-on experience in international development and applied research. Organizations and graduate students are encouraged to form long-term connections. Trellis Fund projects may address farmer issues related to irrigation, fertilization, other aspects of production, pest management, postharvest practices, nutrition, or marketing in relation to fruits, vegetables and high-value horticultural crops.

Project Descriptions

Please see p. 4 for descriptions of each available project. For this application cycle there are projects in the following countries:

- Ghana
- Kenya
- Uganda
- Cambodia
- Nepal

Award

Selected graduate students will be provided air travel, reimbursed for lodging, visas and vaccines, and provided a $300 fellowship upon completion of the project.

Eligibility

Graduate students from the Horticulture Innovation Lab's partner institutions are invited to participate: University of Florida, North Carolina State University, the University of Hawaiʻi at Mānoa, and the University of California, Davis. International student applicants must have a F1 visa to be eligible.

Obligations

- Coordinate work plan with organization in advance of travel. Conduct necessary background research.
- Travel to country of host organization and complete activities (1-2 weeks).
- Support organization via email and other electronic methods remotely before and after travel (for a minimum total 100 hours).
- Complete a required, weekly Trellis seminar course (Wednesdays, Jan 11 – Mar 15, 2017)
- Submit monthly electronic reports (simple updates) and a full trip report, which may be adapted for a blog post, to the Trellis Fund.
- Submit final report and documents to host organization and Trellis Fund.
- Complete an exit survey/interview and provide media from project.

Selection

U.S. graduate students will be selected based on how well their expertise reflects the needs of the approved projects.

Application Components

Please submit the following two documents to apply to the Trellis Fund. Documents may be submitted as either Microsoft Word documents or PDFs. These documents should be emailed as attachments to trellisfund@ucdavis.edu by **November 4, 2016.** Please use the e-mail subject line: "Trellis Application – [Your Last Name]."

Document 1: Basic Information and Statement of Interest

A) Basic Information:
➢ Full Name (first and last)
➢ University Name
➢ Field of Study
➢ Major Professor, Title, Department/Program, Email Address, Phone Number
➢ Other Reference, Title, Department/Program/Organization, Email Address, Phone Number
➢ Expected Graduation Date

B) Statement of Interest (300 words maximum):
For each project you are applying for, explain a) the reasons you are interested in the project and b) how your background fits the needs of the project.

Note that while your technical expertise is important to emphasize, we are also interested in qualities such as adaptability, communication skills, and cross-cultural experiences that would contribute to a successful project collaboration between the student and the organization.

You may apply for up to two projects. If applying for two projects, please put your first-ranked (preferred) project in the space for project 1 and your second-ranked project in the space for project 2, as below:

Project 1 Title:
Project 1 Basic Info/Statement

Project 2 Title:
Project 2 Basic Info/Statement

Document 2: Curriculum Vita:
Attach one CV as separate document.

Timeline

September 19, 2016	Student applications open
November 4, 2016	Student applications due
Late December, 2016	Student application notifications sent
Jan – March 2017	Students and organizations begin collaboration
March – Nov 2017	Students travel to their host country for 1-2 weeks and help implement the project with partner organization
By December 2017	All students have completed 100 hours of electronic support, exit interviews, and reports

Please contact us at trellisfund@ucdavis.edu if you have any questions about the application process or if you would like information on past participants from your university. You can also browse past Trellis projects on our website at http://horticulture.ucdavis.edu/main/trellis.html.

Sincerely,
The Horticulture Innovation Lab Trellis Fund Team
trellisfund@ucdavis.edu

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Trellis Fund Project Descriptions (Round 5)

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 nine new projects in the 2017 calendar year as part of the 5th 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.

[#1 CSIR-Crops Research Institute, Ghana](#)

[#2 NIRP, Uganda](#)

[#3 Green Shoots Foundation, Cambodia](#)

[#4 KEPHIS, Kenya](#)

[#5 MUCG, Ghana](#)

[#6 HPE, Nepal](#)

[#7 NaFORRI, Uganda](#)

[#8 CARD-Nepal, Nepal](#)

[#9 Growing Star Agri Ventures, Kenya](#)

#1 CSIR-Crops Research Institute, Ghana

Project Title: Improving tomato production in Ghana through good agronomic practices
Lead Organization: CSIR-Crops Research Institute, Ghana

Project Summary:
The Federation of National Tomato Growers Association (FNTGA) in Ghana would like to improve agronomic practices in order to meet the requirements of new markets. To assist with this goal, CSIR is seeking a graduate student to work with the organization to develop training and help set up a demonstration farm that will serve as a test garden. Training topics will include soil testing, quality seed handling, land preparation, nutrients and fertilizers, pest and disease prevention, nursing seedlings and/or other issues brought up by the tomato farmers.

Student's Main Activities:
- Design a simple questionnaire for survey to obtain information on tomato production and constraints
- Meet with farmers in-country, and participate and lead activities in a short training with farmers on two of the topics above, given prior research or knowledge
- Join the agricultural extension officer to collect and organize data and set up a field demonstration/experiment site on farmer's fields
- Follow up report writing, survey and experiment data publishing, and monitoring and evaluation

Desired Student Background
- Experience or understanding of growing tomatoes or a passion to work with tomato
- Good writing, reporting, and documentation skills

#2 NIRP, Uganda

Project Title: Enhancing postharvest handling methods and creation of market linkages for small holder fruit and vegetable farmers
Lead Organization: Ndibwami Integrated Rescue Project (NIRP), Uganda

Project Summary:
Fresh fruit and vegetable farmers in Masaka District, Uganda, have not been able to benefit from emerging, high-value markets due to poor postharvest methods and unsatisfactory product quality. To address this problem, NIRP plans to train farmers in modern postharvest handling techniques and help establish a value chain that improves access to better, more direct fruit and vegetable markets. The project also aims to establish farmer marketing groups and a postharvest demonstration plot. The focus crops are pineapple, passion fruit and tomato.

Student's Main Activities:
- Provide input on a postharvest training needs assessment, training tools, a training manual with 3 modules
- Provide technical support during one of the trainings, along with an expert and staff
- Create a monitoring & evaluation plan
- Compile a training report

Desired Student Background
- Expertise in pineapples, passion fruit and/or tomato
- Knowledge of postharvest handling techniques
- Experience with basic food processing, such as jam making

#3 Green Shoots Foundation, Cambodia

Project Title: Training of trainers for curriculum on water management, climate resiliency, and soil quality in school vegetable gardens

Lead Organization: Green Shoots Foundation (USA & UK) in partnership with Community-based Integrated Development Organization (CIDO), Cambodia

Project Summary:
As part of Green Shoot's vegetable garden project – an initiative to scale up agricultural skills education in public schools – local organization CIDO plans to train teachers from government run schools as garden facilitators to pass on training to students and parent-farmers. This capacity building project seeks a graduate student to advise CIDO on small-scale horticultural techniques, including water management for climate resiliency and soil quality. This project aims to have vegetable gardens in 42 schools, train 47 teachers, and reach out to 8,000 students and 180 farmers.

Student's Main Activities:
- Conduct a desk report on school garden operations to-date
- Review monitoring & evaluation protocol and provide recommendations on CIDO's project reporting
- Identify viable options for water resource management / irrigation, including cost-benefit analysis
- Train CIDO on water management & analysis, climate resilience and soil analysis
- Finalize a training curriculum for CIDO to use as a manual to train farmers.

Desired Student Background
- Knowledge of small-scale organic horticulture, preferably in Southeast Asia or other tropical climates
- Awareness of new techniques in water management in relation to climate change
- Knowledge of soil quality and general management of vegetable gardens

Project Title: Improving food production by adopting best pest management methods in Kajiado, Nyandarua and Kirinyaga counties
Lead Organization: Kenya Plant Health Inspectorate Service (KEPHIS)

Project Summary:
Tuta absoluta and potato cyst nematode are pests that threaten production of key crops in Kenya. This project aims to enhance the productivity of small farms through pest management of these pests particularly in tomato and potato growing regions. The project will include forums focused on identification and management, and aim to train farmers in sustainable methods such as traps, biological control, and quarantine.

Student's Main Activities:
- Create brochures and other training material for local farmers on the history, spread, affected crops, and management options for *Tuta absoluta* and potato cyst nematode
- Collect information from farmers on pests and diseases experienced, methods use, and challenges faced and conduct farm visits
- Conduct at least two farmer's trainings with staff
- Write a concluding report on a way forward on pest management for KEPHIS and other stakeholders

Desired Student Background
- Strong knowledge of agricultural pests
- Friendly, adaptable communication skills for effective presentations and ability to teach a variety of farmers, including those with little education
- Ability to interact with persons from diverse cultures
- Basic knowledge of Swahili

Project Title: Home-based processing and marketing of mango fruits in Wenchi Municipality
Lead Organization: Methodist University College Ghana (MUCG), Ghana

Project Summary:
Wenchi Mango farmers face enormous challenges including postharvest handling, value addition, and marketing. The overall aim of the project is to train farmers in postharvest handling of fruits and home-based processing of mangoes into juice and dried fruits. It is anticipated that farmers' knowledge on postharvest handling will be improved to reduce postharvest losses. The value-added mango products will increase farmers' profit margin and positively affect their family and community as a whole.

Student's Main Activities:
- Organize four days' workshop on postharvest of fruits for farmers, including developing training materials and other research.
- Conduct an oral presentation on the topic: *minimum cost innovations in value addition of fruits and vegetables.*
- Provision of some guidelines on home-based and small scale processing of fruits
- Additional information or guidelines on manufacturing of simple solar dryers.
- Conduct monitoring and evaluation, and review of project report.

Desired Student Background:
- Background in food science and/or postharvest technology
- Knowledge of minimum cost innovation in value addition of fruits

Project Title: Extending shelf-life and quality of vegetables through construction of cost-effective storage unit for marketing purpose
Lead Organization: Himalayan Pearl Enterprise (HPE), Nepal

Project Summary:
Poor infrastructure for storage is contributing to high waste of fruits and vegetables in Nepal. In the absence of appropriate storage technology, growers are compelled to sell their produce at low prices during harvesting period. The overall objective of this project is to develop efficient postharvest technologies for perishable agricultural produce in order to increase food availability and strengthen food security in the project area. This project focuses on a storage center to extend shelf life of perishable produce, and market linkages for the economic sustainability of marginalized farmers.

Student's Main Activities:
- Advise farmers on modern technology of storage and pest management at the time of storage, through training.
- Collect postharvest tools and demonstrate to farmers
- Prepare leaflets on various, appropriate postharvest practices in simple language
- Create pictorial diagrams for the construction of different storage spaces
- Update logical framework and monitoring and evaluation checklist

Desired Student Background:
- Knowledge of postharvest practices and technology
- Some experience in extension programs

Project Title: Mango fruit fly management information and practice
Lead Organization: National Forestry Resources Research Institute (NaFORRI), Uganda

Project Summary:
The fruit fly is the most serious pest of mangoes in Uganda affecting marketing of fresh fruits. NaFORRI is interested in the impact of indigenous agronomic practices on management of fruit fly in mango orchards. This project will look at current practices as well as conduct hands-on training workshops to enhance adaptive learning of integrated pest management skills, including orchard sanitation, traps, bags, and baited sprays, for mango farmers dealing with fruit flies.

Student's Main Activities:
- Establish three study plots with technicians to determine incidence of fruit fly attack of Bire mango fruits
- Create fact sheets on farmers' management practices for control of the fruit fly
- Develop training modules on fruit fly management for 6 trainings for 180 farmers
- Write a technical report on farmers' local means of fruit fly identification, control, pesticide composition, application and use.
- Develop monitoring and evaluation logical framework and refine with the organization

Desired Student Background:
- Expertise in mango phenology in the tropics and fruit fly reproductive cycle and management
- Knowledge of rural education and outreach
- Knowledge of experimental design
- Technical writing skills

Project Title: Integrated nutrient and pest management for improving sustainability of small-holder farming
Lead Organization: Center for Agricultural Research and Development (CARD-Nepal)

Project Summary:
Vegetable production in Chitwan, Nepal faces several challenges due to low subsistence inputs and lack of farmers' skill in adopting improved production technologies, including available nutrient and pest management practices. This project aims to train vegetable farmers on integrated nutrient and pest management practices in vegetable production. Soil nutrients will be tested, beneficial insects identified, and crop performance will be demonstrated and farmer-to-farmer training will be conducted.

Student's Main Activities:
- Design a key informant survey on knowledge, attitude, and practices of farmers at the beginning and end of project; summarize information in a publication to be used for local extension purposes
- Develop an extension handout/manual of integrated nutrient and pest management for local extension agents and other related specialists to educate farmers
- Prepare a poster of integrated crop management for field visits
- Assist with soil sample and beneficial insect test result interpretation
- Develop monitoring and evaluation with the organization

Desired Student Background:
- Expertise in entomology, pest management, or plant pathology preferred; or experience in soil science, agronomy or horticultural science
- Applied field-based agriculture experience
- Highly motivated, enthusiastic to share knowledge with limited-resource growers

Project Title: Increasing Irish potato productivity through traditional and mobile information extension
Lead Organization: Growing Star Agri Ventures, Kenya

Project Summary:
This project aims to increase productivity of potatoes per unit and reduce postharvest losses, thereby increasing farmer's income. The project will employ three approaches: 1) trainings; 2) demonstration plots, and 3) information dissemination via IEC materials and Short Message Service (SMS). The US Graduate student will participate in the development of SMS platform that can send and receive Short Messages via local and cloud-based telecommunication service providers. The student will also facilitate the design of pamphlets with information on potato production.

Student's Main Activities:
- Develop an SMS platform with feature guidance from the organization and share the platform for testing
- Develop SMS platform user manual and do field visits to witness use of the platform, give advice, and take notes for improvement
- Assist in customizing an open data kit platform to facilitate collection of data on potato farming progress at selected farmers' fields
- Assist where possible in designing a flier with information on good agricultural practices for potato production

Desired Student Background:
- Expertise in information technology, computer science or engineering
- Exposure to system design and development
- Knowledge of scripting languages, databases, and other complementary and supplementary elements in software development
- Easy going personality with an ability to fit into diverse culture; good communication skills