

Feed the Future Innovation Lab for Integrated Pest Management



Request for Concept Note

Vegetable Crops and Mango IPM in Asia

Calendar

Activity	Date
Issuance of request for concept note	March 31, 2015
Deadline for questions	April 10, 2015
Deadline for receipt of concept notes	May 15, 2015
Review and selection of concept notes for promotion to full proposals	June 5, 2015
Requests for full proposals sent	June 15, 2015
Deadline for submission of full proposal	July 10, 2015
Proposal winner announced	July 15, 2015

This request for concept notes is issued by Virginia Tech, the Management Entity of the Feed the Future Innovation Lab for Collaborative Research on Integrated Pest Management (IPM IL). The Virginia Tech IPM IL is funded by the U.S. Agency for International Development under cooperative agreement AID-OOA-L-15-00001. The Virginia Tech IPM IL management entity offices are located at the Office of International Research, Education and Development, Virginia Tech, 526 Prices Fork Road, Blacksburg, VA 24061. For additional information please contact Dr. R. Muniappan, IPM IL Director, 540-231-3516, Email: <rmuni@vt.edu> Website: <<http://www.oired.vt.edu/ipmil/>>



1. Background

The **Feed the Future (FtF) Innovation Lab for Integrated Pest Management (IPM IL)** is a USAID-funded program that supports Integrated Pest Management Research, technology transfer, and capacity building in relation to small-holder farming systems. Virginia Tech was awarded a five-year contract on November 25, 2014, to serve as the management entity of the IPM IL. The IPM IL will develop, implement, and scale up IPM packages for selected crops. USAID has requested, as part of the overall IPM IL program, an IPM project in Asia for vegetable crops (Bangladesh, Cambodia, and Nepal) and mango (Bangladesh).

The IPM IL is now inviting the submission of concept notes designed to develop a project on **Vegetable Crops and Mango IPM in Asia** through a process of technology development and large-scale transfer combined with human and institutional capacity building activities. Project activities may be proposed for 4.25 years (August 15, 2015, to November 16, 2019). Following evaluation of the concept notes, full proposals will be requested from a short list of applicants.

Crop losses due to pests (insects, diseases, weeds, nematodes, birds, and rodents) are a major constraint to alleviating poverty and improving nutrition in Asia. Most estimates of production and post-harvest losses due to pests range from 30 to 40 percent. Improper use of pesticides poses a serious threat to health and biodiversity. IPM is a decision support system that uses evidence-based information to reduce losses due to pests, minimize reliance on synthetic pesticides, and foster the long-term sustainability of agricultural systems.

Integrated Pest Management (IPM) is defined as a dynamic crop, location, and season specific program that combines all available compatible tactics that impart profit, safeguard environmental and human health, encompass cultural sensitivities, and ensure social acceptance. The previous IPM IL emphasized development of IPM packages for selected crops by addressing problems faced by the farmers from the time of planting the seed to the harvest by developing alternative technologies to the use of synthetic chemical pesticides. However, IPM IL does allow use of such pesticides when alternative technologies are not available.

Applicants are referred to the IPM IL website for additional information about the IPM IL:
<http://www.oired.vt.edu/ipmil>

2. Overview

The IPM IL invites the submission of a concept note from U.S. universities, CGIAR and AIRCA institutions, and host country research institutions that may lead to an invitation to submit a full proposal to lead the project on **Vegetable Crops and Mango IPM in Asia**. Some illustrative institutions for collaboration include: National Agricultural Research Institutes, Ministries of Agriculture, Winrock-led KISAN project in Nepal, Fintrac-led HARVEST project in Cambodia, and the Agricultural Value Chain project administered by DAI in Bangladesh. Appropriate technology transfer methods will be tested and applied through collaboration with national universities, departments of agriculture, national extension services, NGOs, and the private sector.

In Asia, farmers generally rely on insecticides to avoid crop loss. In the past ten years, insecticide usage in many countries has escalated, and misuse is becoming more abundant. Pesticide residue in horticultural crops is becoming a deep concern. IPM packages for horticultural crops need to be developed to reduce the use of pesticides, improve human and environmental health, enhance biodiversity, and increase productivity of soil and crops.

Bangladesh has made significant strides in boosting its economy and increasing incomes in the past decade, but 40% of its 162 million people still struggle with poverty and poor nutrition. Nepalese are highly affected by malnutrition especially in non-mountainous regions. The low consumption of fruit and fresh vegetables, which is highly dependent on local seasonal availability, contributes to nutritional disorders. In Cambodia, malnutrition and micronutrient deficiencies, such as vitamin A deficiency, iron deficiency, anemia, and iodine deficiency disorders are widespread among preschool-aged children and women. Evidence shows that malnutrition, even in its milder forms, increases the likelihood of mortality from a number of different diseases and can be associated with up to 56% of all childhood mortality.

The major vegetables grown in Bangladesh, Cambodia, and Nepal are similar and consist of tomato, eggplant, cabbage, cauliflower, beans, numerous cucurbits, onion, and okra. The IPM IL has worked in Bangladesh, Nepal, and Cambodia since 1998, 2005, and 2009 respectively. IPM packages have been developed for many of the crops listed above, especially in Bangladesh, with some in the validation phase. Mango is an important fruit crop in Bangladesh, and this project should develop IPM components for the pests and diseases of this crop and integrate them to form a package of practices.

The IPM IL Asia program will address pests of vegetable crops in commercial fields and home gardens in Cambodia, Nepal, and Bangladesh. The project will:

- a. Diagnose major fungal, bacterial, viral and other diseases; diagnose insect, mite, and nematode pests of the above crops; and develop alternative technologies where synthetic chemical pesticides are now used as the primary control tactic.
- b. Develop IPM technologies and packages for vegetable crops in Bangladesh, Cambodia, and Nepal and mango in Bangladesh.
- c. Implement specific activities that support USAID Mission objectives with respect to IPM on these crops. Research activities must be conducted at experiment stations and in farmers' fields with the use of appropriate statistical designs. The project must partner with relevant and appropriate host country organizations and may partner or significantly link with other U.S. universities, the CGIAR and AIRCA system, institutions in other countries, and development community partners. The project applicants should demonstrate links to and leverage from the work of other relevant projects to avoid unnecessary duplication.
- d. Transfer IPM technology to vegetable and mango producers through a dynamic technology transfer program.
- e. Plan and conduct economic and gender impact evaluations of the IPM technologies and packages.

3. Research and Activity Priorities

The overall IPM IL has four program objectives:

- Advance IPM science and develop IPM technologies, information, and systems for sound sustainable intensification;
- Improve IPM communication and education and the ability of the practitioners to manage knowledge that results in widespread adaptation, adoption, and impact of ecologically-based IPM technologies, practices and systems;
- Provide information and capacity building to reform and strengthen policies that influence pest management; and
- Develop and integrate sustainable resource-based local enterprises into national regional and global markets.

In order to accomplish these program objectives, the IPM IL activities for this sub-award will include:

- Identify and describe the technical factors affecting pest management;
- Identify and describe the social, economic, political, and institutional factors affecting pest management;
- Work with collaborating groups to design, test, evaluate, and disseminate appropriate participatory IPM technologies, packages, and strategies;
- Work with collaborating groups to promote training and information exchange on participatory IPM; and
- Work with collaborating groups to foster needed policy and institutional changes.

Key IPM outcomes will include:

- Advancement of ecologically-based participatory IPM science, with ecologically-based IPM technologies, information, and systems for managing key pests of vegetables in Asia.
- Improvement of IPM communication, increase in capacity of host-country scientific and outreach institutions, enhancement of ability of practitioners to manage IPM knowledge, and foster the widespread adoption of ecologically-based IPM technologies, practices, and systems, with measurable impacts.
- Sound economic analyses of all IPM technologies introduced.
- Sound ecological analyses i.e., intervention effects on beneficial microorganisms and other micro-flora, including how suggested interventions will improve yields and preserve environmental integrity over time.
- Increased capacity of national institutions to reform and strengthen policies that influence pest management.

The overall purpose of the **Vegetable Crops and Mango IPM in Asia** project will be to accomplish these objectives and achieve the key IPM outcomes for vegetable crops in Asia and mango in Bangladesh. Specific activities will include diagnosis of arthropods and fungal, bacterial, viral and other diseases; prioritization, development, and validation of IPM component technologies and packages; outreach and scaling up of IPM; and impact evaluation of IPM technologies on gender, income, and the environment. Favorable consideration will be given to activities that involve significant scaling up of existing successful technologies in addition to the development of new technologies. A portion of the budget may be

reserved for activities in support of areas identified through the IPM IL research sub-award competition. Such activities would necessarily be described after the sub-awardee is selected and that process will take place after the successful application is selected. To facilitate the development of sustainable IPM packages, a strong representation of entomology, plant pathology, weed science, agricultural economics, and gender is encouraged in the project.

The ability to build a research activity through strong partnerships between local universities, government, NGOs, and the private sector – in the Asian context – is required.

Proposed areas of inquiry include:

a. Role of IPM in Sustainable Intensification and Environmental Sustainability

‘Sustainable intensification’ refers to farming in ways that increase yields and reduce crop losses, so as to feed growing populations while substituting knowledge – and biologically-intensive as opposed to chemically-intensive – inputs where possible. Ecologically-based IPM practices such as biocontrol (natural enemy conservation and enhancement), pest-resistant varieties, and biopesticides can be used to manage pests and improve the quality of diets while preserving human health and the environment.

b. Adaptive research

Adaptive research is needed on key tactics related to biological control, host plant resistance, cultural practices, biopesticides, habitat management, and other IPM components. These tactics should be supported by an extensive insect, disease, and virus diagnostic component and by social, gender, and policy/regulatory analysis to create the necessary environment for IPM adoption. The adaptive research program should involve trials and demonstrations in farmers’ fields, and should be linked to communications, training, technical assistance, and educational programs to strengthen local capacity and accelerate and broaden adoption.

The project should be aligned and work closely with IARCs located in the same region, local NGOs and private industry and external organizations, e.g. APHIS/OPIS, universities, CABI’s Plantwise, GIZ, ACIAR, and PestNet. Targeted projects may be country-specific but should take into account regional and global needs. Institutions in strategic partner countries should be involved.

Training on the safe use of pesticides and pesticide application needs to be conducted. A PERSUAP should be prepared addressing pesticide issues related to vegetable production in each of these countries and mango production in Bangladesh.

c. Research on IPM Delivery Techniques

This project should a) leverage a variety of resources to extend IPM research results to farmers, b) conduct research to identify innovative means of transferring IPM knowledge cost-effectively to the masses, c) maximize user incentives for IPM adoption, and d) communicate IPM information regionally and broadly across countries. We encourage technology transfer through the involvement of value chain projects, private companies that produce agricultural inputs, and via supply chain dealers.

4. Capacity Building

The project should include human and institutional capacity development at both the scientist and institutional levels. Details regarding the number of trainees, disciplines, location of training, and efforts

to ensure gender parity of trainees, as well as the need for training of host country nationals, should be described in the concept note. Collaboration with host country universities is encouraged and may include curriculum development, academic support consistent with research programming, short courses, and other activities that support improved institutional capacity.

Outreach activities aimed at the end-user are required. These activities can occur via direct contact with end-users by project investigators or through third party organizations such as host country extension services, host country universities, NGOs (non-governmental organizations), and NARS (National Agricultural Research Systems). Use of mass media (radio, TV, newspapers), internet, cell phones, E-Readers, on-farm training, workshops and demonstration plots for technology dissemination and scaling up is encouraged.

5. Gender

The application must present a gender analysis that discusses important gender issues relevant to appropriate IPM research, development, and extension activities. The application must explain how gender considerations and equality issues will be integrated into the design, implementation, management, knowledge sharing, capacity building, and monitoring and evaluation of the overall project activities.

6. Impact assessment

An impact assessment study should be conducted. It should assess advancement of USAID-supported goals and strategic objectives, the agronomic, economic, and environmental needs of target beneficiaries, environmental sustainability, food security issues and development policies that increase whole farm profitability and productivity.

7. Project Design and Evaluation

The project must describe a results framework, including monitoring and evaluation, that is consistent with the overall objectives of the IPM IL supporting research, knowledge sharing, and capacity building in relation to small-holder farming systems and the ability to increase ecological intensification for the production of food.

The project must be in compliance with USAID's Environmental Compliance Procedures described in Title 22 of the Code of Federal Regulations, Part 216 (22 CFR 216 http://www.usaid.gov/our_work/environment/compliance/22cfr216) and provide evidence of compliance with all relevant financial accounting procedures, regulatory compliance, responsible conduct of research, and the U.S. Agricultural Terrorism Act of 2002.

8. Project Reporting

An annual work plan, budget, semiannual activity report summarizing results, impact analysis and results, trip reports, and research reports and summaries will be part of the reporting requirements. The IPM IL staff, USAID staff, and IPM IL technical advisory committee will review and provide feedback. Amendments or changes may be suggested during the annual review with respect to program and budget. Funding for the overall IPM IL budget, and hence for the subcontracts, is allocated on an annual basis. The project should have contingency plans in place for a 10% cut in funding to demonstrate abilities to achieve outcomes under an uncertain federal fiscal environment.

9. Concept Note Information

Eligibility

US universities as defined under Section 296 (d) of Title XII of the Foreign Assistance Act, CGIAR and AIRCA institutions, and host country institutions are eligible to apply as the lead institution for a period of 4.25 years. IPM IL will subcontract with the selected institution, which will then subcontract with collaborating organizations, at least one of which must include a U.S. university if not led by one. The institution making the application will be responsible for negotiating into sub-agreements with all collaborating organizations and for accounting to the Virginia Tech IPM IL Management Entity for all program accomplishments, expenditures, and reporting requirements. The concept note should identify the nature of any collaboration, the distribution of labor and activities between collaborating organizations, and the budget allocations among collaborating organizations.

The IPM IL strongly encourages concept notes from, or for concept notes to include, qualified Minority Serving Institutions. These include, but are not limited to, Historically Black Colleges and Universities, Predominantly Black Institutions, Hispanic Serving Institutions, Tribal Colleges and Universities, and Asian American, Native Alaskan and Pacific Islander Serving Institutions.

Importance of Human Resource and Institutional Capacity Development

Human and institutional capacity development (HICD) is a core objective, and concept notes should indicate how this will be strengthened. There should be a demonstration of meaningful collaboration in research and training between a lead institution and one or more host country institutions (public research institutions, universities, NGOs, etc.). Other partners such as U.S. universities and public and private sector research institutions (CGIAR, AIRCA, International agencies etc.) may also be subcontracted. Collaboration with multiple host country institutions is encouraged.

Project Funding, Budget Guidelines, and Cost Sharing

Approximately US\$ 2.75 million is available through November 16, 2019, for the project. The concept note must contain a summary budget with projects and subcontracts clearly delineated using the [budget template](#). Applicants are required to provide non-federal cost sharing that equals or exceeds any overhead earned on host country sub-awards. Favorable consideration will be given to proposals that further leverage consortium funding. At least 50% of the proposed budget should be spent to support in-country activities. Travel costs for host and U.S. scientists should be included and explained.

Format and Evaluation of Concept Notes

Concept notes must be in English with narrative portions prepared in MS Word with Times New Roman font size 11 and 1.15 line spacing. The summary budget tables must be prepared in Microsoft Excel utilizing the [attached template](#). Page size should be 8 ½ x 11” with 1” margins. Table 2 lists the guidelines for submission of concept notes.

Table 2. Guideline for submission.

Component	Description
Title Page	Title; name, institution address, email, phone, and fax for lead PI at lead institution; list members, total project budget, timeframe, and funds requested from IPM IL.
Executive Summary	Maximum one page
Narrative Description	Describes the project membership with clearly identified roles and responsibilities of all members. Focal topics and geographic areas, IPM components and packages, and research needs should be clearly articulated. Barriers to adoption of IPM components and strategies to overcome them should be identified. Opportunities for supporting research sub-award projects, capacity building, knowledge sharing, and strategies for addressing gender issues should be described. Provide a management and staffing plan.
Anticipated Results	Provide a narrative description referring to the results framework with clear indicators of measuring project results.
Expected Impacts	Describe expected impacts and how they will be measured.
Activity Plan	Provide a timeline of activities over the 4.25-year life of the project
Budget	Provide a summary budget sheet and for the project lead institution and all project members that will receive funding. The format specified by IPM IL must be used.
Budget Justification	Provide a one-page justification/explanation of budget expenditures.
References	List references used in the concept note narrative
PI Qualifications	In one page, provide a description of the qualifications of the PI at the project lead institution and for all relevant members in the project.
Curricula Vitae	Provide the CV for each PI/collaborator whose participation is described in the concept note.

Page length and order of sections

The total page length of the concept note, excluding title page, one-page summary budget, one-page budget justification, reference list, PI qualifications, and CVs, is 6 pages. Assemble all sections of the concept note into a single file and convert to a single pdf file for submission. The sections should appear in the following order: 1) title page, 2) executive summary, 3) narrative description, 4) anticipated results, 5) expected impacts, 6) activity plan, 7) budget, 8) budget justification, 9) references, 10) PI qualifications, and 11) relevant CVs.

10. Selection Process

An independent Technical Advisory Committee will review and score all proposals according to the following criteria (Table 3). Input may be sought from ad hoc reviewers, host country institutions, USAID Missions, and other relevant development organizations in making the final selection.

Table 3. Criteria used for the evaluation of concept notes

Criteria	Weight
Technical Merit, Including Management and Staffing	30%
Alignment with Target Country Research Priorities, IPM IL Goals and Objectives	20%
Knowledge Sharing and Outreach Activities	10%
Human and Institutional Capacity Development	10%
Gender programming	10%
Monitoring and Evaluation Activities	10%
Past Performance	10%

11. Submission of concept notes

Questions pertaining to concept notes should be sent to Dr. R. Muniappan, email: rmuni@vt.edu by 11:59 pm Eastern Time on April 10, 2015.

Concept notes should be submitted to Dr. R. Muniappan, email: rmuni@vt.edu by 11:59 pm Eastern Time on May 15, 2015.